M.Sc. (Home Science)

SYLLABUS 2014-15/2015-16

SYLLABUS OF SEMESTER SYSTEM

FOOD SCIENCE AND NUTRITION

1st SEMESTER

Marking Scheme:

PART I - THEORY

<table>
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PART II - PRACTICAL

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<tr>
<td>Practical I</td>
<td>Nutrition &amp; Food Microbiology</td>
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PAPER - I

RESEARCH METHODOLOGY

Max. Marks: 80

Objectives:

To understand the significance of research methodology in Home Science research.
To understand the types, tools and methods of research and develop the ability to construct data gathering instruments appropriate to the research design.

UNIT-I

1. Science, scientific methods, scientific approach.
2. Role of research in Home science discipline.
3. Objectives of research: Explanation, control and prediction.
4. Types of research: Historical, Descriptive, Experimental, case study.
5. Social research and survey: Meaning, definition, nature, scope, objects, types. distinction between social survey & research.
6. Pre-testing and pilot survey.

UNIT-II

7. Definition and identification of research problem.
   - Selection of research problem.
   - Justification.
8. Fact, Theory and concept.
9. Hypothesis: Definition, sources, characteristics, importance, main difficulties in formation of hypothesis, disadvantages, Limitations and Delimitations of the problems.
10. Types of variables.

UNIT-III

11. Basic principles of research design:
   - Purposes of research design: fundamental, applied and action, exploratory, and descriptive, experimental, ex-post facto.
   - Longitudinal and cross sectional, co-relational.
12. Data gathering instrument.
   - Observation,
   - Questionnaire,
• Interview,
• Scaling method,
• Case study,
• Home visits,
• Reliability and validity of measuring instruments.

UNIT-IV
13. **Theory of probability:** Non-probability sampling: purposive, Quota and volunteer sampling/snow ball sampling

14. **Sampling:** Population and sample, Meaning, Characteristics, advantages and disadvantages.

**Types:**
- Probability sampling
- Random sampling (Simple random, systematic random sampling,)
- Purposive sampling
- Stratified sampling
- Other sampling methods (two stages and multistage sampling, cluster sampling).

UNIT-V
15. Classification and tabulation of data.

16. Analysis and interpretation of data

17. Preparation of report

18. Diagrammatic presentation of data

References:
- Edwards: experimental design in psychological research.
- Kerlinger: Foundation of educational research.

PAPER - II

**PHYSIOLOGY**

Max. Marks 80

Objectives:

This course will enable students to:
- Advance their understanding of some of the relevant issues and topics of human physiology.
- Enable the students to understand the integrated function of all systems and the grounding of nutritional science in Physiology.
- Understand alterations of structure and function in various organs and systems in disease conditions.

UNIT-I
1. **Cell structure and functions**
   Levels of cellular organization and function - organelles, tissues, organs and systems brief review. Cell membrane, transport across cell membrane and intercellular communication. Regulation of cell multiplication.

2. **Nervous system**
   Review of structure and function of neuron, conduction of nerve impulse synapses, role of neurotransmitters Organization of central nervous system structure and function of Brain and spinal cord, Afferent and efferent nerves, Hypothalamus and its role in various body function, obesity, sleep, memory.

UNIT-II
3. **Endocrine system**
   Endocrine glands - structure, function, role of hormones, regulation of hormonal

4. Sense Organs
   Review of structure and function, Role of skin, eye, ear, nose and tongue in perception of stimuli.

UNIT-III 5 Digestive system
   Review of structure and function. Secretary, Digestive and Absorptive function. Role of liver, pancreas and gall bladder and their dysfunction.

6 Respiratory system
   Review of structure and function. Role of lungs in the exchange of gases, Transport of oxygen and CO₂. Role of Hemoglobin and buffer systems. Respiratory quotient, hypoxia, and asthma

UNIT-IV 7. The circulatory system
   Structure and function of heart and blood vessels. Regulation of cardiac output and blood pressure, heart failure, hypertension.

8 Blood formation, composition, blood clotting and homeostasis:
   Formation and function of plasma proteins, Erythropoiesis, Blood groups and his to compatibility. Blood indices. Use of blood for investigation and diagnosis of specific disorders Anemia.

9 The Musculo skeletal system
   Structure and function of bone, cartilage and connective tissue, Disorders of the skeletal system.

Types of muscles structure and function

UNIT-V 10. The excretory system:
   Structure and function of nephron. Urine formation. Role of kidney in maintaining pH of blood.

   Water, electrolyte and acid base balance, diuretics.

11 Immunity system
   Cell mediated and hormonal immunity. Activation of WBC and production of antibodies. Role in inflammation and defense

12. Physiological changes in pregnancy.

References :

PAPER - III

FOOD MICROBIOLOGY Max. Marks: 80

UNIT-I 1. Bacterial morphology, structure, staining, culture media, culture method and identification of bacteria.
2. Growth and Nutrition of Bacteria: Intrinsic and extrinsic parameters that affect
microbial growth.

UNIT-I 3. Microorganism important in food microbiology - Mold, yeast, bacteria.

4. Spoilage of different groups of foods:
   a. Cereals and cereal products
   b. Vegetables and fruits
   c. Fish and meat products
   d. Meat and meat products
   e. Eggs and poultry
   f. Milk and milk products
   g. Canned foods

UNIT-II 5. Contamination of foods.

6. Food Preservation:
   a. General principles of food preservation: Asepsis, removal of microorganism, maintenance of anaerobic conditions.
   b. Preservation by use of high temperature.
   c. Preservation by use of low temperature
   d. Preservation by drying.
   e. Preservation by food additives
   f. Preservation by radiation.

UNIT-IV 7. Foods in relation to disease:
   Food borne illness: Bacterial and viral food borne disorders. Food borne important animal parasites, mycotoxins.

8. Fermented Foods:
   Role of microbes in fermented foods -
   a. Fermented dairy products
   b. Fermented vegetables
   c. Fermented meat
   d. Fermented fish
   e. Beverage and distilled products.

UNIT-V 9. Indices of Food Sanitary Quality:
   a. Microbial criteria of food.
   b. Microbial standards and food safety

10. Controlling the microbial quality of foods -
    a. Quality control using microbial criteria.
    b. The HACCP (Hazard Analysis and Critical Control Point) system

11. Anti microbial therapy

12. Food Laws

PAPER - IV

PROBLEMS IN HUMAN NUTRITION Max. Marks: 80

UNIT-I 1. Nutritional screening and assessment of nutritional status of hospitalized and outdoor patients. Identification of high risk patients. Assessment of patient needs based on interpretation of patient data (Clinical, biochemical, biophysical, personal etc.)

