



राष्ट्रसंत तुकडोजी महाराज नागपूर विद्यापीठ

“ (सेंट्रल प्रोव्हिन्सेस शासन शिक्षण विभागाची अधिसूचना क्रमांक ५१३ दिनांक १ ऑगस्ट, १९२३ द्वारा स्थापित व महाराष्ट्र विद्यापीठ अधिनियम, १९९४ द्वारा संचालित राज्य विद्यापीठ) ”

(विद्या विभाग)

छत्रपती शिवाजी महाराज प्रशासकीय परिसर, रविन्द्रनाथ टागोर मार्ग, नागपूर — ४४० ००१.

दूरध्वनी क्रमांक: कार्यालय: ०७१२-२५३२०६३ फॅक्स : ०७१२-२५५५७०१

क्रमांक/रातुमनावि/विद्या/ ६०३

दिनांक: १६/०९/ २०१५

दुरुस्तीपत्रक

आपणांस कळविण्यात येते की, दिनांक १९/१२/२०१३ रोजी संपन्न झालेल्या गृहविज्ञान विद्याशाखेने तसेच दिनांक १३/०५/२०१४ रोजी संपन्न झालेल्या विद्वत परिषदेने मान्यता दिलेल्यानुसार अधिसूचना क्र.१९६ दिनांक १८ जुन, २०१४ रोजी अभ्यासक्रमिकेसह विद्यापीठाच्या संकेतस्थळावर उपलब्ध करून देण्यात आलेली आहे. परंतु सदर अभ्यासक्रमिकेत मा. अधिष्ठाता, गृहविज्ञान विद्याशाखा व मा. अध्यक्ष, फुड अँड न्युट्रिशन अभ्यासमंडळ यांनी सदर अभ्यासक्रमिकेच्या तृतीय वर्षातील पेपर ७ मध्ये किरकोळ सुधारणा केलेली असून सुधारीत अभ्यासक्रमिकेची प्रत विद्यापीठाच्या संकेतस्थळावर उपलब्ध करून दिलेली आहे. तरी संबंधितांनी याची नोंद घेवून त्याप्रमाणे पुढील कार्यवाही घ्यावी

स्वाक्षरीत/—

(डॉ. अशोक गोमाशे)

कुलसचिव

राष्ट्रसंत तुकडोजी महाराज
नागपूर विद्यापीठ, नागपूर.

प्रतिलिपी माहिती व पुढील कार्यवाहीसाठी अग्रेषित:

१. गृहविज्ञान महाविद्यालयाचे सर्व प्राचार्य/संचालक,
२. अध्यक्ष, गृहविज्ञान अभ्यासमंडळ,
३. मा. अधिष्ठाता, गृहविज्ञान विद्याशाखा,
४. मा. परिक्षा नियंत्रक,
५. उपकुलसचिव (परिक्षा,पुर्व व परिक्षा उपरांत),
६. सहायक कुलसचिव (सामान्य परिक्षा),
७. सहायक कुलसचिव (गोपनीय),
८. सहायक कुलसचिव (व्यावसायिक परिक्षा
९. अधीक्षक (निकाल विभाग),
१०. प्रभारी अधिकारी (प्रकाशन विभाग),
११. स्वीय सहाय्यक, मा. कुलगुरूचे कार्यालय
१२. स्वीय सहाय्यक, मा. प्र- कुलगुरूचे कार्यालय
१३. श्रीमती विना प्रकाशे, माहितीशास्त्रज्ञ,

राष्ट्रसंत तुकडोजी महाराज
नागपूर विद्यापीठ, नागपूर.

स्वाक्षरीत/—

(पुरणचंद्र मेश्राम)

उपलसचिव (विद्या)

राष्ट्रसंत तुकडोजी महाराज
नागपूर विद्यापीठ



RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY

DIRECTION NO.20 OF 2014

(Direction issued under Section 14(8) of Maharashtra Universities Act, 1994 relating to award of degree of Bachelor of Science (Home Science) under the faculty of Home Science.)

WHEREAS the Maharashtra Universities Act No.XXXV of 1994 has come into force with effect from 22nd July, 1994.

AND

WHEREAS the amendment to the said Act came to be effected from academic session 2014-2015.

AND

WHEREAS the Boards of Studies in Food and Nutrition, Textile & Clothing Extension Education, Family Resource Management and Human Development has accepted the syllabus along with the scheme of examination for Bachelor of Home Science in the faculty of Home Science, prepared by experts nominated by Dean of the Faculty of Home Science at their meeting held on **11/12/2013**.

AND

WHEREAS the syllabus along with the scheme of examination for Bachelor of Home Science in the faculty of Home Science, has accepted by the Faculty of Home Science at their faculty meeting held on **19/12/2013**.

AND

WHEREAS the syllabus along with Draft direction and the scheme of examination for Bachelor of Home Science, has been approved by Academic Council in its meeting held on **13/05/2014** vide its item no.2.

AND

WHEREAS it is expedient to provide an Direction for the purposes of prescribing examinations leading to the Degree of B.Sc. (Home Science) in the Faculty of Home Science and phasic repeal of Ordinance No.23 of 2010 governing the existing course and scheme of examinations leading to said degree.

AND

Whereas the Hon'ble Vice-Chancellor has accepted the syllabus along with draft direction on the behalf of Management Council on 3rd June 2014 under section 14(7) of Maharashtra University Act 1994.

AND

Now, therefore, I, **Shri Anoop Kumar**, Vice-Chancellor, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur in exercise of the powers vested in me under Section 14(7) of the Maharashtra Universities Act of 1994, do hereby issue the following Direction:

1. This Direction shall be called, "Direction governing Examinations leading to the Bachelor of Science (Home Science) in the Faculty of Home Science, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur".
2. The following shall be the examinations leading to the Degree of Bachelor of Science (Home Science), namely –
 - (i) The B.Sc. (Home Science) Part-I Examination
 - (ii) The B.Sc. (Home Science) Part-II Examination and
 - (iii) The B.Sc. (Home Science) Final Examination
3. The duration of the Degree Course under this Direction shall be of three academic years with the B.Sc. (Home Science) Part-I Examination at the end of the first academic year; the B.Sc. (Home Science) Part-II Examination at the end of the second academic year and the B.Sc. (Home Science) Final Examination at the end of the third academic year.
4. The examinations specified in the preceding Paragraph shall be held twice in a year at such places and on such dates as may be appointed by the Academic Council.
5. Subject to her compliance with the provisions of this Direction and of other Ordinances in force from time to time, a candidate for admission to the examination shall :-
 - (A) In the case of B.Sc. (Home Science) Part-I

- (i) have passed the XII standard Examination of Maharashtra State Board of Secondary & Higher Secondary Education or an examination recognized as equivalent thereto under the following faculties - Science / Home Science / Commerce / MCVC / Arts with English (Higher or Lower)

OR

- (ii) have passed the XII standard Examination of Maharashtra State Board of Secondary & Higher Secondary Education with (i) English (ii) any other language & (iii) Vocational Subject (Paper I, II & III)

OR

- (iii) have passed an examination of a Council or Board outside Maharashtra State recognized by the University as equivalent to subpara's (i) & (ii) above; and shall have prosecuted a regular course of study for not less than one academic year in a college.

(B) In the case of B.Sc. (Home Science) Part-II

- (i) have passed the B.Sc. (Home Science) Part-I Examination of the University with English as one of the subjects of passing or an examination recognized as equivalent thereto;

(C) in the case of B.Sc. (Home Science) Part-III

- (i) have passed the B.Sc. (Home Science) Part-I and Part-II Examination of the University or examination recognized as equivalent thereto.

- 6. Without prejudice to the other provisions of Ordinance No.6 relating to the Examinations in General, the provisions of Paragraphs 5, 7, 8, 10 and 31 of the said Ordinance shall apply to every collegiate candidate.
- 7. The fees for the examination shall be as prescribed by the Management Council from time to time and whenever any change is made in the fees prescribed for any particular examination that shall be notified through a notification for information of the examinees concerned.

8. Every candidate for B.Sc. (Home Science) Part-I Examination shall be examined in the following subjects:-

Sr. No.	Name of Subject	Paper Title
1	Food and Nutrition	Fundamentals of Food Science and Nutrition
2	Human Development	Fundamentals of Human Development
3	Textile and Clothing	Fundamentals of Textiles and Clothing
4	Family Resource Management	Fundamentals of Family Resource Management
5	Home Science Extension	Fundamentals of Home Science Extension
6	Household Biology	Ecology and Environment
7	Chemistry	Basic Chemistry
8	Physics	Applied Physics and Basic Computer
9	English	English and Communication Skills

9. Every candidate for B.Sc. (Home Science) Part-II Examination shall be examined in the following subjects:-

Sr. No.	Name of Subject	Paper Title
1	Food and Nutrition	Family and Community Nutrition
2	Human Development	Early Childhood Education and Adolescent Development
3	Textile and Clothing	Textile Designing and Printing
4	Family Resource Management	Interior Design and Decoration
5	Home Science Extension	Community Development Management
6	Applied Physiology (Household Biology)	Applied Physiology
7	Chemistry	Applied Chemistry
8	Physics	Applied Physics and Computer Applications

10. Every candidate for B.Sc. (Home Science) Part-III Examination shall be examined in the following subjects:-

Sr. No.	Name of Subject	Paper Title
1	Food and Nutrition	Diet Therapy
2	Human Development	Family Dynamics and Developmental Assessment
3	Textile and Clothing	Advanced Pattern Making and Fashion Designing
4	Family Resource Management	Advanced Resource Management
5	Home Science Extension	Extension Communication Techniques
6	Household Biology	Public Health and Epidemiology
7	Nutritional Biochemistry	Nutritional Biochemistry

11. Eligibility for Teaching Subjects in Home Science Faculty as per University Grants Commission Norms.

Sr. No.	Name of Subject	Eligibility
1	Food and Nutrition	Post Graduation in Home Science or Concerned Subject
2	Human Development	
3	Textile and Clothing	
4	Family Resource Management	
5	Home Science Extension	
6	Household Biology &	Post Graduation in Life Sciences (Zoology,

	Applied Physiology	Botany, Biochemistry, Microbiology) and Medical Sciences
7	Chemistry	Post Graduation in Chemistry
8	Physics	Post Graduation in Physics
9	English	Post Graduation in English
10	Nutritional Biochemistry	Post Graduation in Food and Nutrition, Biochemistry, Life Sciences, Chemistry,

12. (i) The scope of the Subjects shall be as indicated in the Syllabus.
(ii) Medium of instruction shall be English, Marathi, or Hindi.
(iii) Examination papers shall be set in English, Marathi, and Hindi.
13. In order to pass the examination, an examinee shall obtain in each subject not less than the minimum marks as indicated in the Appendices A, B and C for the B.Sc. (Home Science) Part-I, II and Final Examinations, respectively.
14. There shall be no classification of examinees successful at the B.Sc. (Home Science) Parts-I and II Examinations.
15. Examinees successful at the B.Sc. (Home Science) Final Examination. Obtaining not less than 60% marks in the aggregate shall be placed in the First Division; those obtaining less than 60% but not less than 45% in the Second Division, and all other successful examinees in the Third Division.

Explanation : Division at the B.Sc. (Home Science) Final Examination shall be declared on the basis of the marks obtained at the B.Sc. (Home Science) Part-I, II and Final Examination taken together.

16. Provisions of Ordinance No.7-A relating to the Condonation of Deficiency of Marks for Passing an Examination and of Ordinance No.10 relating to Exemptions and Compartments shall apply to the Examinations under this Ordinance.
17. The names of the examinees passing the examination as a whole in the minimum prescribed period and obtaining the prescribed number of places in the First or Second Division shall be arranged in Order of Merit as provided in the Examination in General Ordinance No.6.
18. Notwithstanding anything to the contrary in this Ordinance, no person shall be admitted to this examination, if she has already passed the same examination or an equivalent examination of any other Statutory University.
19. Successful examinees at the B.Sc. (Home Science) Part-I and B.Sc. (Home Science) Part-II Examinations shall be entitled to receive a Certificate signed by the Registrar and successful examinees at the B.Sc. (Home Science) Final Examination shall on payment of the prescribed fees, receive a degree in the prescribed form, signed by the Vice-Chancellor.
20. The above syllabus leads to the approved sanctioned workload of 129 periods, which includes 85 periods to Home Science Subjects, 40 periods of Science subjects Including Biochemistry and 04 periods for English subject.
21. The Ordinance No.23 of 2010 governing the Examination leading to the award of Bachelor of Science (Home Science) in the Faculty of Home Science shall stand repealed in a phasic manner.

22. I, further direct that the aforesaid Direction shall come into force from the date of its issuance and shall remain in force from the relevant ordinance comes into being, in accordance with the governing provisions of the M.U. Act, 1994.

NAGPUR

Date :

(Anoop Kumar)
VICE-CHANCELLOR

APPENDIX - A

B.Sc.-I (Home Science)

Sr. No.	Subject/Paper	Theory	Practical	Total Marks	Total Period Per Week		
					Theory	Practical	Total Workload
1	Fundamentals of Food Science and Nutrition	70	30	100	2	3	5
2	Fundamentals of Human Development	70	30	100	2	3	5
3	Fundamentals of Textiles and Clothing	70	30	100	2	3	5
4	Fundamentals of Family Resource Management	70	30	100	2	3	5
5	Fundamentals of Home Science Extension	70	30	100	2	3	5
6	Ecology and Environment	50	25	75	2	3	5
7	Basic Chemistry	50	25	75	2	2	4
8	Applied Physics and Basic Computers	50	25	75	2	2	4
9	English and Communication Skills	70	30	100	4	0	4
	Total	570	255	825	20	22	42

Notes:

1. Passing Marks 35% for all Theory papers and 50% marks for Practicals/Sessional.
2. The marks for Practical shall be allotted by Internal and External examiner together and Sessional Marks to be given by Internal but the articles prepared or reports to be presented before the External examiner and marks to be finalized.
3. For all Practicals the batch will be of 16 students.
4. All theory and practical examination are of 3 Hours duration.
5. The Practical examination shall be of 20 marks and the Sessional of 10 marks for all the Home Science subjects (Sr. No. 1 to 5). Break up of marks shall be Practical examination -15 marks, Record Book - 5 marks, Sessional -10 marks.
6. The Practical examination shall be of 25 marks for all the Science subjects (Sr. No. 6 to 8). Breakup of marks shall be Practical examination -15 marks, Record Book - 5 marks, viva - 5 marks
7. The Sessional marks of English and Communication Skills shall be 30.

APPENDIX - B

B.Sc.-II (Home Science)

Sr. No.	Subject/Paper	Theory	Practical	Total Marks	Total Period Per Week		
					Theory	Practical	Total Workload
1	Family and Community Nutrition	70	30	100	3	3	6
2	Early Childhood Education and Adolescent Development	70	30	100	3	3	6
3	Textile Designing and Printing	70	30	100	3	3	6
4	Interior Design and Decoration	70	30	100	3	3	6
5	Community Development Management	70	30	100	3	3	6
6	Applied Physiology	50	25	75	2	3	5
7	Applied Chemistry	50	25	75	2	3	5
8	Applied Physics and Computer Applications	50	25	75	2	3	5
	Total	500	225	725	21	24	45

Notes:

1. Passing Marks 35% for all Theory papers and 50% marks for Practicals/Sessional.
2. The marks for Practical shall be allotted by Internal and External examiner together and Sessional Marks to be given by Internal but the articles prepared or reports to be presented before the External examiner and marks to be finalized.
3. For all Practicals the batch will be of 16 students.
4. All theory and practical examination are of 3 Hours duration.
5. The Practical examination shall be of 20 marks and the Sessional of 10 marks for all the Home Science subjects (Sr. No. 1 to 5). Break up of marks shall be Practical examination -15 marks, Record Book - 5 marks, Sessional -10 marks.