2. Nutritional support: Recent advances in techniques and feeding substrates.


UNIT-I 4. Diet and drug interaction: Effect of drugs on ingestion, digestion and metabolism of nutrients.

5. Neurological disorders:
6.6 Childhood problems: Inborn errors of metabolism and their nutritional management.
   - Maple syrup urine disease - Tyrosenemia, Galactosemia, Phenylketonuria.

UNIT-III 7. Musculoskeletal disorders:
- Arthritis - Nutritional care
- Gout - Characteristics, nutritional care

UNIT-IV 8. Cancer:
- Types of cancer, Nutritional effect of cancer, Nutritional disorders related to treatment, diet in cancer.

UNIT-V 9. Osteomalacia and osteoporosis - Etiology, symptoms and nutritional care,
   - Rickets
   - Dental carries - Etiology, nursing bottle carries.
   - Nutrition in AIDS.

References:
PRACTICAL - I
NUTRITION & FOOD MICROBIOLOGY  Max. Marks: 100

Objectives:
The aim of the course is to:
1. Familiarize students with basic techniques used in Studies and Research in Nutritional Sciences.
2. Acquaint students with the methods of estimating nutrient requirements.
3. Orient students towards planning of metabolic studies.

Note: Any 10 practicals from ‘Part I’ and any 5 practicals from ‘Part II’.

PART-I
1. Estimation of protein quality using different methods PER, B.V., N.P.U., NDP-Cal%
2. Estimation of energy value of food stuffs using bomb calorimeter.
   • BMR
   • Energy expenditure on physical activities.
   • Factorial approach
4. Balance studies – Nitrogen balance
5. Assessment of micronutrient status
   a. Iron
   b. Vitamin ‘C’
   c. Vitamin ‘A’
   d. Vitamin from ‘B’ Complex group.
6. Bioavailability of selected nutrients
7. Assessment of nutritional status including Body composition.
8. Physiological parameters like heart rate and blood pressure
9. Assessment of coronary risk profile– RLSKO factor
10. Assessment of bone health
11. Planning diets and formulating dietary guide lines
   • Fitness and health
   • Prevention of chronic degenerative disorders
   • Obesity management
   • Management of diabetes mellitus and CVD
12. Review of existing alternative diet related systems for physical fitness and health.
13. Planning and preparation of diets for the elderly in health and sickness.

PART II
1. Preparation of common laboratory media and special media for cultivation of bacteria, yeast and moulds.
2. Staining of bacteria- grams staining, spore, capsule, motility of bacteria, staining of yeast and moulds.
3. Identification of important moulds and yeasts (slides).
4. Study of environment around us as source of transmission of micro organisms in food.
   Assessment of surface Sanitation of food preparation units.
5. Bacteriological analysis of milk.
6. Demonstration of available rapid methods, diagnostic kits used in identification of microorganisms or their products.
7. Visits to food processing units or any other organization dealing with advance methods in food microbiology.
FOOD SCIENCE AND NUTRITION
M.SC. PREVIOUS - 2ND SEMESTER

MARKING SCHEME:

PART I - THEORY

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PART II - PRACTICAL

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PART III - INTERNSHIP / FIELD PLACEMENT

1. The student will be required to undergo an internship/field placement for a total duration of six to eight weeks in their chosen area of interest after 2nd semester which will facilitate their pursuing a professional career in the same field.

2. This programme could be taken up either as a single block or in two different blocks. It is mandatory that the organization / institution (public/private) participating in the field.

3. Placement programme will be of good professional standing. The list may include Hospitals, state run NGO, Food industry, etc. The student will be required to submit and present a report of the internship/field placement project after its completion. It is also envisaged that participating organization/institution will give their performance appraisal of the student work. Grade A (60% and above), Grade B (48% to 59%), Grade C (40% to 47%) should be given to the student after evaluation of field placement/internship report by the department. The grade will be mentioned in the mark sheet of the 4th semester of the student.

4. Excursion trip/field visits should be arranged regularly by the department for the up-liftment of the knowledge of the students.

5. This programme is designed with the following objectives:

   I. To enable the students to acquire an in-depth understanding of the practical aspects of knowledge and skills acquired during the course in the relevant subject/subjects.

   II. To gain hands on experience for higher proficiency in their selected area of expertise.

   To help the students to develop and have their analytical abilities for situation and analysis and bringing about improvements.

PAPER - V

STATISTICS AND COMPUTER APPLICATION Max. Marks: 80

UNIT-I Objectives:

1. To understand the significance of statistics and research methodology in Home Science research.
2. To understand the types, tools and methods of research and develop the ability to construct data gathering instruments appropriate to the research design.
3. To understand and apply the appropriate statistical technique to the measurement scale and design.
4. To understand the role of statistics and computer application in research.
5. To apply statistical techniques to research data for analysis and interpreting data meaningfully.

UNIT-I  1. Conceptual understanding of statistical measures - meaning, definition, scope, importance, characteristics, distrust of statistics.
2. Classification and tabulation of data.
3. Measurement of central tendency
   - Mean
   - Median
   - Mode

UNIT-I  4. Graphic presentation of data
   - Frequency distribution
   - Histogram
   - Frequency polygons
   - Frequency curve
   - Ogive
   - Binomial distribution
   - Parametric and non-parametric tests

UNIT-II  5. Methods of Dispersion and variation
   - Mean deviation
   - Standard deviation
   - Quartile deviation
   - Independence of attributes 2×2 and r×c contingency tables
   - Analysis of variance - one way method Direct and short cut.

UNIT-IV  7. Computer generations - Classification of computers; Analog digital hybrid general and special
8. Types of computers - Micro Mini Mainframe and super computer
   - Chi square test Goodness of it
   - Application of student 't' test for small samples

UNIT-V  9. Correlation - definition, meaning and types.
10. Methods of determining coefficient of correlation
   - Product moment correlation
   - Rank correlation.
11. Working with MS Word
   - Getting started with word, formatting text and paragraph.
   - Applying text and language tools, designing pages, with columns and tables, using graphics.

References:
OBJECTIVES:

This course is designed to:

- Provide an understanding of composition of various foodstuffs.
- Familiarize students with changes occurring in various foodstuffs as a result of processing and cooking.
- Enable students to use the theoretical knowledge in various applications and food preparations.

UNIT-I

1. Introduction to Food Science:

2. Water: Physical properties of water and Ice, chemical, nature, structure of the water molecule.
   a) Absorption phenomena, types of water solutions and collidative properties.
   b) Free and bound water.
   c) Water activity and Food spoilage.
   d) Freezing and Ice structure.

   a) Gels: Structure, formation, strength, types and permanence.
   b) Emulsions: Formation, stability, surfactants and emulsifiers.
   c) Foams: Structure, formation and stabilization.

UNIT-II

4. Polysaccharides, Sugars and Sweeteners
   b) Non-starch Polysaccharides: Cellulose, hemicelluloses, pectins, gums, animal polysaccharides.
   c) Sugar and Sweeteners: Sugar, Syrups, potent sweeteners, and sugar products.
   d) Sweetener chemistry related to usage in food products: Structural relationships to sweetness perceptions, hydrolytic reactions, solubility and crystallization, hydroscopicity, fermentation, non- enzymatic browning.

UNIT-III

5. Cereals and Cereal Products
   a) Cereal grains: Structural and composition.
   b) Cereal products.
   c) Flours and flour quality.
   d) Extruded foods, breakfast cereals, wheat germ burger, puffed and flaked cereals.

6. Fats, Oils and Related Products
   Sources, composition, effects of composition on fat properties. Functional properties of fat and uses in food preparations. Fat substitutes. Fat deterioration and antioxidants.

UNIT-IV

7. Proteins: Classification, composition, denaturation, non- enzymatic browning and other chemical changes.


UNIT-V

yoghurt, butter, whey cheese, concentrated and used products, frozen desserts, dairy product substitutes

**Journals:**
1. Journal of Food Science Published by the Institute of Food Technologist, Chicago lu U.S.A.
2. Journal of Food Science and Technology published by Association of Food Scientists and Technologist (India) CFTIRI- MYSORE.
3. Food Technology Published by the Institute of Food Technologist, Chicago lu, U.S.A.

**PAPER - VII**

**FOOD CHEMISTRY Max. Marks: 80**

**UNIT-I** 1. **Meat and Poultry:** Muscle composition, characteristics and structure. Post mortem changes processing, preservation and their effects. Heat induced changes in meat variables in meat preparation, Tenderizing treatments, meat products.
   2. **Eggs:** Structure and composition, changes during storage. Functional properties of eggs, use in cookery. Egg processing, low cholesterol egg substitutes.

**UNIT-I** 3. **Fish and sea foods:** Types and composition, storage and changes during storage, changes during processing, by-product and newer products.
   4. **Pulses and Legumes:** Structure, composition, processing, toxic constituents.
   5. **Nut and oil seeds:** Composition, oil extraction and by-products.
   6. **Protein concentrates:** Hydrolysates and textured vegetable proteins, milk substitutes.

**UNIT-II** 7. **Fruits and vegetables:** Plant, anatomy, composition, Enzymes in fruits and vegetables. Flavor constituents, plant phenolics, pigments, post harvest changes. Texture of fruits and vegetables. Effects of storage, processing and preservation.
   8. **Spices and condiments:** Composition, flavoring extracts - Natural and synthetic

**UNIT-IV** 9. **Processed foods:** Jams, jellies, squashes, pickles, dehydrated products.
   10. **Beverages:** Synthetic and natural, alcoholic and non-alcoholic, carbonated and non-carbonated, coffee, tea, cocoa, malted drinks.

**UNIT-V** 11. **Traditional processed products:** Fermented food - Cereal based, pulse based, fruit/vegetables based like vinegar, pickle.
   12. **Leavened products:** Leavening agents, biologically leavened and chemically leavened products. Batters and dough, bakery products.
   13. **Salt and substitutes.**

**References:**
5. Cherry, R.J.Ed) : Protein Functionality in Food. American Chemical Society, Washington D.C.

**Journals:**
1. Journal of Food Science
2. Advances in Food Research
3. Journal of Food Science and Technology
4. Journal of Agricultural and Food Chemistry

B.Sc. (Home Science) - Part-I, II, III, M.H.Sc (67)
5. Cereal Science
6. Journal of Dairy Science
7. Journal of the Oil Chemist’s Society.

**PAPER - VIII**

**THERAPEUTIC NUTRITION**

Max. Marks: 80

**UNIT-I 1.** Etiopathophysiology, metabolism and clinical aberration: complications, prevention and recent advances in nutritional management of GIT Disorders

a) Gastritis - Types, dietary modification
b) Peptic ulcer, etiology, symptoms, dietary modification
c) Intervals of feeding, bland diet, four stage diet Therapy, prevention of recurrence.
d) Diarrhea - Classification, dietary consideration
e) Constipation, classification, dietary consideration
f) Ulcerative colitis symptom, dietary treatment
g) Sprue types, dietary consideration.

**UNIT-I 2.** Disease of liver and gall bladder.

a) Diseases of liver and gall bladder
b) Jaundice - classification and dietary treatment
c) Hepatitis - types and dietary management.
d) Hepatic coma - causes and dietary management
e) Cirrhosis- Type and dietary management
f) Cholecystitis- Types and dietary management
g) Cholelithiases- etiology and dietary management


**UNIT-IV 4.** Renal diseases

a) Basal renal functions, classification of renal disease.
b) Glomerulonephritis- Acute and chronic- symptoms and dietetic treatment
c) Nephrosis symptoms and principles of nutritional care.
d) Renal failure- Acute and chronic renal failure, dialysis.
e) Renal calculi- Etiology, types of stones and nutritional care acid and alkaline ash diet.
f) Fevers and infections-Types of fever, Tuberculosis, typhoid and malaria dietetic management

**UNIT-IV 5.** Cardiovascular diseases: Classification.

a) Hyperlipidemia _ Classification and nutritional care.
b) Atherosclerosis - Etiological factors, pathogenesis dietetic management.
c) Hypertension - Classification, etiology, nutritional care.

**6. Weight Imbalance:** Regulation of energy in take

a) obesity - Types, etiology, treatment, diet and other measures, complication of obesity
b) Under weight ness - causes, dietetics management.

**UNIT-V 7.** Historical background, prevalence, etiology biochemical and clinical manifestation, preventive and therapeutic measures for metabolic disorders.