6. The Practical examination shall be of 25 marks for all the Science subjects (Sr. No. 6 to 8). Breakup of marks shall be Practical examination -15 marks, Record Book-5 marks. Viva – 5 Marks.

APPENDIX - C **B.Sc.-III (Home Science)**

Sr. No.	Subject	Theory	Practical	Total Marks	Total Period Per Week		
					Theory	Practical	Total Workload
1	Diet Therapy	70	30	100	3	3	6
2	Family Dynamics and Developmental Assessment	70	30	100	3	3	6
3	Advanced Pattern Making and Fashion Designing	70	30	100	3	3	6
4	Advanced Resource Management	70	30	100	3	3	6
5	Extension Communication Techniques	70	30	100	3	3	6
6	Public Health and Epidemiology	50	25	75	3	3	6
7	Nutritional Biochemistry	50	25	75	3	3	6
	Total	450	200	650	21	21	42

Notes:

1. Passing Marks 35% for all Theory papers and 50% marks for Practicals / Sessional.
2. The marks for Practical shall be allotted by Internal and External examiner together and Sessional Marks to be given by Internal but the articles prepared or reports to be presented before the External examiner and marks to be finalized.
3. For all Practicals the batch will be of 16 students.
4. All theory and practical examination are of 3 Hours duration.
5. The Practical examination shall be of 20 marks and the Sessional of 10 marks for all the Home Science subjects (Sr. No. 1 to 5). Break up of 20 marks shall be Practical examination – 15 marks, Record Book – 5 Marks.
6. The Practical examination shall be of 25 marks for all the Science subjects (Sr. No. 6 to 7). Break up of marks shall be Practical examination - 15 marks, Record Book - 5 marks. Viva – 5 Marks.

B.Sc. (Home Science)

Part – I

Programme of Study

B.Sc. HOME SCIENCE PART-I
SUBJECT: FOOD AND NUTRITION
PAPER-I
Fundamentals of Food Science and Nutrition

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVES:

1. To promote basic knowledge pertaining to various food groups and nutrients.
2. To relate the composition of foods to their various properties.
3. To promote understanding of common nutritional disorders due to the deficiency of nutrients.

COURSE CONTENT

THEORY

UNIT-I

Food Groups, Nutrients and Balanced Diets.

1. Food as a source of nutrient: Functions of food, its relation to health, physical development and well-being.
2. Basic Food Groups: Characteristics of basic food groups and their contribution to the diet.
3. Nutrients and their types. (Macronutrient/Micronutrient)
4. Balanced Diet:- Concept of a balanced diet, RDA;
5. Specific dynamic action of foods (SDA), Protein sparing action of Carbohydrates.
6. Definition of Nutrition. Scope of Nutrition.

UNIT-II

Macro Nutrients:

- Nutrients:**
- a) Definition and Classification
 - b) Functions and Sources
 - c) Role in the diet
 - d) Digestion and Absorption
 - e) Deficiency States of the following macronutrients:
 1. **Proteins.** (Quality, essential and nonessential amino acids)
 2. **Carbohydrates** (Simple: Sugars, Complex: Starch, Fibre).
 3. **Fats.** (Saturated, Unsaturated fats, essential and nonessential fatty acids)

UNIT-III

Micro Nutrients:

1. Nutrients: Micronutrients: 1. Minerals 2. Vitamins

- Minerals:** Functions, Sources and Deficiency of:
- a) Major Minerals: 1) Calcium 2) Phosphorous 3) Iron 4) Iodine,
 - b) Trace elements: 1) Sodium 2) Potassium 3) Magnesium 4) Copper 5) Zinc
6) Cobalt 7) Chlorine

- Vitamins:** Functions, Sources and Deficiency of:
- a) Water soluble vitamins:** Vitamin C and Vitamin B complex :
- | | | |
|---------------------------------------|----------------------------------|---------------------------------------|
| i) Thiamine (B ₁) | ii) Riboflavin (B ₂) | iii) Nicotinic acid (B ₃) |
| iv) Pyridoxine (B ₆) | v) Pantothenic acid | vi) Biotin |
| vii) Choline | viii) Inositol | ix) Folic acid |
| x) Cyanocobalamine (B ₁₂) | | |
- b) Fat Soluble Vitamins:**
- | | | | |
|--------------|---------------|----------------|----------------|
| i) Vitamin A | ii) Vitamin D | iii) Vitamin E | iv) Vitamin K. |
|--------------|---------------|----------------|----------------|

UNIT IV

1. Water: Functions of water in human body, water balance, sources of water to the body, effect of dehydration and its prevention.
2. Objectives of cooking food and cooking methods: a) Different cooking methods, different cooking media, b) Effect of different methods of cooking on nutritive value of foods.
3. Definition and Factors affecting BMR. Units of Energy. Energy measurement of food (Bomb calorimeter).

PRACTICAL

1. Food Presentation and Table setting
2. Preparation of Ingredients: Pre-preparation, Methods of mixing. Methods of cooking.
3. Simple cooking-preparation, serving, calculation of cost and yield.
 - a) Appetisers : Soups (any 2)
 - b) Starters : a) Paneer Preparation b) Samosa c) Kabab d) Cutlets (any 2)
 - c) Salad : a) Sprouted b) Vegetable c) Fruits (any 2)
 - d) Raita (any 2)
 - e) Cereals-Plain Rice, Pulao, Sweet Rice Masale Bhat. (any 2)
 - f) Chapati, Puri, Paratha, Missi Roti, Puran Poli, Bhakri. (any 2)
 - g) Pulses Preparation - Whole, Dehusk, Sprouted, (any 2)
 - h) Vegetable Preparation- Dry Curries, Baked, (any 2)
 - i) Fruit Preparation - Fresh, Dried Baked and Steamed, (any 2)
 - j) Milk Preparation - porridge, Desserts, Curds and Paneer Preparation (any 2)
 - k) Egg Preparation - Boiled, Fried, Poached And Custard, (any 2)
 - l) Desserts: Khova and milk Based. (any 2)

INTERNAL ASSESSMENT

Any one of the following

- 1) Latest Kitchen appliances in the market-their use and upkeep. (any 5)
- 2) Scrap Book: related to food groups. Sources, Deficiencies of various nutrients.
- 3) Market Survey of the locally available food items (common cereals, pulses, green leafy vegetables) and their cost.
- 4) Finding out the cheaper sources of nutrients-calculating how much of the nutrients a rupee can buy from different sources.

BOOKS RECOMMENDED

- 1) Nutritive Value of Indian Foods: Gopalan C, Rama Shastri and Balasubramanin S.C., National Institute of Nutrition, 1993.
- 2) Food Science, Chemistry and Experimental Foods: Dr. M. Swaminathan, The Bangalore Printing and Publishing Co. Ltd. 1995.
- 3) Essentials of Food and Nutrition, Vol. I (Fundamentals aspects): Dr. Swaminathan, 2nd Edition, BAPPCO, 1985.
- 4) Applied Nutrition: R. Rajlaxmi Oxford and IBH Pub. Co. Pvt. Ltd., 3rd Edition, 1981.
- 5) Food and Nutrition: The Educational planning Group, Delhi, Arya Publishing House, 3rd Edition, 1991.
- 6) Food Chemistry: Meyer, L.H. CBS Publishers and Distributors, Delhi, 1987.
- 7) Scope Manual on Nutrition: Latham M.C. McGandy, McCann M.B. and Stare F J. Published by the Upjohn Co., Kalamazoo, Michigan, 2nd Edition. The Upjohn Co, Kalamazoo, Michigan 1972.
- 8) Every Day Indian Processed Foods: K.T. Achaya, National book Trust, India, 1984.
- 9) The Book of Ingredients: Philip Dowell and Adrian Bailey, Michael Joseph, Ltd. 1980.

B.Sc. HOME SCIENCE PART-I
SUBJECT: HUMAN DEVELOPMENT
PAPER-II
Fundamentals of Human Development

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVES:

1. To make students aware of human development, infancy and Creche Management.
2. To make students aware of Developmental Psychology of infants and babyhood.
3. To make students aware of creche and its functioning.

COURSE CONTENT:

THEORY

UNIT-I

Introduction

Human Development:

- Definition, meaning and scope, aspects. Developmental Periods.
- Understanding growth and development.
- General Principles of Growth and Development.
- Role of heredity and environment, maturation, genetic endowment and learning.
- Dimensions of Development - Physical, Motor, Cognitive, Language, Social-emotional, Moral and Personality.
- Rate of development and Developmental tasks.
- Prenatal Development - Fertilization, conception, stages, factors affecting prenatal development, birth processes, kinds of birth, hazards during prenatal development.

UNIT-II

Infancy and Toddler hood:

(0-2 yrs.)

- Neonate - an overview. Reflexes, APGAR Scale, adjustments of Neonate.
- Physical Development- Definition, height, weight, head circumference, changes in body proportion and structure.
- Motor Development- Common Motor Skills
- Language Development - Pre-speech forms of communication. Speech Skills.
- Cognitive-Development.
- Socio-emotional Development.
- Personality Development.

UNIT-III

Care during Infancy and Toddler hood

- Guidance in feeding, weaning, teething, toilet training, bathing, sleeping, health and immunization, development of senses.
- Role of caregiver in providing a safe environment for developing motor abilities.
- Significance of stimulation during infancy, Types of stimulation (visual, motor, auditory, language and tactile)
- Role of caregiver in enhancing Childs overall development (toys and activities related to developmental milestones)

UNIT-IV

Creche: Creche- Meaning, importance, salient features of a good Creche - Physical setup, staff, Programme Planning. Maintenance of records. Type of records.

Play: Meaning, Definition, Values, Characteristics, types and theories.

Discipline : Meaning, types, principles.

Personality: Meaning, Definition, factors influencing - heredity environment, (Parental styles), peer groups, social interaction, life events, early childhood experiences and support available in community.

COURSE CONTENT:

PRACTICAL

Max. Marks = 20

- Anthropometric measurement, Introduction.
Height, Weight, Head, Mid arm and chest
Circumference Relationship between the - Measurement of 5 children.
Measurements. Norms of 0 - 2 years.
How to take measurements?
- Learning and preparation of different activities for stimulation, tactile, auditory, motor, language, visual and. cognitive.
- Preparation of educational toys
 - a) Constructive
 - b) Matching / Sorting / Classifying
 - c) Simple mathematical
 - d) Any other
- Visit to a crèche. Planning a Programme of activities of one day for a crèche.

INTERNAL ASSESSMENT

- Preparation of work book on any two of the following
 - Immunization
 - Developmental milestones
 - Developmental Period
 - Aspects of development
 - Reflexes
 - Birth processes
 - Market Survey on toys
 - Caring Aspects

BOOKS RECOMMENDED:

- 1) Developmental Psychology - Elizabeth Hurlock, 5th Edition 1981, Tata McGraw Hill Publishing Co., New Delhi.
- 2) Human Development - Diane E. Papalia and Sally Wendkos olds, 5th Edition 1981, Tata McGraw Hill Publishing Co., New Delhi.
- 3) Child Psychology - Vatsayayan, 3rd Edition, Kedar Nath Ram Nath, Meerut.
- 4) Developmental Psychology - Vatsayayan, 3rd Edition Kedar Nath Ram Nath, Meerut.
- 5) Children in Creche - Alfred D Souza, Intellectual Publishing House, Delhi.

Fundamentals of Textiles and Clothing

Internal Assessment -10

1. To get acquainted with basic knowledge of textile fibres.
2. To acquire knowledge of various methods of yarn construction and blends.
3. To understand the principles of clothing construction and its applications.

1. Scope of textile and clothing.
2. Classification of textile fibres and general properties.
3. Manufacturing process, properties and uses of cellulose fiber (cotton), protein fibres (silk and wool), synthetic fibres (Nylon, Polyester, viscose rayon)

1. Yarns: Types of yarn- a) simple b) novelty c) textured yarn.
2. Spinning process: a) Mechanical spinning (Ring spinning and Open end spinning)
b) Chemical spinning (Wet, Dry, Melt)
3. Blends: Types of blends, different methods of blending, reasons for blending.

1. Selection of clothing for age, profession, climate and occasion.
2. Wardrobe planning.
3. Selection of fabric: Types of fabrics available in market (cotton, silk, wool, synthetic fabric)

1. General principles of clothing construction and importance of drafting and paper Pattern.
2. Taking body measurements for different types of garments.
3. Preparation of fabric for clothing construction layout of pattern in relation to design (stripes, plaids, checks, border)

1. Tools and equipment used in clothing construction, sewing machine and its parts, repair and maintenance of sewing machine.
2. Demonstration of taking body measurements.
3. Making samples of different types of
 - a. Seams: Plain, French, Lapped, Double channel, Welt seam.
 - b. Tucks: crossed tucks, pin tucks, cord tucks.
 - c. Pleats: Knife, box, inverted box.
 - d. Plackets: Continuous, simple, zipper.
 - e. Pockets: Any three types of simple pockets.
4. Garment:

- a. One Baby set- frock with bib and nappy. b. Petticoat / Baba suit / Apron
5. Different decorative stitches preparing samples.

INTERNAL ASSESSMENT

The Internal Assessment marks will be given on the following garments prepared during the academic year.

- a. One Baby set (frock with Bib and nappy)
- b. Petticoat / Baba Suit / Apron
- c. Making samples of different types of Seams, Tucks, Pleats, Plackets, Pockets.
- d. Preparing Album of different decorative stitches

BOOKS RECOMMENDED

1. Deulkar Durga - Household Textile and Laundry Work, Orient Longman, Delhi.
2. Dantyagi S. - Fundamentals of Textile and their care. Orient Longman, Delhi.
3. Dorling Kindersley- The complete Book of Sewing, London, New York.
4. Dorothy Siegart, Lyle-Modem Textiles, John Wiley and Sons.Inc New York .London
5. Doongaji. S and Deshpande R - Basic Process of Clothing Construction.
6. Erwin, Mabel and kinchen- Clothing for Modern ,Mac Milan publishing, New York.
7. Gohl EPG and Vilensky-Textile Science, CBS Publications Shahdra, Delhi.
8. Harlow-The Basic book of sewing, Octopus Books. Ltd.
9. Hess – Textile Fabric and their uses.
10. Joseph ML – Essentials of Textiles, Published by Holt, Winston, New York.
11. Potter MD and Corbman BP. Textiles: Fibres to Fabric. Published by McGraw Hill Inc., U.S.A.
12. Vastrashastra: Prof. Vimal Adhau Maharashtra vidhyapeeth granth nirmit mandalasathi - Vidhya Books, Aurangabad.
13. Vastravigyan avam Paridhan: Dr. Vrunda Singh Panchsheel Prakashan Jaipur.
14. Vastravigyan avam Paridhan: Dr.Pramila Verma Bihaar Hindi Granth Academy, Bhopal.
15. Vastra Shilp Vigyan : Vimla Sharma
16. Vastravigyan ke Mul Sidhant - Dr. G.P. Sheeri- Vinod Pustak Mandir Agra.