**8. Diabetic Mellitus.**

a) Incidence and predisposing factors
b) Symptoms, types and diagnoses
c) metabolism in diabetes
d) dietary management and meal management
e) Hypoglycemic agents and insulin  
f) complications of diabetes  
g) Disorders of thyroid gland: normal thyroid function  
  a) Hyperthyroidism _ symptoms and treatment

PRACTICAL - II

FOOD SCIENCE AND THERAPEUTIC NUTRITION

Max. Marks 100

Distribution of Marks:

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PART- A

1. Collection and storage of biological samples for clinical investigation.  
2. Market survey of commercial nutritional supplements and nutritional support substrates.  
3. Commonly used test for diagnosis of various - system – wise.  
   - Interpretation of patient data and diagnostic tests and drawing up of patient diet prescription, using a case study approach.  
   - Follow up- acceptability of diet prescription, compliance, discharge diet plan.  
4. Preparation of diet counseling aids for common disorders.  
5. Planning and preparation of diets for patients with common multiple disorders and complications and discharge diet plans.

PART-B

1. Effect of solutes on boiling point and freezing point of water.  
2. Effect of types of water on characteristic of cooked vegetables, Pulses and cereals.  
3. Sugar and Jaggery Cookery: Relative sweetness, solubility and sizes of sugars, stages of sugar cookery, caramelization, crystallization, factors affecting crystal formation  
5. Jams and Jellies: Pectin content of fruits, role of acid pectin and sugar in jam and jelly formation, Use of gums as emulsifiers / stabilizers.  
8. Egg: structure assessing egg in quality. Use of egg in cookery: Emulsions air incorporation, thickening, binding, and gelling. Method of egg cookery and effect of heat white foams and factors affecting foams:  
12. Leavened Products: Fementation- Use of microorganisms ((lactic acid yeast). Steam as an agent, Egg as a chemical agent.  
13. Frozen Desserts: Factors affecting ice crystal formation. Quality characteristics of frozen
FOOD SCIENCE AND NUTRITION

M.SC. (HOME SCIENCE) FINAL

3rd SEMESTER

Marking Scheme:

PART I - THEORY

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PART II - PRACTICAL

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PAPER - IX
ADVANCED NUTRITION

Max. Marks: 80

Objectives:
This Course is designed to:
a) Provide in depth knowledge of the physiological and metabolic role of various nutrients and their interactions in human nutrition.
b) Enable students to understand the basis of human nutritional requirement and recommendations through the life cycle.
c) Enable students to understand the pharmacological actions of nutrients and their implications.
d) Familiarize students with the recent advances in nutrition.


UNIT-I 2 Carbohydrates: Types, classification, digestion and transport- review, dietary fibres, fructo, oligosaccharides, resistant starch- chemical composition and physiological effects Glycemic index of foods. Sweeteners nutritive and non-nutritive.

UNIT-II 3 Proteins: Classification, digestion, absorption and transport- review. Metabolism of proteins: Role of muscle, liver and gastro intestinal tract in protein metabolism. Protein quality, methods of evaluating protein quality. Protein and amino acid requirements. Therapeutic applications of specific amino acid.
4. **Lipids**: Classification, digestion, absorption, transport - review. Functions of fats. E.F.A. Role of n-3 n-6 fatty acids in health and disease. Requirements of total fat and fatty acids. Trans fatty acids, prostaglandins, phospholipids, cholesterol.

**UNIT-IV**

5. **Water**: Regulation of intra and extra cellular volume - Osmolality, water balance and its regulation.

6. **Minerals**: (Note: For each nutrient sources, bio-availability, metabolism, function, requirements, RDA, deficiency and toxicity, interactions with other nutrients are to be discussed)

7. **Macro minerals**: calcium, phosphorus, magnesium, sodium, potassium and chloride.

8. **Micro minerals**: Iron, copper, zinc, manganese, iodine, fluoride.


**UNIT-V**

10. **Vitamins**: Historical background, structure, food sources, absorption and transport metabolism biochemical function, and assessment of status. Interactions with other nutrients. Physiological, pharmacological and therapeutic effects, toxicity and deficiency with respect to the following.

   a. Fat soluble Vitamins A, D, E, & K
   b. Water Soluble: thiamine riboflavin, niacin, biotin, pyridoxine, folic acid, pantothenic acid, ascorbic acid, cyanocobalamin, choline, inositol, ascorbic acid.

**REFERENCES:**


London.


PAPER - X
NUTRITIONAL BIOCHEMISTRY  Max. Marks: 80

UNIT-I  1. Hetero polysaccharides- Definition, classification, structure and properties of glycoprotein, and proteoglycans.
   2. Inter medatory metabolism- Reactions, standard for energy changes, and regulating, carbohydrates- glycolysis, gluconeogenesis, citric acid cycle, hexose-mono-phosphate pathway.

   4. Purines and pyrimidines- Synthesis and break down source of various atoms of the purine base. salvage reaction, Biosynthesis of purines and pyrimidines.

   7. Protein bio synthesis, initiation, formation of UOS, complex formation of complex, elongation.

   9. Minerals, trace elements, their physiological function sources, absorption, excretions & deficiency of iron, copper, iodine zinc and selenium.

UNIT-V  10. Detoxification in the body- Metabolism of foreign compounds oxidation conjugation, reduction hydrolyses.
   11. Major alteration in CHO protein and fat metabolism in chronic nutrition, related generative diseases diabetes, heart diseases.

PAPER - XI
NUTRITION FOR HEALTH OF WOMEN AND CHILDREN  Max. Marks - 80

UNIT-I  1. Role of women in national development.
   2. Women in family and community: Demographic changes menarche, marriage, fertility, morbidity, mortality, life expectancy, sex ratio, aging, widowhood.
   3. Women in society: Women’s role, their resources, and contribution to family, and effect of nutritional status.

   5. Policies and programs for promoting maternal and child nutrition and health.

UNIT-III  7. Importance of nutrition prior to and during pregnancy- Prerequisites for successful outcome. Effect of under nutrition on mother and child including pregnancy outcome and maternal and child health- Short term and long term
effect.
8. Physiology and endocrinology of pregnancy, embryonic and foetal growth and development.


15. Growth and development during infancy, childhood and adolescents.
16. Feeding of infants and children and dietary management.
17. Malnutrition- Etiology and management.

PAPER - XII

METHODS OF INVESTIGATION Max. Marks: 80

UNIT-I 1. Electrolytic dissociation: Principle, technique and theory of electrolytic dissociation.
3. Physiochemical techniques: Principles and methodology of the following -
   - Diffusion
   - Osmosis
   - Filtration
   - Surface tension
   - Adsorption
   - Centrifugation

UNIT-II 4. Chromatography: Principles, techniques and application of the following -
   - Paper chromatography - Circular, ascending and descending.
   - Ion exchange chromatography
   - column chromatography
   - Thin layer chromatography
   - Gas liquid chromatography
   - High performance liquid chromatography

6. Microbiological assay: Principle and methodology of the following -
   - Vitamins
   - (b) Amino acids


UNIT-V 9. Immunological methods: Principle and technique of the following -
   - Radio Immuno Assay (RIA)
   - Enzyme Linked Immunosorbent Assay (ELISA)

B.Sc. (Home Science) - Part-I,II,III, M.H.Sc
References:
3. Das, Debjyoti Biophysics and Biophysical Chemistry. Academic Publisher, Calcutta.