B.Sc. HOME SCIENCE PART - I

SUBJECT : FAMILY RESOURCE MANAGEMENT

PAPER –IV

Fundamentals of Family Resource Management

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVES

- 1) To develop good taste through the study of basic elements and principles of design
- 2) To develop aesthetic sense and to be good art consumer
- 3) To recognize the importance of wise use to resources in order to reach personal and family goals
- 4) To know motivating factors in management

UNIT-I Foundation of Arts and Design

1. **Introduction to foundation of Art**
a) Line b) Form c) Colour d) Texture e) Space f) Light g) Pattern.
2. **Design in current life style**
a) Aesthetic sense and importance b) Concept of design c) Objectives of design
i) Beauty ii) Functionalism iii) Expressiveness
3. **Types of Design**
a) Structural b) Decorative c) Naturalistic d) Stylized
e) Geometric f) Abstract g) Modern h) Traditional

UNIT-II Principles of Design in Interior

- a) Harmony;
 - i) Definition and Importance
 - ii) Harmony of line and shape
 - iii) Texture
 - iv) Idea
 - v) Colour
 - vi) Application in Interior Decorations
- b) Balance
 - i) Definition and Importance
 - ii) Types of balance; formal and informal
 - iii) Application in interior decoration
- c) Rhythm
 - i) Definition and Importance
 - ii) Methods of obtaining rhythm
 - iii) Application in interior decoration.
- d) Proportion ~
 - i) Definition and importance
 - ii) Decoration
 - iii) To gain interest through space relationship
 - iv) Importance of space
 - v) Application in interior decorations
- e) Emphasis
 - i) Definition and Importance
 - ii) What to emphasis
 - iii) How to emphasis
 - iv) How much to emphasize
 - v) Where to place emphasis?
 - vi) Application in Interior Decoration

UNIT-III Motivating Factors of Human Life

- a) Values
 - i) Definition
 - ii) Importance
 - iii) Classification - a) Intrinsic b) Instrumental c) Human needs value
- b) Goals
 - i) Definition
 - ii) Importance of goal setting
 - iii) Classification - Mean-end
 - iv) Short term
 - v) Intermediate
 - vi) Long term
- c) Standard
 - i) Definition
 - ii) Importance
 - iii) Classification - a) Conventional b) Flexible c) Qualitative d) Quantitative

UNIT-IV Resources of Decision Making

- a) Resources
 - i) Definition and Importance
 - ii) Role and Scope of Resources
 - iii) Classification and characteristics of Resources
- b) Decision making
 - i) Definition
 - ii) Role and scope of decision making
 - iii) Steps in decision making
 - iv) Kinds of decision making –
 - a) Individual
 - b) Group
 - c) Central/ satellite
 - d) Technical
 - e) Snap
 - f) Scientific decision

COURSE CONTENT :

PRACTICAL

Line Directions -

- a) Vertical b) Horizontal c) Zigzag d) Diagonal e) Curved

Types of Design

- Structural and Decorative
- Naturalistic and Stylized
- Geometric and Abstract.
- Modern and Traditional

Principles of Art

- Types of Balance
- Ways of Obtaining Rhythm

- Harmony of line and shape
- Proportion to produce change in appearance
- How to emphasize

INTERNAL ASSESSMENT:

Accessories for interior - any two

- | | | |
|------------------|-----------------|------------------|
| i) Candle making | ii) Bead Work | iii) Paper Mache |
| iv) Shell work | v) Macrame work | vi) Door Mats |

BOOKS RECOMMENDED:

- 1) Goldstein H. / Goldstein M V.- 'Art in everyday life" Modriuan Co., New York 4th Addition
- 2) Mann M - Home Management, Kalyani Publishers, New Delhi.
- 3) Rutt A - Home furnishing, Weley Eastern Pvt. Ltd.
- 4) Soundarraj's Text Book of Household Arts, Orient Long man, Bombay.

B.Sc. HOME SCIENCE PART -1 **SUBJECT : HOME SCIENCE EXTENSION** **PAPER-V** **Fundamentals of Home Science Extension**

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVES :

- 1) To understand meaning and need of Home Science Extension
- 2) To know the society in respect of social problems.
- 3) To gain the knowledge of social survey and motivation.
- 4) To know the variety of teaching aids for its utilization.
- 5) To understand the concept and contribution of leadership in society.

COURSE CONTENT

THEORY

UNIT-I

1) Extension Education:

Definition of education, types of education - Formal, informal, non-formal and adult education. Definition of extension education - objectives, principles, field, purpose of extension education and essential links in the chain of rural development.

2) Home Science Extension:

Meaning and definition of home science extension major fields of home science extension, philosophy of home science extension and variation between formal and Non-formal education.

UNIT-II

3) Sociological significance:

Definition of rural / urban society, importance of rural society, characteristics of rural society, rural social groups, classification of social groups and formal and informal institution rural society.

4) Social Problems:

Meaning and importance of social problems, problem of over population, problem of caste tension, problem of unemployment, problem of malnutrition and problem of poor health and sanitation.

UNIT-III

5) Social Survey in Research:

Meaning and importance of social survey, types of social survey, steps involved in social survey, variation between social survey and social research, tools of data collection - questionnaire, observation; interview and schedule, meaning of social research and its significance in the field of development

4) Extension Motivation:

Definition of motivation, classification of motives, importance of motivation in extension work, basic elements to motivate home-makers, techniques of motivation, role performance and qualities needed by extension worker in motivation of the people.

UNIT-IV

7) Leadership in Extension:

Definition of leader and leadership, existing pattern of rural leadership, methods of selecting local leaders for extension work, role of local leaders for extension work, traits desirable to local leaders and methods of leadership training.

8) Gender and Development:

Sex Ratio, Human Resource Development, index barriers to Womens access to inputs and services related to legal rights, employment and equal pay. National Policy on Women, Efforts by Department of Women and Child Development.

COURSE CONTENT	PRACTICALS	Max. Marks=20
1) Preparation and presentation of flannel cut-outs to provide effective communication to the group of learners.		
2) Framing of simple questionnaire for data collection to point out the household problems of the housewives.		
3) Preparation of charts.		
4) Handling and operation of camera for extension photography.		
5) Writing of a circular letter to communicate the message effectively to the masses.		

INTERNAL ASSESSMENT

- 1) Preparation of ten pages album on rural development activities
- 2) Preparation of extension bulletin or folder on home science aspects

BOOKS RECOMMENDED:

- 1) Directorate of Extension:- Extension Education in Community Development.
- 2) Supe S. V. - An Introduction to Extension Education - Oxford and IBM publishing company new Delhi and Kolkata 1999
- 3) Chandra A, Shah A and Joshi V.: Fundamental of Teaching Home Science, Sterling publishers. New Delhi. 1989
- 4) Devdas R. P. Methods of Teaching Home Science- National Council of Education, 1978
- 5) Singh K.: Rural Sociology - Prakashan Kendra Lucknow

B.Sc. HOME SCIENCE PART-I
SUBJECT : HOUSEHOLD BIOLOGY
Paper-VI
Ecology and Environment

Total Marks - 75
Theory - 50
Practical - 25

OBJECTIVES:

1. To get acquainted with the physical environment and its components.
2. To know plant nursery development.
3. To develop the concept of ecology and its components.

4. To study mushroom cultivation.
5. To know the methods to protect environment and conserve natural resources.

COURSE CONTENT: THEORY

UNIT-I: Ecology

Ecology - Definition, Ecosystem-Components, Types, Food Chain.
Detail Structure and function of Grassland and Pond Ecosystem.
Biogeochemical cycle- Oxygen cycle, Nitrogen cycle and Hydrological cycle.

UNIT-II: Environment and Pollution.

Elements of Environment (Atmosphere, Hydrosphere, Lithosphere).
Sources, Prevention and Control measures of Air, Water, Noise, Soil, Radioactive pollutions. Pollution control through various laws.

UNIT-III: Plant Nursery Development.

Nursery Development and Entrepreneurship and its Importance, preparation of Soil for nursery development. Various methods used in plant propagation for some garden plants. Plant propagation structures and equipments. Budding, Grafting and Layering (their methods, selection and certification) After care of budded and Grafted plant. Some common diseases and pest in garden plants and their control. Fertilizers used in Nursery Development.

UNIT-IV: Mushroom Cultivation

Introduction to Mushrooms, Types suitable for cultivation, preparation and culture of Spawns. Facilities required for cultivation of Oyster mushroom and its cultivation technique, Facilities required for cultivation of white button mushroom and its cultivation technique, facilities required for cultivation of paddy straw mushroom and its cultivation technique, Economics of mushroom cultivation as a small scale industry.

COURSE CONTENT: PRACTICALS

Total Marks-25

1. Study of Garden Implements and Accessories.
2. Potting.
3. Methods of Propagation
 - i) Budding
 - ii) Grafting
 - iii) Seeds of Garden plants (Few Varieties) or any other special method of propagation
4. Study and identification of common Garden plants and their importance in Landscaping.
5. Use of common Fungicide and Insecticides in Garden
6. To prepare Plan and Layout of a Garden.
7. Detection of Dissolved Oxygen in a given Water sample by Winkler's Method.
8. Detection of Dissolved CO₂ in given-water sample.
9. Detection of Hardness of given water sample.

BOOKS RECOMMENDED:

1. Introduction to landscape Design (Central Techno Publications, Nagpur) by Arch. Sunil S. Teye
2. Plant Propagation (New Age International Publisher) by M. K. Sadhu.
3. Mushrooms for Livelihood (Kalyani Publishers) by Dr. Vijaya Khader's.
4. Environmental Biology by P.O. Sharma
5. Ecology and Environment by P.O. Sharma.

SUBJECT : CHEMISTRY
PAPER-VII
Basic Chemistry

Total Marks - 75

Theory - 50

Practical - 25

COURSE CONTENT

THEORY

UNIT-I

- 1) **Water:** Sources, impurities, hard and soft water, hardness, disadvantages of hardness for domestic purpose, methods of purification of water for domestic purpose (Screening, sedimentation, coagulation, filtration, sterilization).
- 2) **Alloy:** Definition, purpose of making an alloy, composition and uses of stainless steel and brass.

UNIT-II

- 1) **Colloids:** Definition, types of colloidal systems, methods of preparation, properties (Tyndall Effect, Brownian Movement, Electrophoresis, Electro-osmosis) and applications. Emulsion and gel with their applications.
- 2) **Physical Properties of Liquids:** Surface tension (definition, determination of surface tension by Stalagmometer method). Viscosity (definition, determination by Ostwald's Viscometer).

UNIT-III

- 1) **Fuels:** Definition, classification, characteristics of good fuel, calorific value, composition and application of LPG, preparation of Gobar gas.
- 2) **Acid and base:** Arrhenius theory, Lowry and Bronsted Theory, Conjugate pair, pH scale. Buffer solution and its applications.

UNIT-IV

- 1) **Organic Compounds:** Definition, classification of organic compounds based on their structure and functional groups. IUPAC nomenclature of alkane, Laboratory preparation, chemical properties and uses of methane and ethylene.
- 2) **Corrosion:** Definition, atmospheric corrosion (Corrosion by oxidation and by other gases). Factors causing atmospheric corrosion, methods for protection of metals from corrosion (Galvanizing, tinning and electroplating).

COURSE CONTENT:

PRACTICAL

Max. Marks = 25

A) Volumetric analysis:

- 1) Acid-base double titration
- 2) Determination of total and permanent hardness of water by EDTA titration.

B) Physical Experiments

- 1) Determination of viscosity of given liquid by Ostwald's Viscometer.
- 2) Determination of Surface tension of given liquid by Stalagmometer.
- 3) Preparation of acidic and basic buffer.
- 4) Preparation of colloidal solution of starch.

Note: Educational visits to various factories and chemical laboratories at different places in India.

BOOK RECOMMENDED:

1. Text-Book of organic Chemistry: B; S. Bahl and G.D. Tuli, S. Chand Publication, New Delhi.
2. Text Book of Physical Chemistry: B.S. Bahl and G.D. Tuli, S. Chand Publication, New Delhi.
3. A Text Book of Engineering Chemistry, S.S. Dara and Suresh Umare, S. Chand Publication, New Delhi.
4. A Text Book of Basic and Applied Chemistry, P.C. Jain and Monica Jain.
5. Polymer Science by V.R. Gowarikar, Wiley Ester Ltd. 1987.

6. Text Book of Organic Chemistry by J. L. Finar, Longman Publication.

B.Sc. HOME SCIENCE PART-I
SUBJECT: PHYSICS
PAPER -VIII
Applied Physics and Basic Computer

Total Marks - 75

Theory - 50

Practical - 25

OBJECTIVES:

1. To provide basic concept in physics and computers.
2. To make them aware of Electric supply, safety considerations in electricity usage. Home appliances (Electrical and non-electrical)

UNIT-I

Measurements: Necessity of measurement of quantities, necessity of system of units. FPS, CGS, MKS and SI systems of units (Main features of each system of units and comparison of these systems of units). Concept of least count of a measuring instrument.

Concept and definition of fundamental and derived units. Units of length, mass, time; temperature, electric charge, potential difference, electric current, electrical resistance.

Definitions of the following derived units:

Area, volume, density, speed, velocity, momentum acceleration, force, work, pressure, kinetic energy potential energy and their units in CGS and SI systems-Definition of electric power (Wattage) and its unit in SI system

Concept of scalar and vector quantities with suitable examples (at least two examples viz. difference between distance and displacement, speed and velocity).

Circular motion:

Definition of uniform circular motion, concept, definition and examples of centripetal force and centrifugal force.

UNIT-II

Concept of electrical charge, electric current, potential difference and electric resistance, statement of Ohm's law (Here, it is expected that students are able to calculate any one parameter: electric current, potential difference (Voltage) or electrical resistance, if the other two are given. Such numerical should be solved by the students.) Laws of series and parallel combination of resistances (The mathematical statements and numerical problems based on these laws.)

Heat: Modes of heat transfer: Conduction, convection and radiation with examples (at least three each).

Principle of working, construction and working of (1) pressure cooker, (2) thermo flask, (3) solar cooker (Here it is expected that the application of different modes of heat transfer is discussed)

Working principle of a mercury thermometer. Construction and working of (1) laboratory thermometer, (2) Clinical thermometer.

Units of temperature: Fahrenheit, Celsius and Kelvin

Examples of good and bad conductors of heat (three each)

UNIT-III

Light : Concept of reflection and refraction of light, Concept and definition of refractive index of a material (Discussion of two definitions of refractive index of a material;

$$\text{i) } \mu = \frac{\sin i}{\sin r}$$

where μ is value of refractive index, i is angle of incidence, r is angle of refraction, and

$$\text{ii) } \mu = \frac{\text{real depth}}{\text{apparent depth}}$$

apparent depth

concept of transparent, opaque and translucent materials with three examples each.

Lenses: Concept of focus of lens, focal length of a lens. Convex lens and concave lens. Application of convex lens and concave lens, concept of power of lens and diopter.

X-rays: Properties (at least 10) and applications (at least five) of x-rays.

Definition of Radioactivity: Properties of α , β and γ rays (at least ten properties each). Applications of radioactivity (at least five)

Friction: Concept and definition of friction. Types of friction (Static friction, dynamic friction) friction as an advantage (at least five examples)

Measures to minimize undesired friction (eg. use of lubricants, washers, ball bearings etc.).

UNIT-IV

Number Systems

- i) Decimal, Binary, Octal, hexadecimal, conversion from one number system to another
- ii) Concept of bit, Byte, Kilobytes, Megabyte, Gigabyte.

2. Definition of Computer

- i) Types of computer
- ii) Characteristics of computers
- iii) Basic components (organization) of computer system
- iv) The functions of each unit. Block diagram of a computer

3. Concept of Hardware and Software

Concept of OS (Operating system)

Definition and importance of DOS; loading DOS,

Some important feature of DOS

Study of following DOS commands: Internal and External.

Batch files

COURSE CONTENT:

PRACTICALS

Max. Marks = 25

1. Use of Vernier calipers to determine (Length, diameter etc.) of a given object.
2. Use of Screw gauge to determine dimensions (thickness, diameter etc.) of a given object.
3. Comparison of measurement with scale, calipers and screw gauge.
4. Determination of density of solid (Cubic or Spherical) by measurement of volume and mass.
5. Use of travelling microscope to determine inner diameter of capillary (e.g. glass).
6. Measurement of voltage to various points in a given dc electric circuit.
7. Determination of unknown resistance by Meter Bridge.
8. Experimental verification of Ohms law.
9. Determination of Refractive index of material of glass slab.
10. Determination of focal length of the given convex lens.
11. Determination of coefficient of static friction between two surfaces in contact.

BASICS COMPUTER

1. Syntax and use of simple DOS internal and external commands:

INTERNAL DOS COMMANDS: BREAK, CHDIR, CLS, COPY, DATE, DEL, ECHO, EXIT, MKDIR, PATH, PAUSE, PROMPT, REM, REN, SET, SHIFT, TIME, TYPE, VER, VOL.

EXTERNAL DOS COMMANDS: APPEND, ASSIGN, ATTRIB, BACKUP, CHKDSK, DISKCOMP, DISKCOPY, FDISK, FORMAT, FIND, LABEL, MODE, MORE, PRINT, RECOVER, REPLACE, RESTORE, SORT, SYS

2. Opening of DOS and creating and running batch files in DOS.

VISIT:

- Places such as Raman Science Centre, Science museum etc.
- Workshop for the students for detection of fault and relevant repair of Home appliances.

BOOKS RECOMMENDED:

1. Principles of Physics - Subramanyam Brijalal
2. 'How things work' Vol. I, II INDUS (Harper Collins India).
3. Atomic Physics - Rajan
4. Principles of Physics I, II - Halliday, Resnik
5. Elements of computer science by S.K. Sarkar, Gupta A.K. S. Chand and Co.
6. A first course in computers - Sanjay Saxena Vikas Publishing House.
7. Notes for computer course Vol. I (Marathi) N. Phadke S. Moghe; Samrat Prakashan, Mumbai.
8. Computecha Watadya (Marathi) Nitin Prakashan Pune.
9. MS Office, MS Excel - Deepak Tiwari - GCA and Lions Computer Education Nagpur.

B.Sc. HOME SCIENCE PART-I

SUBJECT: ENGLISH

PAPER-IX

English and Communication Skills

Total Marks : 100

Theory : 70

Internal Assessment: 30

OBJECTIVES:

1. To prepare the students to communicate effectively and fluently in English.
2. To enable students to master reading, writing, speaking and listening skills.
3. To strengthen grammatical accuracy.
4. To prepare the students to deal with customers, professionals, counselors, etc. in correct grammatical, idiomatic English.
5. To provide personality development training through situational role play, interview techniques, group discussions, seminar presentations, etc.

COURSE CONTENT:

THEORY

UNIT-I

1. Comprehension:

Marks-08

An unseen passage will be given for analysis. Questions will be based on comprehension of content and vocabulary. Answers must be written in the students own language, with minimum use of words and phrases from the passage. Answers should not be copied ditto from the unseen passage. This passage can either be a prose piece or a simple poem.

Simple questions on style and techniques may also be set in case of a poem.

2. Report Writing

Marks-06

Formal Reports.

Types of Reports: Long, Short, Formal, Informal.

a) Why is a report required - who asks for a report

b) Stages of Report Writing :-

Assembling the material, planning the report, drafting the report, editing the report.

c) Elements of a Report :-

Introduction, Main data or facts, conclusion, recommendation to the Superior

3. Business Proposals:

Marks-06

Students will be taught how to draft a proposal for setting up a new venture or new business the terminology used for formal commercial dealings, writing to banks, applying for loans and / or extension of credit etc.

UNIT-II

1. Paragraph Writing:**Marks-05**

This question will involve writing a few lines (10-15) on any given topic or writing a Paragraph completing a given set sentence.

This topic will test the descriptive vocabulary and constructive logical narrative capabilities of the student.

2. Letter Writing:**Marks-08**

Students should be trained thoroughly in dealing with business correspondence and writing all types of letters.

- a) Sales Letter
- b) Enquiry Letter
- c) Quotation Letter
- d) Complain Letter
- e) Adjustment Letter
- f) Letter to the Editor of a newspaper.
- g) Job application letter with bio-data/resume.

UNIT-III**Grammar****Marks-12**

1. Tenses. Narration, Voice
2. Degrees of Comparison.
3. Question tag .
4. Simple, Compound, Complex Sentences
5. Transformation of sentences.
Assertive, Interrogative, Exclamatory, No sooner than, either or, neither nor, unless, until etc.
6. Phrasal verbs.

UNIT-IV**Marks-25**

Novel: Malgudi Days By R. K. Narayan

Questions to be based on plot construction, content and characterization:

INFERNAL ASSESSMENT:**Marks: 30**

A. Telephone Conversational Skill will be taught. Role play method is recommended. The student will be assessed during the 'role play' practicals.

B. Personal Interview/Viva

The student will be given training on how to appear for an interview, what kind of common questions to expect, the kind of language required for appropriate formal, responses, etc. Role play method is recommended here.

C. Group Discussion:

Students will need to acquire correct speaking skills as well as leadership skills through this module.

Method of Assessment:

The student will be assessed for language fluency, correct grammar and logical sentence construction. The student will need to show proficiency in handling audio visual aids such as OHP-this can be tested during seminar presentations. The topic for role play can be taken from any part of their other Home Science subjects eg. How to deal with customers in a large business establishment, with primary school children, problem solving etc.

Passing marks for the theory paper will be 35% of the total marks (70) and for the Sessional 50% of the total marks (30).

BOOK PRESCRIBED:

- 1) Developing Communication Skills:
By Krishna Menon and Meera Bannerjee
Published: Macmillan Indian Limited.

BOOKS RECOMMENDED

1. English Grammar, Composition and usage by J. E. Nesfield adapted by N.K. Aggrawal and F.T. Wood
Published : Macmillan India Limited
2. English Idioms by Jennifer Seidi and W. McMordie
Published : Oxford University Press
3. Persuasive Reports and Proposals by Andrew Leigh.
University Press (India Ltd., Distributed by Orient Longman.)
4. A Practical English Grammar by A. J. Thomson and A. V. Martinez
Published: Oxford University Press
5. Strengthen your English by M. P. Bhaskaran and D. Horsburgh
Published: Oxford University Press
6. Creative English for Communication by N. Krishnaswamy and T. Sriraman
Published : Macmillan India Limited.

B.Sc. Home Science Part-I

Sr. No.	Subject	Marks Internal Assessment	Marks Practical
1	Fundamentals of Food Science and Nutrition	10	Total – 20 Record – 05 Cooking – 08 Presentation – 04 Viva – 03
2	Fundamentals of Human Development	10	Total – 20 Preparation of Educational Toy – 05 Activity for Infant Stimulation – 02 Question – 05 Record – 05 Viva – 03
3	Fundamentals of Textiles and Clothing	10	Total – 20 Record – 05 Sample – 04 Drafting – 05 Stitching – 06
4	Fundamentals of Family Resource Management	10	Total – 20 Design – 10 Principles of Design – 05 Record - 05
5	Fundamentals of Home Science Extension	10	Total – 20 Practical – 15 Record - 05
6	Ecology and Environment		Total – 25 Project - 05 Spotting – 03 Garden Operation – 03 Environmental Experiment – 04 Record – 05 Viva – 05
7	Basic Chemistry		Total – 25 Physical Experiment – 07 Volumetric Analysis – 08 Viva – 05 Record – 05
8	Applied Physics and Basic Computers		Total – 25 Experiment – 15 Viva – 05 Record – 05
9	English and Communication Skills	30	

B.Sc. (Home Science)

Part – II

Programme of Study

B.Sc. HOME SCIENCE PART-II
SUBJECT : FOOD AND NUTRITION
PAPER - I
Family and Community Nutrition

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVE:

- 1) To learn Principles of Meal Planning
- 2) To plan and prepare balanced diets for family members
- 3) To orient students to the basic principles of nutritional assessment as applied to the study of community nutrition. ; . .
- 4) To develop an understanding of the role of micro-organism in food.

COURSE CONTENT:

THEORY

UNIT-I

Family Meal Management:

I) Meal Planning:

- 1) Use and importance of RDA and Food Value Tables in meal
- 2) Advantages of meal planning
- 3) Planning of balanced diet based on the following factors;
 - a) The nutritional needs of the family members-RDA for various age groups.
 - b) The family income characteristics of meal for low, moderate and liberal cost food budgets.
 - c) Time and energy.
 - d) Sensory factors- eye appeal taste, aroma, flavour, texture, temperature, etc.
 - e) Other factors- availability of foodstuff, tradition, culture, religion, likes and dislikes, food fads and fallacies.

II) Diet planning with reference to special individual requirements:

- 1) Nutrition during adulthood: Balance diet for Adult Man, Women and for various occupations. Dietary guidelines for Adults over 40 years.
- 2) Nutrition for Mother:
 - A. Nutrition during pregnancy:
 - a) Changes during pregnancy
 - b) Desirable weight gain
 - c) Nutritional requirements
 - d) Diet during normal pregnancy.
 - B. Nutrition during lactation:
 - a) Requirement
 - b) Effect of diet on the composition and output of mother's milk.

UNIT - II

Family Meal Management :

Nutrition for specific age groups:

1. Nutrition during infancy:
 - a) Growth and Development during infancy
 - b) Nutritional requirements
 - c) Types of milk fed to infants and differences between human and animal milk
 - d) Advantages of Breast Feeding
 - e) Bottle feeding
 - f) Weaning and Supplementary foods
2. Nutrition during:
 1. Preschoolers.
 2. School children
3. Adolescence:
 - a) Growth and development
 - b) Nutritional requirements and establishment of good food habits
 - c) Balanced diets.
3. Geriatric nutrition (age over 60 years):
 - a) Changes occurring during Ageing.
 - b) Nutritional needs and dietary modifications.

UNIT-III

Community Nutrition:

1. Malnutrition

Definition and Types of malnutrition. Causes of malnutrition, prevalence of Malnutrition in India. Effects of malnutrition on general health, physical, mental and national development.

2. Nutritional Assessment

Assessment of Nutritional Status:

- Anthropometry.
 - Diet Survey
 - Clinical Assessment
 - Laboratory Method (Biochemical and Biophysical)
- Limitations and interpretation of all the above parameters.

3. Nutrition Education

- A) Meaning, importance, methods and evaluation of Nutrition Education, problems involved in organizing Nutrition Education Programme for the community and how to solve them.
- B) National Nutrition Programmes: a) ICDS b) MDM Programme c) National Nutrition Anemia Prophylaxis Programme (NNAPP) and Vitamin A Prophylaxis Programme (VAPP) d) Goiter Control.
- C) Role of National organizations (ICAR, ICMR, NIN, CFTRI) and International organizations (FAO, WHO, UNICEF, CARE) in Community Nutrition and Health.

UNIT-IV

Food Microbiology and Food Processing

- Principles underlying Food spoilage and Food preservation:
Importance of Food Preservation.
General principles of Food preservation for arresting microbial growth.
 - High/Low temperature (pasteurization/refrigeration/deep freezing)
 - Drying (sun-drying)
 - Radiation
 - Preservatives
 - Aseptic handling
- Food Additives: Food colours and role of food stabilizers.
- Leavening Agent: Microbiological Chemical and Natural Leaveners.
- Food Fermentation: Role of Microorganisms as food fermenting agent for products such as Idli, Curd, Butter, Cheese & Bread. Nutritive value of Fermented foods.

COURSE CONTENT:

PRACTICAL

Max. Marks = 20

- Calculation of nutrients present in different recipes (any 2)
- Calculation of cost and amount of food to get specified amount of calories (any 2)
- Conversion of Weights and volumes of raw foods to cooked food (any 5)
- Conversion and Weight of portion of food containing same level of a nutrient energy, proteins, iron, calcium.
- Weights and Measures - Standard and household measure for raw and cooked food.
- Meal Planning for various groups:
 - Planning, Calculation and preparation of a whole days model meal for :
 - Adolescent girl/boy (16-18 years)
 - Adult Woman / Man
 - Pregnant women
 - Lactating woman
 - Infant (10 to 12 months)
 - Preschooler (2-6 years)
 - School child (6-10 years)
 - Old Person (Geriatric)
 - Planning, Calculation and Preparation of :
 - Packed lunch for a school going child (any five)
 - Weaning recipes for infants (any five)

INTERNAL ASSESSMENT (Any one of the following)

- Food Preservation certificate course:
Preparation of the following:

- a) Jam b) Sauce c) Pickles d) Squash
- 2) Survey of one own diet for a period of three days and food consumption pattern evaluation.
- 3) Canteen: Planning, purchasing, preparation and serving of any recipe for 50 members or more with appreciable profit margin.
- 4) Standardization of few selected recipes.
- 5) Visit to Balwadi (ICDS) and write a report.
- 6) Bakery Certificate Course.

BOOKS RECOMMENDED:

- 1) Nutritive Value of Indian Foods: Gopalan C, Rama Sastri and Balasubramanian S.C. National Institution, 1993.
- 2) Understanding Nutrition-.Whitney E.N. 8, RoltesS.R. 8th Edition West/Wordsworth 1999.
- 3) Dietetics: B Srilakshmi, New Age International (P) Ltd.Publishers 3rd Edition, 2000.
- 4) Nutrition and Dietetics: Shubhangini A. Joshi, Tata McGraw Hill Publishing Co. Ltd., New Delhi, 1992
- 5) Nutritional Research: Current Scenario and Future Trends Editor: K, Krishnaswamy, Oxford and IBH Publication Co. Pvt. Ltd., 2000.
- 6) Nutritional Problems of India: Shukla P.K. Prentice Hall of India Pvt.Ltd. Delhi 1982
- 7) Food Preservation and Processing : M. Kalyani Publishers, 1996.
- 8) Food Microbiology : Frazier W.C. and D.C. West Haff. McGraw- Hill Book Co. Ltd. Inc. 1981.
- 9) The Science of food :-An introduction to Food Science, Nutrition and Microbiology : Gaman P:M. and Sherrington K. B. 2nd Edition; Pergamon Press, 1989.

B.Sc. HOME SCIENCE PART -II

SUBJECT: HUMAN DEVELOPMENT

PAPER-II

Early Childhood Education and Adolescent Development

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVES:

- To make students aware of development during childhood.
- To make students aware of preschool and its functioning and to train students for working in pre-school
- To make students aware of changes and problems of adolescents.

COURSE CONTENT:

THEORY

UNIT-I

Pre-school Year:

(2 To 6 yrs.)

- Characteristics, Developmental tasks,
- Physical Development - Height, Weight, body proportions.
- Motor skills.
- Emotional Development - Characteristics of children's emotions;
- Common emotions (anger, fear, Jealousy).
- Cognitive Development- Curiosity, questioning, concept formation.
- Language Development - General Characteristics.
- Social Development- Agents of socialization. Parents, School and Sibling.
- Personality Development - sense of initiative vs. guilt.

School Year:

(6 to 12 yrs.)

- Characteristics, Developmental tasks.
- Physical Development - Height, Weight, body proportions.
- Motor skills - Common motor skills (hand and leg skills).
- Cognitive development - Characteristics of thinking.
- Language development - Characteristics of language development.
- Personality development -Industry vs. Inferiority.