PRACTICAL - III
NUTRITIONAL BIOCHEMISTRY Max. Marks 100

Objectives:
This course will enable the students to
- Understand the principles of biochemical methods used for analysis of food and biological samples.
- Perform biological analysis with accuracy and reproducibility

Note: Any ten practical.

PART-A

1. Calcium: Estimation of calcium in foods and serum.
3. Ascorbic acid: Estimation of ascorbic acids in foods.
4. Proteins:
   (a) Estimation of proteins in foods.
   (b) Estimation of albumin, globulin and albumin/globulin ratio in serum and urine.
   (c) Estimation of haemoglobin.
5. Glucose: Estimation of glucose in blood and urine.
8. Urea and creatinine: Estimation of urea and creatinine in serum and urine.

PART-B

10. Acids and alkalis: Preparation of dilute solutions of common acids and alkalis and determining their exact normality.
11. Buffers: Preparation of phosphate, carbonate-bicarbonate, ascorbic acid, acetate, chloride and pthalate buffers and determination of their pH by the use of indicators and pH meters.
15. **Electrophoresis**: Fractionation of plasma proteins.

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**FOOD SCIENCE AND NUTRITION**

**M.Sc. (Home Science) Final**

4th Semester

Marking Scheme:

**PART I - THEORY**

<table>
<thead>
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<td>Nutrition for Health and Fitness</td>
<td>80</td>
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<td>Public Nutrition</td>
<td>80</td>
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<tr>
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<td>Geriatric Nutrition</td>
<td>80</td>
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<tr>
<td>Paper XVI</td>
<td>Institution Management</td>
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**PART II - PRACTICAL**

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<tr>
<td>Practical IV</td>
<td>Institution Management</td>
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</tbody>
</table>

**PAPER - XIII**

**NUTRITION FOR HEALTH AND FITNESS**  
Max. Marks - 80

**Objective**: Course will prepare the student to -

- Understand the components of health and fitness and the role of nutrition in these.
- Make nutritional, dietary and physical activity recommendations to achieve fitness and well-being.
- Develop ability to evaluate fitness and well-being.

**UNIT-I 1.** Definitions, components and assessment criteria of age: specific fitness and health status.

2. Anatomical fitness

3. Physiological fitness

4. Psychological fitness

5. Physiological fitness; Growth and development, strength, speed, skill, stamina, or endurance, specific fitness, general fitness, and health status.

6. Holistic approach to the management of fitness and health: Energy input and output. Diet and Exercise, Effect of specific nutrition on work performance and physical fitness, Nutrition, exercise, physical fitness and health inter-relationship

**UNIT-I 7.** Review of different energy systems for endurance and power activity: Endurance -Definition, classification, and factors affecting endurance. Fuels and nutrients
to support physical activity: Shifts in carbohydrate and fat metabolism mobilization of fat stores during exercise.


10. Water and electrolyte balance: Losses and their replenishment during exercise and sports events, effect of dehydration, sport drink

UNIT-IV 11. Significance of physical fitness and nutrition in the prevention and management of weight control, obesity, diabetes mellitus, CV disorders, bone health and cancer

12. Nutrition and exercise regimes for pre and postnatal fitness.


UNIT-V 14. Defining nutritional goals/guidelines appropriate or health fitness and prevention and management of the chronic degenerative disorders

15. Alternative systems for health and fitness like Ayurveda, Yoga, Meditation, Vegetarianism and Traditional diets.

REFERENCES:

Journals

PAPER - XIV
PUBLIC NUTRITION
Max. Marks: 80

2. Sectors and public policies relevant to nutrition.

5. Environment and Health:
   Water: Water pollution, surveillance of drinking water quality.
   Air: Air pollution

B.Sc. (Home Science) - Part-I, II, III, M.H.Sc

7. **Major Nutritional Problems:** Etiology, prevalence, clinical manifestations. Preventive and therapeutic measures of -
   - Macro and micro deficiencies - LBW, PEM, xerophthalmia, nutritional anaemia.
   - Other nutritional problems like lathyrism, aflatoxicosis, alcoholism and fluorosis.

UNIT-IV 8. National Nutrition Policy


10. Occupational health

11. Health planning and management

UNIT-V 12. Communication for Health Education.

13. Health planning in India.

14. Health Care of the Community Concept of health care, health system, levels of health care.

**PAPER - XV**

**GERIATRIC NUTRITION**

Max. Marks 80

**Objectives:**

The course is designed to -

- Familiarize the students with the multifaceted aspects of ageing.

- Make the students competent for nutritional and health care of the elderly.

UNIT-I 1. **Ageing:**

2. **Mechanism of Ageing:**
   - (A) Somatic mutation, (B) Errors in proteins (C) Gene regulation

3. **Socio-psychological aspects of ageing:** Especially problems of elderly women.

UNIT-II 4. **Nutritional and food requirement during old age:** Progress of ageing, nutritional requirements, food requirements.


7. Common complaints during old age.

8. Dietary guidelines

UNIT-IV 9. **Drug:** Food and nutrient reaction in elderly. (a) Effect of drugs on food intake and absorption. (b) Effect of various foods and beverages on drug action. (c) Drug nutritional interaction.

10. Ageing and immunity.

11. Ageing and nutrition, nutrition and longevity, food habits of elderly people, stress during old age.

UNIT-V 12. Exercise, yoga, meditation in old age.

13. Policies and programmes of the government to the elderly.

14. Policies and programmes of the NGO sector pertaining to the elderly.

**References:**


_B.Sc. (Home Science) - Part-I,II,III, M.H.Sc_
Gerontology (India).


B.Sc. (Home Science) - Part-I,II,III, M.H.Sc
Journals:
1. American Journal of Clinical Nutrition
2. Gerontology
3. Journal of American Geriatric Society
4. Age Ageing
5. Journal of Applied Gerontology
6. Age
7. Journal of Gerontology

PAPER - XVI
INSTITUTION MANAGEMENT Max. Marks: 80

UNIT-I 1. Development and scope of food service History of Food Service.
2. Food & Economics Money

UNIT-I 3. Quantity Cookery:
   a. Purchase, Selection. Storage and handling of food in relation to cost and food value
   b. Food preparation and different types of service of meals shacks. Drink etc. and their evaluation.
   c. Meal planning or various institutions taking into account regional food habits.
   d. Comparative study of different food groups.