- Social development - The child in the family, significance of the family and changes in family expectations and sibling relations.
- Peers-gang age, sex Antagonism.
- Moral development- characteristics

UNIT -II

- Significance of early childhood years.
- Historical overview - Commenus, Rousseau, Pestalozzi, Froebel, Montessori, Robert Owen, McMillan sisters and John Dewey,
- Development of Preschool education in India - Christian Missionaries, Badheka, Tarabai Modak, Gram Bai experiment of Kosbad, Nutan Balshikshan Sangh, ICDS, NCERT, IAPE, Mobile creche, Balshikshan Parishad.
- Approaches to Preschool education – Formal and informal Advantages and disadvantages.
- Preschool education - Types: Play group, Nursery school, Balwadi, Laboratory N.S, anganwadi.
- Objectives of early childhood education Role and qualities of effective teacher, other personnel
- Building
- Equipment - indoor, outdoor (low cost).

UNIT-III

Curriculum Planning

- Curriculum Planning.
Purpose, Principles, Factors influencing planning.
Short term and long term Planning.
- Principles of learning.
Incidental and Planned learning
Project method
- Resource Units.
Setting goals, making plans.
Lesson plans (aims and objectives)
- Environment for learning - learning centers.
- Creative activities - Functions, materials required, role of preschool worker in art activities (painting, finger painting, blocks, clay work, water play, sand play, cutting and pasting)
- Language: Goals of language, Types of listening, Development of listening skills.
- Methods of Promoting spoken/oral language (informal talk/conversation, picture/object talk, poems, riddles/questions)
Story values, selection and methods of story telling.
- Social studies - Values, content methods of teaching social studies - field trips, functions of special celebrations and festivals.
- Science - Meaning, different science experiences.
- Mathematical Concepts-Classification ordering, comparing, shape and space.
- Music and Movement -Values, Criteria for selection. Role of teacher.
- Experiences for promoting 3 R's.

UNIT-IV

Adolescence

- The concept of adolescence.
- Developmental tasks.
- Physical and sexual development - Puberty, development of primary and secondary sexual characteristics. Psychological response to puberty, gender differences, sexuality and sex education.
- Cognitive Development- Piaget's formal operations, reasoning moral reasoning and judgment.
- Identity formation.
- Interpersonal relations - parents, teachers and peers. Parenting Skills for adolescence.
- Juvenile delinquency - Causes and prevention.
- Psychological disturbances - depression, suicide and substance abuse.

COURSE CONTENT:

PRACTICALS

Max. Marks = 20

- Visit to Nursery school to observe infrastructural set up, teaching methods and activities.
- Participation, planning for a 3 hours nursery school including four basic activities - Informal talk, Rhyme, Story and Creative activity.

Creative Activities

- Painting - Finger, stencil, blow, string, splatter, single / multiple water wash, rag, sponge, cotton, large brush etc.
- Printing: Block, Cork, Vegetables, cord, leaf, finger, palm, thumb foot printing,
- Activities with crayon and chalk crayon, wet chalk drawing.
- Modeling and Sculpture - Clay, Dough and Plasticine.
- Paper activities - Paper tearing, crumpling, twisting, collage, mosaic, paper cutting, pasting and origami.

Teaching aids:

Charts, Flannel board cut outs for stories and concept - actual use of the flannel cutouts.

- Flash cards.
- Puppets- finger, rod, glove, etc.
- Participation in Nursery School - Five Participations.
- A small presentation concerning issues related to adolescence.

BOOKS RECOMMENDED:

- 1) Developmental Psychology : Elizabeth Hurlock, 5th Edition 1981, Tata McGraw Hill Publishing Company, New Delhi.
- 2) Human Development : Diane E. Papalia and Sally Wendkos olds, 5th Edition 1981, Tata McGraw Hill Publishing Company, New Delhi.
- 3) Early childhood Education : J. S. Grewal 1st Edition 1994, (Foundation and Practice): National Psychological Corporation, Agra.
- 4) Preschool Education Philosophy: and practice. Dr. G. Pankajam, 1st Edition, The Indian Publication.
- 5) Adolescent Development : Elizabeth Hurlock, 5th Edition 1981, Tata McGraw Hill Publishing Company, New Delhi.
- 6) The Psychology of Adolescent: A.T, Jerslid, 7th Edition, Prentice Hall, INC Englewood Cliffs, N.J., U.S.A.

B.Sc. HOME SCIENCE PART-II
SUBJECT : TEXTILE AND CLOTHING
PAPER-III
Textile Designing and Printing

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVES:

1. To acquire knowledge of various methods of fabric construction.
2. To develop creativity in designing for prints.
3. To impart knowledge of traditional textiles of India.
4. Create awareness of different dyeing and printing techniques.

COURSE CONTENT:

THEORY

UNIT-I

Textile Designing

1. Process of Designing.

- Motif development: Geometric, simplified, naturalized, stylized, abstract. Develop design for saree, dress-material with dupatta, curtain, bed cover by using different types of repeats.

2. Structural designs:

- Different types of structural designs methods of interlacing, warp printing, figure design (Jacquard design, dobby design) Use of point paper in designing draft, peg plan for basic weave (plain).

UNIT II

i) Methods of fabric construction

- a) Weaving- Handloom and its parts, motions in weaving different types of weaves (basic weaves, pile weave, double cloth weave) :
 - b) Knitting: Types, uses, its advantages and disadvantages.
 - c) Non-wovens: types and its manufacturing process and their uses.
 - d) Other methods of fabric construction: Laces, braiding, knotting
- 3. Traditional Textiles of India Sarees:** (Chanderi, Paithani, Dacca, Patola, Bandhani, Baluchari), carpets, shawls, brocades and painted fabrics (Madhubani and Kalamkari)

UNIT-III

Finishes and Dyes

- 4) Finishes:** General finishes-Scouring, Bleaching, Tentering, Singeing, Sizing, Mercerizing, Calendaring.
Special Finishes- Special Calendaring, Napping, Flame- proofing, water- proof and water repellency, shrinkage control, permanent press, wrinkle resistance.
- 5) Dyes:**
- a) Classification,
 - b) Different types of dyes - Direct, acid, basic, reactive, vat, sulphur, azo, natural dyes (vegetable, animal, mineral and mordent dyes}
- 6) Different dyeing methods:** a) Fiber dyeing b) Yarn dyeing c) Piece dyeing (cross-dyeing. Union dyeing)
Different dyeing defects.

UNIT-IV

Printing

- 1) Surface design-. Printing, its significance, methods of printing - Block, Stencil, Screen, Roller printing and its style - discharge and resist (tie and dye; batik) Faults in different printing, advantage and disadvantage of various methods of printing.
- 2) Types of various ingredients and thickeners used in printing. Pre-preparation of cloth for printing.
- 3) After treatment of Printed goods.

COURSE CONTENT

PRACTICAL

Max. Marks = 20

- 1) Dyeing fabric sample with various dyes.

- 2) Developing different types of motifs by using poster colours. Different type of repeats and placement of design for sarees, curtain, dress material with dupatta, bed cover, preparation of paper painted design.
- 3) Making different type of articles/samples of different type of printing -Block -Screen, Stencil, Batik, and Tie and dye.
- 4) Stitching and printing of one Kurta with any one type of printing mention above.
- 5) Preparing different type of weave on fable loom of five shaft:-
 - a) Plain weave
 - b) Satin weave
 - c) Twill weave
 - d) Figure weave
 - e) Rug
- 6) Making an album of different regional embroidery.
- 7) Identification of weaves and printed design
- 8) Activity:
 - 1) Visit to textile mill.
 - 2) One week training at textile industry / weavers service center.

INTERNAL ASSESSMENT

The Internal Assessment marks will be given on different type of article/sample made by different type of printing.

- a) Block printing
- b) Screen
- c) Stencil
- d) Batik
- e) Tie and Dye

Making a Portfolio of design development for sarees, curtain, dress material with dupatta, bed cover,

BOOKS RECOMMENDED:

1. Aswani K.T. Fancy Weaving Mechanism, Mahajan Books, Ahmedabad.
2. Deulkar Durga - Household Textile and laundry work, Atmaram and sons, Delhi,
3. Dongorkemy Kamala S.- The Romance of Indian Embroidery, Thakur and Co. Bombay.
4. Dorothy Siegart, Lyle - Modern Textiles, John Wiley and Sons. Inc New York.
5. Joyee Starey - Textile Printing, Thames and Hudson Ltd., London.
6. Gohl EPG and Vilensky -Textile Science, CBS Publications Shahdra, Delhi
Manju Patni - Parivarik Paridhan Star Publication Agra.
7. Nora Proud - Simple Textile Dyeing and Printing, Botsford Ltd. London.
8. Nisbet H. - Grammer of Textile Design, Taraporwala and Sons, Bombay
9. Pandit Savitri - Indian Embroidery, its variegated charms.
10. Potter MD and Corbman BP. Textiles: Fibres to Fabric – Published by McGraw Hill Inc. U.S.A
11. Usha Shrikant - Ethnic Embroidery of India, Samaia Enterprises , Mumbai.
12. William Watson - Textile Design and colour, Longman Green and Co. London.
13. Vastra shilpvigyan by Vimla Sharma. Loyal Book Depot Meerut.
14. Vastrashastra: Prof. Vimal Adhau Maharashtra Vidhyapeeth Granth Nirmat Mandalasathi, Vidhya Books Aurangabad.
15. Vastravigyan avam Paridhan - Dr. Vrunda Singh Panchsheel Prakashan Jaipur.
16. Vastravigyan avam Paridhan - Dr. Prarnila Verma Bihaar Hindi Granth Academy Bhopal.
17. Vasira Shilp Vigyan : Vimla Sharma ,.
18. Vastravigyan Ke Mul Siddhant- Dr. G.P. Sheeri - Vinod Pustak Mandir Agra.

B.Sc. HOME SCIENCE PART - II
SUBJECT: FAMILY RESOURCE MANAGEMENT
PAPER-IV
Interior Design and Decoration

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVES

- 1) To develop skill in using colours to create different effects in space, with the use of various colour scheme.
- 2) To learn techniques of using colour in different media.
- 3) To give knowledge of flower/floor decoration and arrangement
- 4) To develop understanding regarding housing needs principles, planning of house.
- 5) To gain knowledge about the role of furnishings to satisfy family needs.

COURSE CONTENT:

THEORY

Unit-I Importance of Colour In interior Decoration

Chapter-1: Detail Study of Prang Colour System

- a) Characteristics or Dimensions of Colour
 - i) Hue
 - ii) Value
 - iii) Intensity

Chapter-2 Colour Schemes

- 1) Related
 - i) Monochromatic
 - ii) Analogous
- 2) Contrast
 - i) Complementary
 - ii) Double Complementary
 - iii) Split Complementary
 - iv) Neutral
 - v) Triad

Chapter-3 Colour Schemes for Different Rooms

- i) Kitchen and Dining
- ii) Drawing and Living Room
- iii) Bed Room

UNIT-II Decorating Interior and Exterior

Chapter-1 Floral Decoration.

- i) Definition and Importance of flower Arrangement.

- ii) Material required for flower Arrangement
- iii) Significance of Art Elements and Principles in flower arrangement:
- iv) Types a) Traditional b) Oriental/Japanese c) Modern
 - d) Floating e) Miniature f) Dry Arrangement
- v) Do's and Don'ts in Flower Arrangement
- vi) Occasion wise placement of flower Arrangement

Chapter-II Bonsai

- i) History ii) Preparation of soil iii) Selection of plants
- iv) Selecting of Containers v) Potting and Repotting
- vi) Different Styles vii) Care

Chapter-III Landscaping

- i) Meaning and Importance
- ii) How to transform your yard into outdoor living rooms-floors walls ceilings iii) Application of elements and principles of design in landscaping
- iv) Selection of perfect landscape plants and structures materials
- v) Installing Driveways and walkways.

UNIT-III Home Furnishing

Chapter-1 Window Treatment

- i) Draperies ii) Curtains iii) Roller Shades iv) Valances v) Venetian Blinds
- vi) Making and Hanging of Curtains

Chapter-2 Floor Coverings

- i) Rugs and Carpet ii) Lenolium iii) P.V.C.

Chapter-3 Wall treatment

- i) Wall papers ii) Paints iii) Tiles

Chapter-4 Accessories in Interiors

- i) Hanging of pictures ii] Relations of Pictures to room
- iii) Other accessories

UNIT-IV Housing and Vastu Shastra

- i) Concept of Housing
- ii) Principles of House planning
 - a) Aspect b) Prospect c) Privacy d) Grouping
 - e) Roominess f) Furniture g) Sanitation h) Circulation
 - i) Economy and Orientation
- iii) Planning of Different rooms - Living room, Bed room, Kitchen and Store room, Toilet, Passage

Chapter-2 Origin of Vastu Shastra

- i) Importance 1) Elements and principles 2) Vastu purush
- ii) Placement of rooms.
- iii) Location of water bodies
- iv) Placement of doors
- v) Colour schemes for different rooms

COURSE CONTENT:

PRACTICAL

Max. Marks = 20

Classes of Colour

- i) Primary ii) Secondary iii) Intermediate

Colour Wheel

Warm and Cool Colours

Value Scale

Monochromatic Colour Scheme

Analogous Colour Scheme

Complementary Colour Scheme

Triad Colour Scheme

Neutral Colour scheme

Types of Flower decorations / Arrangements

- i) Single Stick ii) Small Bunch iii) Miniature iv) Modern

INTERNAL ASSESSMENT

- 1) Draw types of kitchens.

- 2) Landscape planning;- Basic Themes
i) Circular ii) Rectangular iii) Diagonal iv) Irregular/ Unusual .
- 3) Floral Carpet/Sanskar Bharati Rangoli/Alpana/Rangoli using various types of material.
Innovation of New Styles
- 4) Accessories in home decoration (creative art)
Ceramic work / clay modeling / pottery painting / Paper craft / glass painting
Tray landscaping (natural and artificial)

NOTE: Workshop to be conducted to teach new articles.

BOOKS RECOMMENDED:

1. Agan T.C. - 'The House' Oxford and I.B.H. Publishing Co.
2. Ann Reilly; Susan A. Roth- The Home Landscape, Home Planners Inco: Tucson, Arizona.
3. Deshpande R .S.- Modern Indian Homes in India, United Book corporation, Poona, 4th Edition.
4. Deshpande R.S. - Build your own Home, United Book Corporation, Poona, 4th Edition.
5. Deshpande R.S. - Low Cost Housing, United Book Corporation, Poona, 4th Edition.
6. Goldstein H./Goldstein V. - "Art in Everyday Life" MachMillan Co. New York, 4th Edition.
7. Pak-Tin and Helan Yeap – Feng Shui – 'Health Harmony' B Jain Publishers Pvt. Ltd., New Delhi, 1998
8. Rutt A. – 'Home Furnishing'. Wiley Eastern Pvt. Ltd., New Delhi, 2nd Edition.
9. Shrivastav – 'Remedial Vastu Shastra', Manoj Publications, Delhi, 2001.
10. Borkar Sunita – 'Interior Design and Decoration' Himalaya Publishing House.

B.Sc. HOME SCIENCE PART -II
SUBJECT: HOME SCIENCE EXTENSION
PAPER-V
Community Development Management

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVES:

1. To impart knowledge regarding community development
2. To develop understanding regarding community organization.
3. To understand meaning of extension teaching and learning.
4. To understand the need of programme planning process.
5. To know the significance of adoption process in community development.

COURSE CONTENT:

THEORY

UNIT-I

1. History of Community Development:

Definition and importance of community development. Study of various community development programmes - Shriniketan. Rural Reconstruction, Gurgaon Experiment, Marthandam project, Gandhian Constructive Programme, Etawah Pilot Project, Firka Development Scheme, Indian Village Service (I.V.S.) and Nilokheri Experiment, Role of NGO in community development.

2. Community Organization:

Definition and concept of community organization and community development. Principles underlined in community organization. Methods of community organization. Objectives of community development and Essential elements of community development.

UNIT-II

3. Extension Teaching Process:

Definition of extension teaching, steps involved in extension teaching. Factors contributing to extension teaching, Principles of extension teaching and desirable traits of a teacher for effective extension work.

4. Extension Learning Process:

Definition of extension learning. Learning experience. Laws of learning. Principles of learning. Factors affecting learning and ideal learning situation to achieve the success.

UNIT-III

5. Programme planning process;

Definition of programme planning, characteristics of programme planning process, steps involved in programme planning process, role of officials and non-officials in programme planning, importance of extension programme and professional abilities needed by programme planner.

6. Innovation Decision Process:

Definition of innovation decision process, steps involved in the adoption process, rate of adoption, innovativeness, diffusion, characteristics of innovations, classification of adopters and their characteristics.

UNIT-IV

7. Poverty Alleviation programmes -

Meaning of poverty, cause behind poverty, efforts taken by the government agencies in eradication of poverty and poverty alleviation programmes - National Rural Health Mission, Integrated Child Development Services (ICDS) and DWCRA

8. Extension monitoring evaluation:

Meaning of monitoring evaluation, importance of monitoring evaluation, types of evaluation and methods of evaluating extension programme.

COURSE CONTENT:

PRACTICALS

Max. Marks=20

1. Preparation and presentation of flash cards to provide effective communication to the group of learners.
2. Conducting method demonstration on home science, extension aspects to communicate the information effectively to the group of learners.
3. Preparation of news-story to provide message / theme on the subject.
4. Handling and operation of opaque projector to present non-transparent materials on the screen.
5. Study of Mahila Mandal to analyze the working pattern and submission of report.

INTERNAL ASSESSMENT

1. Preparation of poster on home science aspects learning to collect and use good photographs on development aspects.

BOOKS RECOMMENDED:

1. Supe S. V.: An Introduction to Extension Education - Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi and Kolkata.
2. Waghmare S. K.: Teaching Extension Prashant Publishers, Vallabh Vidyanagar, 1960.
3. Dahama O. P. and Bhatnagar O, P.: Education *and* Communication for development, Oxford and I.B.H. Publishing Co. New Delhi, 1977.
4. Reddy Adivi: Extension Education - Shree Laxmi Press, Bapatia, Guntur A.P.
5. Gurg J. S.: Agricultural Extension and community Development - Gaya Prasad and sons; Agra. UP.
6. Rudramurthy B.: Extension in Planned Social Change, Allied Publishers Pvt. Ltd.; Chennai,

Applied Physiology

Theory - 50

COURSE CONTENT: THEORY

1. Animal cell - Structure in brief.
2. Tissue - Classification and function
3. Locomotor system - Classification of bones and its functions

1. Circulatory System:

- i) Composition and function of blood
- ii) Clotting of blood
- iii) Common blood groups, Rh factor and its importance

- i) Structure of heart
- ii) Action of valves
- iii) Coronary blood supply
- iv) Structure and function of artery, vein and capillaries.

- i) Structure and function of respiratory organs
- ii) Mechanism of respiration
- iii) Transport of gases -in brief

1. Digestive System:

- i) Brief study of the anatomical organization of digestive tract
- ii) Accessory glands of digestion
- iii) Process of digestion and absorption

- Structure and function of excretory organ
- Formation of urine

- i) Male and Female reproductive organs, their structure and functions
- ii) Physiology of menstrual cycle

1. Sense Organs:

- i) Eye, Ear, Tongue, Nose and Skin - Structure and function.

i) Structure and functions of part of central nervous system in brief

i) Structure and function of Pituitary gland, Thyroid gland and Adrenal gland in brief.

Total Marks = 25

- 1) Study of Microscope
- 2) Identification of bones and their classification
- 3) Microscopic slides of common organs.
- 4) Blood grouping and Rh typing - slide method
- 5) Bleeding time and clotting time.
- 6) Application of triangular bandage
- 7) Study of different systems by charts or models.

- i) Human Physiology - C. C. Chatterjee
- ii) Anatomy and Physiology for Nurses - Pears

- iii) Text book of Medical Physiology - A.C. Guyton
- iv) Foundation of Anatomy and physiology- Janet S. Ross, Kathleen J.W. Wilson

B.Sc. HOME SCIENCE PART - II
SUBJECT: CHEMISTRY
PAPER-VII
Applied Chemistry

Total Marks - 75

Theory - 50

Practical - 25

COURSE CONTENT: THEORY

UNIT-I

- 1) **Carbohydrates:** Definition, classification, open chain structure of glucose and fructose, manufacture of cane sugar, optical isomerism of asymmetric carbon atom, plane polarised light, dextro and leavo rotatory compounds.
- 2) **Fermentation:** Definition, ideal conditions for fermentation, preparation of vinegar and ethanol by fermentation process.

UNIT-II

- 1) **Oils and Fats:** Definition, difference between oils and fats, saponification value, iodine value, rancidity and hydrogenation of oils, refining of edible oil, naturally occurring fatty acids (saturated and unsaturated), essential and non essential fatty acids. Omega names of MUFA and PUFA omega-3-PUFA
- 2) **Soap and Detergents:** Definition, types of soap, cleansing action of soap, difference between soap and detergents, composition of detergent.

UNIT-III

- 1) **Polymers:** Definition, addition and condensation polymerization, preparation and uses of polyethylene, PVC, Nylon-6, Nylon-66 and polyester. Rubber: Definition, chemical nature and vulcanization, synthetic rubber (Buna-S) and uses.
- 2) **Dyes and Drugs:** Definition, Witts theory of colour and constitution, classification of dyes based on their functional group- i) Nitro ii) Nitroso and iii) Azo
 Preparation and uses of following drugs:
 i) Aspirin ii) Paracetamol and iii) oil of winter green.

UNIT-IV

- 1) **Cosmetics:** Definition, functions and ingredients of shampoo, face powder, cold cream, lipstick, hazards of cosmetics.
- 2) **Essential oils and perfumes:** Definition, occurrence and extraction of essential oils. Perfumes: Definition, characteristics and composition of perfumes, formulation of any two perfumes.

COURSE CONTENTS: PRACTICAL

Total Marks = 25

1. Preparations of cosmetics: i) Soap, ii) Shampoo, iii) Liquid detergents, iv) Phenyl v) Solid detergents and vi) Perfumes
2. Preparation of dyes and drug
 i) Methyl salicylate from salicylic acid.
 ii) Methyl orange dye from beta naphthol and aniline
3. Determination of total fatty matter present in soap.
4. Determination of total alkali present in a soap.
5. To compare the cleansing action of detergents/ shampoo by Stalagmometer

Note: Educational visits to various factories and chemical laboratories in India.

BOOK RECOMMENDED:

1. Text Book of Organic Chemistry: B.S. Bahl and G.D. Tuli, S. Chand Publication, New Delhi.

2. Text Book of Physical Chemistry: B.S. Bahl and G.D. Tuli, S. Chand Publication, New Delhi.
3. A Text Book of Engineering Chemistry, S.S. Dara and Suresh Umare, S. Chand Publication, New Delhi.
4. A Text Book of Basic and Applied Chemistry, P.C. Jain and Monica Jain.
5. Polymer Science by V.R. Gowarikar, Wiley Ester Ltd 1987.
6. Text Book of Organic Chemistry by J. L. Finar, Longman Publication,
7. Synthetic Dyes by G R Chatwal, Himalaya Publishing House, New Delhi.
8. Synthetic Drug by G R Chatwal and Anand, Himalaya Publishing House, New Delhi.
9. Organic Chemistry of Natural Products Vol. I and II, by G. R. Chatwal, Himalaya Publishing House, New Delhi.
10. Perfumes, Cosmetics, Soaps Vol. I, II and III by W. A. Poucher, Ninth Edition, Chapman and Hall Publication (1975)
11. New Cosmetic Science by Takeo Mitsui, Elsevier, 1997.

B.Sc. HOME SCIENCE PART -II

SUBJECT: PHYSICS

PAPER –VIII

Applied Physics and Computer Applications

Total Marks - 75

Theory - 50

Practical - 25

COURSE CONTENT:

THEORY

UNIT-I

Concept and Statement of Faradays Laws of electro-magnetic induction, Transformer (working-principal, construction) parameters of transformer, turns ratio, efficiency. Electricity from generator to home. Definition of Kilowatt hour Unit for consumption of electricity. Safety consideration in use of electricity, fuse, earthing and earthing methods, difference between earthing and ground, lightning conductor. Management of electrical hazards (shock, burns, fire) voltage and frequency of AC supply in India.

UNIT-II

- a) Working principle, construction and working of immersion heater, storage type geyser, electric press, microwave oven - concept of microwave working, Gas burner, gas regulator.
- b) Motor based appliances - working principle, construction, working, defects and remedies - mixer, grinder, fan, room cooler, hair dryer, vacuum cleaner, washing machine, refrigerator with thermostatic control and automation.

UNIT-III

Computer hardware, concept of motherboard, RAM, ROM, Hard disk (magnetic disk, compact disk, digital video disk). Printer – Dot Matrix, Inkjet, LASER printer (principle and working), concept of USB port and HD port.

UNIT-IV

Important features and comparison of popular operating systems, MSDOS, WINDOWS, UNIX and LINUX, MS-Word – Study of different commands for cut, copy, saving, opening, closing, page setting, margins, creating header and footer, applying font size, style, file name, printing. Typing text, selecting text, save the file, pages set-up, preview document, text effects.

Microsoft Excel – Features, selecting cells, entering text, entering numbers, formatting views, header and footer, terminology –formatting, create database.

MS PowerPoint – Terminology, creating presentation, edit text, masters text in PowerPoint, drawing in point, manually drawing, auto shapes, inserting sound, formatting text, colour to fonts, graphics in PowerPoint, inserting photos.

COURSE CONTENT

PRACTICAL

Max Marks = 25

LIST OF EXPERIMENTS

1. To find unknown resistance of Post Office box.
2. Verification of Law of series combination of resistances using meter bridge.
3. Verification of Law of Parallel combination of resistances using meter bridge,
4. To determine the E.C.E. (Electrop-Chemical-Equivalent) of copper by using copper voltmeter.
5. To find E1/E2 of two cells by potentiometer.
6. Determination of 'J' by electrical method.
7. Study of transformer and determination of turn's ratio.
8. Use of multi-meter to measure resistance and voltage (dc),

Computer Application

1. Open MS-Office, create file in MS Word and perform various operations in it.
2. Open MS-Office, create file in MS Excel and enter given data in it. Creating a worksheet in excel.
3. Creating and enhancing Power point Presentation.
4. Create slides using different slide layouts.
5. Usage of bullets and numbering-header and footer, spell check and grammar, mail merge, text manipulation and document formatting.
6. Create a document and insert page numbers, date, time and picture.
7. Draw commands-Line, Arc, line. Circle. Ellipse, Polygon, Point, Solid, Trace (Thick line).
8. Working with Shapes, Lines, Text and Objects: Creating rectangles, squares. Circles, Ellipses, Polygons, Starts and Spirals selecting Single and Multiple objects, Duplicating Objects. Grouping Objects.
9. Creating various types of design by using Coral Draw, sketching different type of dresses.

LAB EXERCISES:

1. Create a composition of five accessories in 9x9 block.
2. Design casual wear for female by showing appropriate background.
3. Create 5 slides on Annual Day of your college and perform the following - give header/and footer, give background colour, insert picture from clip Art, insert slide number.
4. Pick up a costume worn by a famous fashion mode Scan his/her figure and change the texture and colour combination of-their dress.
5. Design a poster selecting theme from any Home science subject-such as Fashion forecast, by combining all the techniques possible- marking, path selection, scanning, cut and paste.
6. Create 5 slides on any subject related to Home science and execute the following by using Action Buttons for all the slides to link them: link first slide with the third, link second slide with fifth link third slide with fourth.

BOOKS RECOMMENDED:

1. Elements of Computer Science - Sarkar S.K., Gupta A. K. S. Chand and Co.
2. A First Course in Computer by Sanjay Saxena, Vikash Publishing House Pvt. Ltd. New Delhi.
3. Michael Miller, Absolute Beginners Guide to Computer Basics. Fourth Edition, Pearson Education (2007).
4. Anwani K. Nath : Repairing of Electrical Appliances.
5. Peet L. Mary, J. S. and Mildren, A.G. (1975) Household Equipment, New York, John Wiley Sons, Inc.
6. Avery. M. (1955) Household Physics, Mac-Miilan Co. New York.
7. Deborah Morley, Charles S. Parker, understanding computers today and tomorrow, 11th Edition, Thomson (2007).
8. Ed. Bott, Woody Leonhard, using Microsoft Office 2007. Pearson Education (2007).

B.Sc. Home Science Part-II

Sr. No.	Subject	Marks Internal Assessment	Marks Practical
1	Family and Community Nutrition	10	Total – 20 Record – 05 Planning- 03 Calculation - 03 Cooking – 03 Presentation – 03 Viva – 03
2	Early Childhood Education and Adolescent Development	10	Total – 20 Record – 05 Planning a day meal of nursery school - 05 Preparation of Teaching Aid – 04 Preparation of Rhyme / Story – 03 Viva – 03
3	Textile Designing and Printing	10	Total – 20 Design – 06 Printing – 05 Regional Embroidery – 04 Record – 05
4	Interior Design and Decoration	10	Total – 20 Record – 05 Classes of colours – 05 Colour Scheme – 05 Flower / Floor Decoration – 05
5	Community Development Management	10	Total – 20 Practical – 15 Record – 05
6	Applied Physiology		Total – 25 Spotting – 05 Experiment – 05 Bandage – 05 Viva – 05 Record – 05
7	Applied Chemistry		Total – 25 Preparation of Cosmetic – 08 Experiment – 07 Viva – 05 Record – 05
8	Applied Physics and Computer Applications		Total – 25 Experiment – 15 Viva – 05 Record – 05

B.Sc. (Home Science)

Part – III

Programme of Study

B.Sc. HOME SCIENCE PART-III
SUBJECT: FOOD AND NUTRITION
PAPER-I
Diet Therapy

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVES:

- 1) To provide knowledge about the causes and symptoms of various diseases
- 2) To understand the role of diet in the management of these conditions.
- 3) To plan, calculate and prepare diets for various diseases.

COURSE CONTENT:

THEORY

UNIT-I

Diet Therapy and G. T. Disorders:

1. Introduction to diet therapy:
 1. Applications of principles of diet therapy: a) Diet counseling b) Dietetic care in hospital patients: its importance.
 2. Therapeutic adaptations of the Normal Diet; a) Soft diet b) Liquid diet c) Bland diet d) Low fibre diet
 3. (A) Modes of feeding: a) Enteral b) Parenteral
(B) Psychological factors involved in feeding.
2. Causes, Symptoms and Principles of Dietary Management of Gastro- intestinal disorders/ Liver disorders:
 1. Gastrointestinal disorders: a) Peptic Ulcer b) Ulcerative Colitis c) Diarrhoea and Constipation
 2. Liver disorders: a) Viral Hepatitis b) Cirrhosis c) Hepatic Coma
 3. Gall Bladder Disorder: Cholecystitis and Cholelithiasis.