UNIT-II 4. Organization and Management of food services:
   b. Organization of work, space, time tables and work simplification.

UNIT-IV 5. Food service planning:
   a. Selection of furnishings and equipment for institution kitchens and dining rooms.
   b. Sanitation and cleaning.
   c. Differences in organization and management problems of hostels, annapurnas cafeteria. Hospital. School Lunch Programme with reference to food services.

UNIT-V 6. Accounting procedure and cost control:
   a. Total budget and its distribution.
   b. Record keeping and accounting.
   c. Selling price and total incomes.
   d. Profit, loss and balance sheet.

PRACTICAL - IV
INSTITUTIONAL MANAGEMENT Max. Marks 100

1. Practical work at least in one institution related to the above topics.
2. Field trips
3. Management of a canteen in your institution.

OPTIONAL
PRACTICAL - IV
DISSERTATION ON CURRENT TRENDS IN FOOD AND NUTRITION Max. Marks 100

a. Dissertation:
   In any field of food science, nutrition and systematic writing of report along with statistical analysis of data

b. Current trends in food and nutrition:
   Acquaintance of the students with current trends in the field of food and nutrition.
   Collection and compilation of latest reviews.
HUMAN DEVELOPMENT
M.Sc. (HOME SCIENCE) PREVIOUS
1st SEMESTER
Marking Scheme:
PART I - THEORY

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<td>Theories of Human Development</td>
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<td>Current trends and issues in Human Development</td>
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PART II - PRACTICAL

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<tbody>
<tr>
<td>Practical I</td>
<td>Early Childhood Education</td>
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PAPER - I

RESEARCH METHODOLOGY

Max. Marks: 80

Objectives:
- To understand the significance of research methodology in Home Science research.
- To understand the types, tools and methods of research and develop the ability to construct data gathering instruments appropriate to the research design.

UNIT-I
1. Science, scientific methods, scientific approach.
2. Role of research in Home science discipline.
3. Objectives of research: Explanation, control and prediction.
4. Types of research: Historical, Descriptive, Experimental, case study,
5. Social research and survey: Meaning, definition, nature, scope, objects, types, distinction between social survey & research.
6. Pre-testing and pilot survey.

UNIT-I
1. Definition and identification of research problem.
- Selection of research problem.
- Justification.

8. Fact, Theory and concept.

9. Hypothesis: Definition, sources, characteristics, importance, main difficulties in formation of hypothesis, disadvantages, Limitations and Delimitations of the problems.

10. Types of variables.

UNIT-II
11. Basic principles of research design:
- Purposes of research design: fundamental, applied and action, exploratory, and descriptive, experimental, ex-post facto.
- Longitudinal and cross sectional, co-relational.

12. Data gathering instrument.
- Observation,
- Questionnaire,
- Interview,
- Scaling method,
- Case study,
- Home visits,
• Reliability and validity of measuring instruments.

UNIT-IV 13. Theory of probability: Non-probability sampling: purposive, Quota and volunteer sampling/snow ball sampling
Types :
• Probability sampling
• Random sampling (Simple random, systematic random sampling,)
• Purposive sampling
• Stratified sampling
• Other sampling methods (two stages and multistage sampling, cluster sampling.

UNIT-V 15. Classification and tabulation of data.
16. Analysis and interpretation of data
17. Preparation of report
18. Diagrammatic presentation of data

References:
• Edwards: experimental design in psychological research.
• Kerlinger: Foundation of educational research.
• Bhatnagar G.L.(1990) research methods and measurements in behavioral and social science Agri Cole publishing agency, New Delhi.

PAPER - II
THEORIES OF HUMAN DEVELOPMENT Max. Marks: 80

Objectives :
• To understand the need for theories in Human development.
• To see theories in context.
• To examine historical perspectives in the evolution of theory.
• To understand the practical applications of theories.
• To discuss various theories of Human development.

UNIT-I 1. Early theory -Aristotle
2. Freud’s psychoanalytic theory -,

UNIT-I 4. Learning theory - Pavlov, Watson, Skinner, Thorndike, cross cultural, relevance and current status of learning theory.
5. Social learning theory Bandura’s theory
7. Field theory by Kurt Lewin.
8. Jung’s Theory

UNIT-IV 9. Cognitive development theory, - Piaget’s theory
10. RousseauTheory
11. Motivational theory by Murray and Maslow
12. Erikson’s theory

UNIT-V 13. Personality theory by Allport and Murphy
14. Adler’s theory of individual psychology
15. Jhon Locke

References:
PAPER - III

EARLY CHILDHOOD EDUCATION Max. Marks: 80

OBJECTIVE:
- To gain knowledge and insight regarding principles of early childhood care and education.
- To develop the skills and techniques to plan activities in ECCE centers of different types, to conduct activities in early childhood care and education and to work effectively with parents and community.
- To understand the relevance and scope of studying creativity.
- To discuss the concept of creativity and various approaches to its study.
- To understand the role of the individual, the context and socialization in developing creativity.
- To become familiar with psychometric measurement and alternate ways of assessing creativity.
- To understand the significance of parents role in early childhood programmes.
- To develop skills to involve parents in early childhood education programmes.
- To learn to conduct parents education programmes.

UNIT-I 1. Principles of Early Childhood Care and Education (ECCE)
- Importance, need and scope of ECCE.
- Objectives of ECCE
- Types of preschools / programmes: play centres, day care, Montessori, Kindergarten.
- Balwadi, anganwadi etc.
- Concept of non-formal, formal and play way methods.

UNIT-I 2. Historical trends (Overview)
- Contribution of the following thinkers to the development of ECCE. Their principles, application and limitations in the context of ECCE.
- Pestalozzi, Rousseau, Frobel, Maria-Montessori, Jhon Dewey, Tarabai Modak, M.K. Gandhi, Rabindranath Tagore.

UNIT-II 3. Organisation of pre-school centres
- Concept of organisation and administration of early childhood centres.
- Administrative set-up and functions of personnel working at different levels.

4. Building and equipment: Location and site, arrangement of rooms, different types and size of rooms, playground, storage facilities, selection of different types of outdoor and indoor equipments, maintenance and display of equipment and material.

5. Staff personnel service conditions and role: Role and responsibilities, essential equalities of a care giver /teacher, other personnel.

6. Record and report: Types, aims and purpose/need, general characteristics anecdotal, cumulative, sample work, medical etc.

UNIT-IV 7. Programme planning: Setting goals and objectives of plans, Long term, short
term, weekly and daily planning routine and schedules.

8. Activity for ECCE:

- Language arts: Goals of language, types of listening and activities to promote listening various activities (songs, object talk, picture talk, free conversation, book, games, riddles, jokes, stories, criteria and selection of activities, teachers role).
- Art and craft activities - Creative activities of expression
- Types of activities - Chalk, crayon, paints, paper work and best out of waste. Role of teacher in planning the activity. Motivating children. Foster appreciation of art and craft activities.

UNIT-V 9. Music: Songs, objectives of music education, establishing goals, setting the stage and role of the teacher. Three aspects of music, making listening and singing.


References:

PAPER - IV
CURRENT TRENDS AND ISSUES IN HUMAN DEVELOPMENT
Max. Marks: 80

UNIT-I 1. Trends and issues related to process of development
- Perceptual development
- Cognitive development
- Socio-emotional development
- Language development
- Moral development

UNIT-I 2. Trends and issues related to process of development
- Issues and concerns related to children in difficult circumstances.
- Street children, adopted children, girl child, single parent children.
- Refugee and migrant children, children with disability.
- Issues and concerns related to training of ECCE and accreditation process.

UNIT-II 3. Trends and issues related to life span development
- Infancy
- Early childhood
- Young adulthood
- Adulthood
- Old age

UNIT-IV 4. Definition of development and self
- Linking the individual and the group, self concept and self-esteem.
- Memories of childhood and their influence.
- Family history and its impact on individual
UNIT-V 5  The self in the life span.
7. With age the sense of self at adolescence. Adolescent and their problems.
8. Cultural variations, achieving selfhood and adulthood.

PRACTICAL - I
EARLY CHILDHOOD EDUCATION Max. Marks: 100

Marks Distribution:

- Sessional: 20
- Viva: 20
- Two practical: 30 each

PART - I
1. Visits to various centers, which cater to the preschool stage e.g.: Day care Centre, Balwadi, Anganwadi, Mobile Creche etc.
2. Preparing a resource unit file on the basic of play way method/approach.
3. Preparing teaching material kit and presentation in mock set up.
4. Story and their techniques, types of puppets and mobiles? Art and craft portfolio, song booklet and low cost musical instruments. Readiness games and material, picture tails and object talk related materials etc.

PART - II
5. Tests of creativity: Torrance Test of Creative Thinking (TTCT), Baquer Mehdi’s Indian adaptation.
6. Use brainstorming techniques for problem solving.
7. Use of pare’s 5 stage method creative problem solving.
8. In 6-10 seasons, develop a plot of a story with active participation of children and dramatize it with them as role players.
9. Use of consensual assessment technique to rate the creative work of children and adults (stories, poems and artwork).

PART - III
10. Conducting home visits and interviewing/ talking to parents.
11. Arranging workshops for parents.
12. Organizing parent education programmes based on parents needs.
14. Reports and resource files to be maintained by students.

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HUMAN DEVELOPMENT
M.Sc. (HOME SCIENCE) PREVIOUS
2th SEMESTER
Marking Scheme:

PART I - THEORY

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B.Sc. (Home Science) - Part-I,II,III, M.H.Sc
PART III - INTERNSHIP / FIELD PLACEMENT

1. The student will be required to undergo an internship/field placement for a total duration of six to eight weeks in their chosen area of interest after IIInd semester which will facilitate their pursuing a professional career in same field.

2. This programme could be taken up either as a single block or in two different blocks. It is mandatory that the organization / institution (public/private) participating in the field.

3. Placement programme will be of good professional standing. The list could include hospitals (children ward/maternity ward), child care centre Angan wadi ICDS, Psycho-therapy counseling centers, nursery schools, etc. The student will be required to submit and present a report of the internship/field placement project after its completion. It is also envisaged that participating organization/institution will give their performance appraisal of the student work. Grade A (60% and above), Grade B (48% to 59%), Grade C (40% to 47%) should be given to the student after evaluation of field placement/ internship report by the department. The grade will be mentioned in the mark sheet of the IVth semester of the student.

4. Excursion trip/field visits should be arranged regularly by the department for the upliftment of the knowledge of the students.

5. This programme is designed with the following objectives:
   
   II. To enable the students to acquire an in-depth understanding of the practical aspects of knowledge and skills acquired during the course in the relevant subject/subjects.

   III. To gain hands on experience for higher proficiency in their selected area of expertise. To help the students to develop and have their analytical abilities for situation and analysis and bringing about improvements.

PAPER - V

STATISTICS AND COMPUTER APPLICATION Max. Marks: 80

UNIT-I Objectives:

1. To understand the significance of statistics and research methodology in Home Science research.

2. To understand the types, tools and methods of research and develop the ability to construct data gathering instruments appropriate to the research design.

3. To understand and apply the appropriate statistical technique to the measurement scale and design.

4. To understand the role of statistics and computer application in research.

5. To apply statistical techniques to research data for analysis and interpreting data meaningfully.

UNIT-I

1. Conceptual understanding of statistical measures - meaning, definition, scope, importance, characteristics, distrust of statistics.

2. Classification and tabulation of data.

3. Measurement of central tendency
   - Mean
   - Median
UNIT-I 4. Graphic presentation of data
- Frequency distribution
- Histogram
- Frequency polygons
- Frequency curve
- Ogive
- Binomial distribution
- Parametric and non-parametric tests

UNIT-II 5. Methods of Dispersion and variation
- Mean deviation
- Standard deviation
- Quartile deviation
- Independence of attributes $2 \times 2$ and $r \times c$ contingency tables
- Analysis of variance - one way method Direct and short cut.

UNIT-IV 7. Computer generations - Classification of computers; Analog digital hybrid general and special

UNIT-V 9. Correlation - definition, meaning and types.
10. Methods of determining coefficient of correlation
- Product moment correlation
- Rank correlation.

UNIT-V 11. Working with MS Word
- Getting started with word, formatting text and paragraph.
- Applying text and language tools, designing pages, with columns and tables, using graphics.