UNIT-II

Weight Management and Diabetes Mellitus:

1. Causes, Symptoms and Principles of Dietary Management of obesity and overweight
 - I. Obesity and overweight.**
 - a) Types and causes of obesity.
 - b) Criteria for obesity and overweight .
 - c) Dietary management of obesity: i) Fats in diet, ii) Types of diet
iii) Desirable rate of loss of weight
 - d) Role of exercise
 - e) Effects of untreated obesity
 - II. Underweight** a) Definition and problems associated.
2. Causes, Symptoms and Principles of Dietary Management of Diabetes Mellitus:
 1. Diabetes Mellitus:
 - a) Normal Blood Glucose level. Types of Diabetes Mellitus
 - b) Treatment; Oral Hypoglycemic drugs and Insulin.
 - c) Role of diet in the management of IDDM and NIDDM.
 - 2 Food Exchange list: its use in diet plan. Glycemic Index of Food.

UNIT-III

Hypertension, Coronary and Renal Disorders:

Causes, Symptoms and Principles of Dietary Management of Hypertension, Coronary Heart diseases and Renal Disorders

1. Hypertension:
 - a) Normal Blood pressure and types of hypertension
 - b) Role of Sodium /Salt in Hypertension
 - c) Role of diet in management of various types of hypertension,
2. Coronary Heart diseases:
 - (A) Hyperlipidemias: a) Types / Classification b) Role of diet
 - (B) Atherosclerotic Heart disease:

- a) Types b) Role of diet
- c) Prevention: control of risk factors and life style changes.
- 3. Renal disorders: (a) Glomerulonephritis
(b) Nephrotic syndrome
(c) Acute and chronic Renal failure
(d) Importance of dialysis.
(e) Renal calculi

UNIT-IV

Conditions Requiring Nutritional Support:

Causes, Symptoms and Principles of Dietary Management of some of the special conditions requiring Nutritional support:

- 1) Fevers: Short and long
- 2) Anemia: Types
- 3) Surgery: Pre and postoperative care
- 4) Burns: Types, degree
- 5) Cancer: Types of Cancer, carcinogens
- 6) Food Allergy; Common food allergens

COURSE CONTENT:

PRACTICAL

Max. Marks = 20

- 1. Preparation and Evaluation of Therapeutic adaptations of the Normal Diet 1) Liquid Diets (Full Clear) 2) Soft Diet 3) Bland Diet
- 2. Planning, Calculation and Preparation for the following disorders:
 - 1) Gastrointestinal Disorders: Peptic Ulcer, Diarrhea, Constipation
 - 2) Liver Disorders: Jaundice: Mild to Moderate
 - 3] Weight Management: Overweight, Obesity, Underweight
 - 4) Metabolic Disorder: Diabetes (NIDDM)
 - 5) Hypertension and CHD
 - 6) Renal disorders: Nephritis I, Nephritis II / Nephrotic Syndrome
 - 7) Fever: Short and long duration.
 - 8) Anemia: iron Deficiency

INTERNAL ASSESSMENT

Anyone of the following

- 1. Report on visit to a health club
- 2. Project 3. Survey 4. Field Work 5. Canteen

BOOKS RECOMMENDED:

- 1. Nutritive value of Indian Foods: Gopalan C, Rama Sastri and Balasubramanian, S.C. National institute of Nutrition, 1993.
- 2. Krause's Food Nutrition and Diet therapy: L. Kathleen Mahan, Sylvia Escattstump. 19th Edition, W.B. Saunders Co. 1996.
- 3. Normal and Therapeutic Nutrition: Corinne H. Robinson and M. R Lawer, 15th Edition 1997.
- 4. Clinical Dietetics: F.P. Antia 2nd Edition. Oxford University Press 1973.
- 5. Text book of Human Nutrition: Editors: Bamji M.S., Rao N.P, Reddy V. Oxford and IBM pub. Co. Pvt. Ltd. 1996.
- 6. Dietetics: Srilakshmi B., 3rd Edition, New Age International (P.) Ltd., 2000.
- 7. Manual of Nutrition and Diet Therapy: Grills and Bosscher, Macmillan Pub. Co. Inc. 1981.
- 8. Essentials of Nutrition and Diet Therapy Williams S.R. Times Mirror I Mosby College Pub. 1990.
- 9. Nutrition and Dietetics: Shubhangini A. Joshi. Tata McGraw - Hill Pub. Co. Ltd., New Delhi, 1992.
- 10. Diabetes: Deepali Kotwal and Rita Bhargava, Swaprakashan Pub. Cell, L.A.D. and Smt. R.P. College, Nagpur, HEAL Series: 1. 2006,
- 11. Overweight and Obesity : Deepali Kotwal and Neeta Pahwa, Swaprakashan Pub. Cell, L.A.D. and Smt. R.P. College, Nagpur, HEAL Series: 2, 2008.

B.Sc. HOME SCIENCE PART - III

SUBJECT : HUMAN DEVELOPMENT
PAPER-II
Family Dynamics and Developmental Assessment

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVES:

- (1) To make students aware of changes and problems of old age.
- (2) To make students aware of importance of family and marriage.
- (3) To introduce to the students concept of Psychological testing.

COURSE CONTENT

THEORY

UNIT -1

ADULTHOOD

- Young adulthood : Definition - Adult, development tasks, adjustments to new family, work place, parenthood, independence and financial matter, sex role issue.
- Middle Adulthood : Definition, physical changes, menopause, stresses in middle (41-60 years) age, coping with stress at work place and, family, job satisfaction, preparation for pre-retirement.
- Late adulthood : Definition, physiological changes, health problems. Cognitive and memory changes. Retirement - effect on self, family and society, recreational interest of the aged. Issues - Old age homes, loneliness, prolonged illness.

UNIT-II

Marriage

- Marriage .as an institution; goals, rituals Philosophy, functions, changes.
- Mate selection: factors influencing, considerations of exogamy and endogamy, arranged and personal choice of mates.
- Preparation for marriage - social and emotional issue, financial concerns, premarital counseling.
- Marital adjustment- areas, factors influencing.
- Parenthood - Planned, Joys and hazards of parenthood.

Family

- Definitions, functions
- Family life cycle - roles and relationships.
- Changing family patterns in India, Joint, Extended, Nuclear / alternate family patterns.
- Changing roles of husband and wife - traditional vs. flexible roles.
- Crises in family life - unemployment prolonged illness, death, separation, desertion, divorce.

UNIT-III

Developmental Assessment

- Meaning, importance and need.
- Sources of information - Interview, case study, Checklist, and rating scales, observation.
- Identifying the developmental milestones as an important aspect of assessment
- Psychological Testing - origin, uses and functions, standardization (reliability and validity).
- Ethical considerations in testing - confidentiality, Privacy, communication of test result, culture fare tests.

UNIT-IV

Testing

- Test for infants (Bayleys, Brazelon, Denver).
- Test for children.
- Test for children “at risk” (VSMS, Bender Gestalt).
- Test for family school relation (Bells adjustment inventory, PCR)
- Assessment of personality (TAT,SCQ,CPQ, General anxiety scale)
- Intelligence Test (WISC, CPM)

COURSE CONTENT

PRACTICAL

Max. Marks = 20

Psychological Testing

- Type of psychological Test - verbal, Non-verbal, projective and performance.
- Intelligence Test.
- Personality Test.
- Adjustment Inventory.
- Marriage Attitude Scale.
- Vocational Interest Scale:
- Parent child Relationship Scale.
- Emotional Maturity Scale.
- Academic anxiety Scale.
- Vineland social maturity Scale.

Record to be maintained and Examination to be conducted.

INTERNAL ASSESSMENT

- Study of old age problem
Interview 10 people and prepare a report.
- Visit to home for the aged

BOOKS RECOMMENDED:

- | | | |
|---|---|---|
| 1) Psychological Testing | : | Anna Anastari |
| 2) Advanced Educational Psychology | : | S. Dandapau, Anmol Publications Pvt. Ltd., New Delhi. |
| 3) Human Development | : | Diane E. Papalia and Sally Wendkos olds. 5 th Edition 1981, Tata McGraw Hill Publishing Co., New Delhi. |
| 4) Counseling Psychology | : | Narayan Rao, 5 ^m Edition, Tata McGraw Hill Publishing Co., New Delhi. |
| 5) Abnormal Psychology and Modern Life | : | Coleman. 1988 5 th Edition, D.B.Taraporevala Sons and Co. Pvi. Ltd. |
| 6) Marriage and family building a successful Marriage | : | Landis and Landis, 2 nd Edition, 1953 Prentice Hall INC Englewood Cliffs NJ. |
| 7) Marriage | : | Robert V. Blood. |
| 8) Marriage and Family in India | : | Kapadia M.M., 3 rd Edition, Calcutta 1966 6 th 1981 Oxford University Press, Delhi / Bombay / Madras. |
| 9) Theory and practice of Psychological testing | : | Freeman, 3 rd Edition, Oxford and IBH Publishing Co., New Delhi, Bombay, Calcutta. |

B.Sc. HOME SCIENCE PART-III
SUBJECT: TEXTILE AND CLOTHING
PAPER-III
Advanced Pattern Making and Fashion Designing

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVES:

1. To develop skill in designing and making paper pattern for different garment.
2. To orient students in detail the principles of draping fabric on the dress form.
3. To learn basic fashion designing process and apparel manufacture,
4. To gain Knowledge of fashion marketing and merchandising.

COURSE CONTENT: THEORY

UNIT-I:

1. Commercial pattern development.
 1. Body types and measurements.
 2. Pattern making.
 - a) Pattern envelope-front and back of envelope, garment description and fabric types
 - b) Pattern Markings: Essential symbols of patterns- piece identification grain lines, darts, center front and back, fold lines, lengthen and shorter lines,
 - c) Helpful marking-cutting lines, stitching lines, direction, gathers, pleats, hem, width, pattern layouts.
 1. Pattern grading: Definition and different methods for grading pattern.
 2. Different methods of pattern designing a) Drafting b) Flat pattern
 - c) Draping.

UNIT-II

1. Dart: Types of dart, dart manipulation and its different methods-Slash and Spread and Pivot method.
2. Types of figures and its defects.
3. Selection of dress design on the basis of art principles and effect of line colour design and texture on different type of figure.
4. Factors affecting fitting, fitting problems and their remedy.

UNIT-III

1. Fashion- Introduction, definition, origin of fashion and fashion design, fashion concept, fashion terms.
2. Classification of fashion, factors influencing fashion. Terms related to fashion industry, fashion cycle and fashion trends in India.
3. Flow chart of fashion design process to promote inspiration, innovation. Research inspiration, fashion prediction, flow chart of introduction to design process, silhouettes, colours.

UNIT-IV

1. Study of basic design features in costumes of different states of India, Punjab, Gujarat, Rajasthan, Tamilnadu, West Bengal, Maharashtra,
2. Fundamentals of apparel production, different departments in garment industry and their working.
3. Fashion marketing and merchandising, market research, analysis of market trends, fashion advertising, promotion, different style and methods.

COURSE CONTENT PRACTICAL

Max. Marks = 20

1. Sketching of different types of fashion figure of 10 and 12 inches and their different features, dress up croqui.

2. Drafting cutting stitching and designing of following garments by using different types of fabric.
 - a) Casual wear (Skirt and Top)
 - b) Evening wear (Salwar / Chudidhar kurta)
 - c) Saree blouse plain / katori
3. Designing and making one fashion accessories (Purse/Belts/Fashion Jewellery /Scarves/Stole etc.)
4. Draping on dress form
 - a) Basic front and back bodice of skirt.
 - b) Dart manipulation
 - c) Yokes and collars.
 - d) Flared, pleated and hip yoke skirt.
5. Use of computer in fashion designing.

INTERNAL ASSESSMENT

10 marks

- a) The Internal Assessment marks will be given on different type of garments.
 - b) Casual wear
 - c) Evening wear
 - d) Saree blouse plain / katori
- Preparing a portfolio of fashion illustration

ACTIVITIES:

- i) Visits to fashion institute, export house and study tour.
- ii) Organizing a fashion show of garments designed by students.

BOOKS RECOMMENDED:

1. Aswani K.T. - Fancy weaving mechanism, Mahajan Books, Ahmedabad.
2. Deulkar Durga - Household Textile and Laundry Work, Atmaram and Sons, Delhi.
3. Dongorkemy Kamala S. - The Romance of Indian Embroidery, Thakur and Co. Bombay.
4. Dorothy Siegart, Lyle - Modern Textiles - John Wiley and Sons Inc. New York.
6. Gohl EPG and Vilensky - Textile Science. CBS Publications Shahdrda, Deihi
7. Potter MD and Corbman BP. Textiles: Fibres to Fabric. Published by McGraw Hill Inc. U.S.A
8. Usha Shrikant - Ethnic Embroidery of India, Samata Enterprises, Mumbai.
9. William Watson - Textile Design and Colour, Longman Green and Co. London
10. Vastra Shilp Vigyan by Vimla Sharma. Loyal Book Depot Meerut.
11. Vastrashastra: Prof. Vimal Adhau Maharashtra Vidhyapeeth Granih Nirmit Mandalasathi - Vidhya Books Aurangabad.
12. Vastravigyan avam Paridhan: Dr. Vrunda Singh Panchsheel Prakashan Jaipur.
13. Vastravigyan avam Paridhan: Dr. Pramila Verma, Bihaar Hindi Granth Academy
14. Vastra Shilp Vigyan : Vimla Sharma
15. Vastravigyanke Mul Sidhant - Dr. G. P. Sheeri - Vinod Pustak Mandir Agra.
16. Brockman Helen L.- The Theory of Fashion Design, New York John Wiley and Sons.
17. Ervin Walde D. - Practical Dress Design, New York, Mac Milian Co. 1964.
18. Goulbourn, magritha, introducing Pattern cutting Grading and Modelling, London, B. T. Batsford Ltd., 1971.

B.Sc. HOME SCIENCE PART-III
SUBJECT : FAMILY RESOURCE MANAGEMENT
PAPER-IV
Advanced Resource Management

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVES

- 1) To develop ability to manage time, energy and money.
- 2) To manage principles in experimental house and in day-to-day life experience and various small events.

- 3) To develop ability to apply work simplification techniques.
- 4) To make them aware of intelligent choice of consumer goods.

COURSE CONTENT

THEORY

UNIT-I

1) The Management of Resources

- a) Definition and Importance
- b) Planning
 - i) Importance and need for Planning
 - ii) Types
 - 1) Use single - repeat
 - 2) General - specific
 - 3) Levels-master planning and day-to-day planning
 - 4) Sequencing and ordering
- c) Implementation
 - i) Controlling/Execution of plan
 - ii) Energizing - checking the progress
 - iii) Adjusting the Plan
- d) Evaluative feed back
 - i) Importance
 - ii) Types
 - 1) Formal 2) Informal 3) Self
- e] Management as system - An input - output model

2) Time Management:

- a) Definition
- b) Nature/Importance of time.
- c) Specific aids or tools of time management
 - i) Work Production Curves ii) Rest and sleep periods
- d) Process of managing time
 - i) Planning ii) Implementation iii) Evaluative feedback
- e) Leisure
 - i) Meaning ii) Importance iii) Activities

UNIT-II

1) Energy Management

- a) Meaning. Importance
- b) The efforts used in Home making activities
- c) Energy requirements for household tasks
- d) Forms and effects of fatigue
- e) Process of managing energy.
 - i) Planning ii) Implementing iii) Evaluative feedback

2) Work Simplification

- a) Definition
- b) Importance
- c) Techniques
 - i) Process chart ii) Operation chart iii) Pathway chart
- d) Mundel's classes of change

UNIT-III

1) Finance/Money Management

- a) Income - concept
- b) Planning - definition, Importance of family finance plan/Budget - steps in making budget
- c) implementing
- d) Evaluative feedback

2) Account keeping

- i) Definition and Importance
- ii) Types of Account keeping

- 3) a) Definition of consumer
- b) Intelligent choice of consumer goods

- c) Consumer credit - credit purchase
- d) Consumer protection

UNIT-IV

Application of Management Principles

1) Experimental House

Meaning, Importance & objectives

Organization : Duration, Duties, Rotation of duties, Group finance, Menu Planning, Work simplification through menu planning, Work plans, Evaluation in residence course

2) Event Management

What is an event

What is event management

Planning implementation and review of

- a) Family function
 - i) Birthdays
 - ii) Engagement
 - iii) Anniversaries
 - iv) Wedding reception
- b) Formal meetings
 - i) Seminars
 - ii) Conferences
- c) Exhibitions/Trade show
- d) Product launch meeting - Product display
- e) Theme specials

COURSE CONTENT:

PRACTICAL

Max. Marks = 20

Experimental House

Home Science Colleges have a practice House in which students stay for a week or two. Each student group sets up its own goal, its organization of work, its calendar, budget and outline of project. Experimental house furnished with up-to-date equipments and furnishing illustrating family living at a relatively Middle income level; is made available. Colleges can experiment with shorten period, and day time residence (particularly for married students).

The students are required to perform the following duties and evaluated on their performance of each day.

OR

- 1) Preparation of a plan for alternating light and heavy job through work simplification.
- 2) Activities of working and non-working women.
- 3) Work simplification technique applied to any activity - Pathway - Process - Operation chart,
- 5) Establishing Budget making and actual spending (for any event)
- 6) Account keeping- (of any event)

INTERNAL ASSESSMENT:

(Any two from the following)

- a) Visit to Exhibition /Trade show - Report -
- b) Attending seminar and conference - Report and review.
- c) Giving seminar on related topics.
- d) Assignment on related topics.

BOOKS RECOMMENDED:

- 1. Good year and Klohar, 'Managing for Effective Living.' John Wiley and Sons.
- 2. Gross-crandall-knoll, 'Management for Modern Families.' Prentice Hall, Inc. New Jersey.
- 3. Nickell - Rice – Tucker, 'Management in Family Living.' John Wiley and Sons.
- 4. Swanson Bettye, 'Introduction to Home Management.' McMillan Pub. House Inc. New York.
- 5. Sounderaraj Stella, 'A Textbook of Household Arts.' Orient Longman Publication

B.Sc. HOME SCIENCE PART-III

SUBJECT – HOME SCIENCE EXTENSION

PAPER -V
Extension Communication Techniques

Total Marks - 100

Theory - 70

Practical - 20

Internal Assessment -10

OBJECTIVE:

- 1) To develop understanding regarding mass media.
- 2) To develop concept and process of communication.
- 3) To know various applicable extension teaching methods.
- 4) To understand the concept of research.
- 5) To know about extension teaching and learning.

COURSE CONTENT:

THEORY

UNIT-I

1. Communication technique:

Meaning and definition of communication, importance of effective communication, key elements involved in communication process - communicator, message, channel, treatment of message, audience and audience response, critical factors affecting the communication process.

2. Mass media communication:

Meaning, importance of mass media in the context of extension work, sources of current information, technique of effective writing, written communication in the field of extension - news paper column news letter, radio-talk of television script.

UNIT-II

3. Extension teaching methods:

Meaning, definition, importance, functions, classification of various teaching methods, interpersonal approach-home visit, office call, personal, letter and telephone call; Group approach - demonstration, field trips and group discussions; Mass approach - campaign, exhibition etc.

4. Media in extension:

Meaning of media, cone of experience and classification of media - Print media Electronic media and Folk media. Print media- poster, chart, news paper. Electronic media-radio, television and films. Folk media - Puppets, folk dance, folk music.

UNIT-III

5. Art of presentation in communication;

Meaning, five basic steps of presentation and equipment for campaign work, devices useful in effective communication - O.H.P.; Opaque projector, D.V.D. player, L.C.D etc. selection preparation and use of various teaching aids.

6. Journalism in extension:

Meaning of news, principles of news, methods of collecting news, qualities and duties of reporter, editor and correspondents,

UNIT-IV

7. Advertisement in mass communication

Meaning and scope of advertisement, planning of advertisement layout, format of advertisement, role of advertisement and its effect on consumers.

8. Coordination and Training:

Importance of coordination necessity of team work, important aspects of coordination, importance and type of training for extension worker.

COURSE CONTENT:

PRACTICAL

Max. Marks = 20

1. Preparation of radio script.
2. Preparation of puppets / extension bulletin.

3. Preparation and presentation of computerized teaching aid-slide/transparency.
4. Preparation of television script.
5. Handling and operation of over-head projector to provide information to the learners.

INTERNAL ASSESSMENT

1. Organizing and conducting on Home Science Extension aspect
2. Arranging exhibition/display of articles related to extension work.

BOOKS RECOMMENDED:

1. Super S.V, An introduction to Extension Education - Oxford and IBM Publishing Co.; Pvt. Ltd., New Delhi and Kolkatta.
2. Dahama O.P. and Bhatnagar O. P.: Education and Communication for Development, Oxford and I.B.H. Publishing Co. New Delhi, 1977.
3. Reddy Adivi Extension Education - Shree Laxmi Press, Bapatta, Guntur A.P.
4. Garg J. S.: Agricultural Extension and Community Development - Gaya Prasad and Sorts: Agra, UP
5. Bajpai S. R. Social Survey and Research - Kitab Char, Kanpur UP.
6. J. K. Singh: Mass Media and Information Technology (Issue for 21st Century); Mangal Deep Publication, Jaipur.
7. Directorate of Extension: Extension Education in Community Development.
8. Kumar K.J.L. Mass Communication in India, Jaico Publishing House, Mumbai, 1989.
9. Audio-Visual Aids for Cooperative Education and Training, FAO Publications.
10. Mehta D.S. - Mass Communication and Journalism in India, Allied publishers.
11. Ray G.L - Extension Communication and Management, Naya Prakash, Calcutta.

B.Sc. HOME SCIENCE PART-III SUBJECT: HOUSEHOLD BIOLOGY PAPER-VI Public Health and Epidemiology

Total Marks - 75

Theory - 50

Practical - 25

OBJECTIVES:

1. To understand the concept of health for the Individual and communities perspective.
2. To know the importance of epidemiology in health

COURSE CONTENT:

THEORY

UNIT-I

Communicable and Infections disease control.

Natural of communicable and infectious diseases, infection contamination, transmission-direct and indirect, vector borne disease epidemiology of infection, infecting organism and causative agents their microbiology environmental measures and epidemiologic principles of disease control.

UNIT-II

- A) 1) General concept of bacteria and Viruses. (Prokaryotes and eukaryotes major five differences).
- 2) Morphological characters of bacteria (shape)

- 3) Gram staining (gram+ve and gram-ve)
 - 4) Typical diagram of a bacterial cell
 - 5) Useful and harmful activities of bacteria.
- B) Causative agent, mode of transmission, incubation period, sign/symptoms, care and preventive measures of following diseases-**
- 1) Water, food and milk borne bacterial/viral diseases.
Hepatitis, Cholera, Typhoid, Dysentery.
 - 2) Air borne infections -
Mycobacterium tuberculosis, Poliomyelitis.

UNIT-III

A) Immunity and Parasitic Infections

- a) Immunity
Definition, Classification : Natural and Acquired immunity, Active and Passive immunity.
- b) Vaccines
- c) National Immunization Schedule
- d) Antibiotics.

B) Parasitic Infections

Mode of infection, life cycle, harmful effects prevention and control of following infestations : Amoebiasis, Ascariasis, Malaria and Filaria

UNIT-IV

- a) Health Education
Aims, objectives and principles
Role of communication in health education
- b) International health organizations: WHO, UNICEF
- c) Implication of Drug addiction, Narcotics, Alcoholism, Smoking.
- d) Geriatrics.
- e) Demography- Birth rate, Death rate and Census.
- f) Family Planning - Its necessity, advantages and methods.

COURSE CONTENT

PRACTIALS

Max. Marks = 25

- 1) Examination of slides of microorganisms (Gram+ve and Gram-ve cocci and bacilli) staphylococci, streptococci, mycobacterium tuberculosis, E. coli, malarial parasite and filarial parasite.
- 2) Preparation of blood slide and staining by Leishmans' stain
- 3) Demonstration of RBC, WBC and platelet counts
- 4) Identification of RBC, WBC and platelets.
- 5) Urine examination:-
Physical and Chemical examination sugar, albumin Acetone bodies, bile salts, bile pigments.
- 6) Study of common insecticides, disinfectants like DDL phenyl, BHC, Bleaching powder etc.
- 7) Determination of Haemoglobin percentage by Sahli's Haemometer.

BOOKS RECOMMENDED:

- 1) Essentials of Community Health and Nursing - J. E. Park
- 2) You and your Health - V. N. Bhave
- 3) Text Book of Obstetrics - D. C. Dutta
- 4) Hand Book of Medical Laboratory Technology - Dr. V. H. Talib.
- 5) Text book of Elemental Hygiene - V. N. Bhave
- 6) Text Book of Preventive and Social Medicine - J. E. Park

B.Sc. HOME SCIENCE PART - III
SUBJECT : NUTRITIONAL BIOCHEMISTRY
PAPER-VII
NUTRITIONAL BIOCHEMISTRY

Total Marks - 75

Theory - 50

Practical - 25

OBJECTIVES

This course will enable the students to

1. Develop understanding of basic biochemistry (applicable to human nutrition)
2. Obtain an insight into the chemistry of major nutrients and physiologically important compounds.
3. Understand the biological processes and systems as applicable to human nutrition.
4. Apply the knowledge acquired to human nutrition and dietetics.

COURSE CONTENT:

THEORY

UNIT-I

I. Carbohydrates:

1. Definition and Classification: Mono, Di, Oligo, and Polysaccharides with at least two examples of each class.

Monosaccharides -

- 1) based on number of carbon atoms (Triose, Tetrose, Pentose, Hexose)
- 2) based on functional group (Aldo and Keto derivatives)

Polysaccharides- Homopolysaccharides & Heteropolysaccharides :
starch, glycogen, cellulose, pectin.

2. **Structure and sources of**

- Monosaccharides: glucose, fructose and galactose.
- Disaccharides- maltose, lactose and sucrose

II) Carbohydrate metabolism: Absorption, transport and assimilation of Carbohydrates.
Introduction and significance of

1. Glycolysis,
2. Kreb's Cycle
3. Glycogenesis,
4. Glucogenolysis
5. Gluconeogenesis,
6. HMP shunt.

UNIT-II

I) Amino Acids : Basic structure of amino acid and formation of peptide bond

1. Classification :
 - 1) Polar and Non-polar.
 - 2) Essential and Non-essential amino acids
 - 3) Glucogenic and Ketogenic

II) Proteins:

- 1) Definition and classification of proteins (based on solubility, based on functions)
- 2) Structure: Basic idea of primary, secondary and tertiary structure of protein.

III) Protein Metabolism

- 1) Absorption, transport and assimilation of proteins.
- 2) Introduction of i) Transamination, ii) Oxidative Deamination, iii) Urea Formation.
- 3) Enzymes: Classification according to IUB system. Effect of temperature and pH on the activity of enzymes.

UNIT-III

I. Lipids: Definition and Classification.
Essential and non essential fatty acids

II. Lipid Metabolism:

1. Absorption, transport and assimilation of lipids.
2. Lipid profile (Cholesterol, Bile acids, Triglycerides) and Health status.
3. Definition of : Lipogenesis, Hypolipidemia and Hyperlipidemia

4. Formation of Ketone bodies in diabetics.
5. Elementary idea of Beta Oxidation.

UNIT-IV

I. Nucleic Acids:

Structure of a mononucleotide, Bases found in nucleic acids. Difference between RNA and DNA and their functions. Structures of DNAs and RNAs, Base pairing rule.

II. Metabolism : Introduction to Metabolism and its relation to nutrition

III. Definition : Blood sugar regulation - hypoglycemia, hyperglycemia and renal threshold. Glucose Tolerance Test.

COURSE CONTENT

PRACTICAL

Max. Marks = 25

I. QUALITATIVE ANALYSIS

1. Colour Reactions of Carbohydrates.
2. Colour Reactions of Proteins.
3. Colour Reactions of Cholesterol.

II. QUANTITATIVE ANALYSIS

4. Sorenson's Amino Acids Titration (Formol Titration)
5. Estimation of Glucose by Benedicts Method.

III. SMALL EXPERIMENT

6. Preparation of Potato Starch : 1) Solubility test and 2) Colour Reactions
7. Isolation of Casein from Milk: 1) Solubility test and 2) Colour Reactions.

IV. EXPERIMENTS WITH ENZYMES

8. Action of Ptyalin (Salivary Amylase) on Starch.
9. Inversion (Hydrolysis) of Sucrose by Yeast Invertase

BOOKS RECOMMENDED

1. West E. S., Todd W. R., Mason and Van Bruggen J. T. (1974) 4th Ed. Text book of Biochemistry, Amorind Pub. Co.
2. While A., Handlar P., Smith E. L. Stolten D.W. (1959): 2nd Ed. Principles of Biochemistry. McGraw Mill Book Co.
3. Murray R K Granner, D.K., Mayes, P.A. and Rodwell V.W. (1993): 23rd Ed. Harpers Biochemistry. Lange Medical Book.
4. Lehninger, A.I, Nelson D. L. Cox M. M. (1993): 2nd Ed. Principles of Biochemistry, CBS Publishers and Distributers.
5. Devlin, T.M. (1986): 2nd Ed. Text book of biochemistry with Clinical correlations, John Wiley and sons. Stryer, L (1995): Biochemistry, Freeman WH and Co.

B.Sc. Home Science Part – III

Sr. No.	Subject	Marks Internal Assessment	Marks Practical
1	Diet Therapy	10	Total – 20 Record – 05 Planning – 03 Calculation – 03 Cooking – 03 Presentation – 03 Viva – 03
2	Family Dynamics and Developmental Assessment	10	Total – 20 Psychological Test – 10 Record – 05 Viva – 05
3	Advanced Pattern Making and Fashion Designing	10	Total – 20 Record – 05 Drafting – 07 Stitching – 08
4	Advanced Resource Management	10	Total – 20 a) Duties Hostess – 02 Cashier cum Accountant – 03 Cook – 03 Asst. Cook – 03 Housekeeper – 02, Assistant House keeper-02 b) Report of cottage stay-05 OR Practical – 15 Record – 05
5	Extension Communication Techniques	10	Total – 20 Practical – 15 Record – 05
6	Public Health and Epidemiology	-	Total – 25 Long Experiment – 06 Short Experiment – 04 Spotting – 05 Viva – 05 Record – 05
7	Nutritional Biochemistry	-	Total – 25 Quantitative Experiment – 06 Qualitative Experiment – 06 Short Experiment – 03 Viva – 05 Record – 05

Prospectus No.
Home Sc. (1), (2) & (3)
3 Y. D. C.

गृहविज्ञान विद्यापीठाखा
गृहविज्ञान स्नातक भाग—१, २ आणि ३ वर्ष
१/४ त्रिवर्षीय अभ्यासक्रम १/२

राष्ट्रसंत तुकडोजी महाराज नागपूर विद्यापीठ



Rashtrasant Tukadoji Maharaj
Nagpur University, Nagpur

अभ्यासक्रमिका
PROSPECTUS

FACULTY OF HOME SCIENCE

Bachelor of Science (Home Science)

First Year : 2014-15
Second Year : 2015-16
Final Year : 2016-17
and onwards
Three Years Degree Course