References:

PAPER - VI

ADOLESCENT PSYCHOLOGY

UNIT-I 1. Understanding culture and development
2. Pubertal stage - concept and definition, classification, and characteristics.
- Importance of language
- Social development
- Personality development
- Cognition
- Emotion

UNIT-I 3. The adolescent stage
- Its link with middle childhood and youth.
- The concept of adolescence in India
- Developmental task
- Health and Psychological Hazards

UNIT-II 4. Physical and sexual development
- Puberty, development of primary and secondary sex characteristics
- Psychological response to puberty
- Gender differences, sexuality, sexual needs and sex education.
- Roles and responsibilities

UNIT-IV 5 Important agent of influence
- Family, community and culture
- Electronic media
- Social and emotional development
- Interests in adolescents

UNIT-V 5 Delinquency and disturbance
- Juvenile delinquency: Causes and prevention

6 Psychological disturbances
- Depression, suicide, substance abuse
- Causes of HIV/AIDS and prevention

PAPER - VII

PARENTING IN EARLY CHILDHOOD Max. Marks: 80

UNIT-I 1 Science — Activities for ECCE
(a) Thinking, observing, inferring, classifying, communicating.
(b) Concept formation - Differentiation, grouping and labeling. Role of science. Developing scientific outlook by a spirit of inquiry, objectivity and observation. Role of teacher in some important sciences experiences.
(c) Social studies: - Goals of social studies. Field trips of fostering good self-concept and respect for others. Promoting social studies through celebrations of festivals. Role of teachers,

UNIT-I 2 Definition and concept of creativity
- The role of the individual
- Cognition, abilities, interests, attitude, motivation, intelligence, knowledge, skills, beliefs, values and cognitive styles.
- Relationship between creativity and intelligence.
- Influence of child bearing practices, family and culture.
- Enhancing creativity: Brain storming, problem solving, creative dramatics and visualisation
- Methods of assessing creativity.

UNIT-II 3 Introduction to
- The task of parenting and the concept of parenting skills
- Changing concept of parenthood and childhood
- Being a competent parent

4 Individual parenting roles
- Determinants of parenting behavior
- Characteristics of the parenting role.
- The mothering role
- The fathering role
- Concept of family, the family life cycle stages.

UNIT-IV 6 Developmental interaction in early childhood years
- Parents role in developing self-awareness in children
- Family relations and communication
- Helping the child to learn to express and control emotions
- Helping children discover personal capabilities

B.Sc. (Home Science) - Part-I,II,III, M.H.Sc
· Establishing routines and showing responsible behaviour.
· Learning social role and interactions with others
· Meeting the family needs during this stage
· Meeting the children’s needs.

UNIT-V 7. Techniques of parent education in preschool setting
· Informal meeting Occasional/accidental meeting, written/printed newsletters.
· Circular, notices etc.
· Parent library, toy library
· Workshop and demonstration centre
· Parents corner
· Open house
· Large/small group meeting
· Individual meeting Home visits, individual sessions
· Working with vulnerable families.

UNIT-I 1. Management
· Meaning, importance, Principles, and characteristics of management
· Management skills, review of success and failure of different programmes.

UNIT-I 2. Programmes for children and family
· Identification of specific programmes for children according to Indian and western educationists.
· Types of programmes and their management. Family counseling.

UNIT-II 3. Maternal and child nutrition
· Feeding, weaning, supplementary food, diet for preschool children.
· Nutritional problems of children
· Diet during pregnancy and lactation.
· Need and importance of women and child welfare programmes at government level.

UNIT-IV 4. Planning
· Basic concepts, need, purpose, feasibility, project, formulation.
· Functions of planning
· Steps in planning, define the objectives, quality, specification and outcomes, decide the time frame plan, the cost, dimension, plan implementation details.

UNIT-V 5. Project identification
· Identification and defining the project goals.
· Project design and strategic planning
· Management of the project

6. Monitoring and evaluation Supervisory meeting to plan overview
· Project appraisal, feedback, follow-up meeting
· Project report

PRACTICAL - II

MANAGEMENT AND PROJECT PLANNING Max. Marks: 100

1. Prepare a project based on the information secured on an existing program in the locality (as a learning exercise on a known case).
2. Prepare short term/long term plan/s for enhancing quality of any program/project that exists.
in the locality.

3. Organise and implement some activities and evaluate impact. Prepare report.

4. Draft action plan for sustainability for any program in the locality, for women and children.

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HUMAN DEVELOPMENT
M.Sc. (HOME SCIENCE) FINAL
3th SEMESTER
Marking Scheme:

PART I - THEORY

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PART II - PRACTICAL

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PAPER - IX
PRINCIPLES OF GUIDANCE AND COUNSELING
Max. Marks: 80

UNIT-I 1. Constructs of guidance, counseling and therapy
· Guidance Meaning, scope and needs.
· Basic differences

2. Guidance and counseling needs of individuals, families and system.
   · Role of culture in influencing counselling needs and practices.

UNIT-I 3. Principals of counseling and therapy
· Approaches to counseling at different developmental stages.
· Family therapy approach

4. Qualities and skills of a counselor.

5. The process of counseling
   · First contact, assessment, intervention, closure, follow-up.

UNIT-II 6. Nature of psychological disorders at different stages that require counseling and therapy
· At childhood
· At adolescent and youth
· At adulthood
· In old age

7. Types of Guidance
   · Educational guidance
   · Vocational guidance

UNIT-IV 8. Basic concepts and facts about HIV/AIDS
· Transmission of HIV infection, sign and symptoms of AIDS.
· Diagnosis of HIV infection.
   · Prevention of HIV infection.

UNIT-V 10. HIV/AIDS Counseling
   · The principles of counseling, goals of HIV/AIDS counseling.
   · The pre-requisites of counseling, stages of counseling, specific counseling skills.

11. Assessment of risk behavior
   · Characteristics and attitude of a counselor, the do’s and don’ts in counseling.
   · Content of communication about HIV/AIDS.

PAPER - X
ADVANCED STUDY IN HUMAN DEVELOPMENT Max. Marks 80

UNIT-I 1. Principles and concept of development
   · Principals and growth of development
   · Developmental tasks
   · Basic concepts of development: Maturation and learning, sensitive periods, individual differences.

2. Prenatal Development
   · Recapitulation of stages in prenatal development, genetic and environmental factors, maternal conditions.

UNIT-I 3. Infancy: (Birth - 2years)
   · The new born Birth process and the neonate, physical description, sensory capacities and reflexes, becoming coordinated - feeding, sleeping and crying.
   · Initiation, objects permanence and other cognitive accomplishments.
   · Early language development
   · Social relationship during infancy

UNIT-II 4. Early childhood (2 to 6 years)
   · Transition from infancy to childhood
   · Physical and motor development
   · Play and social relationship
   · Language, cognition and emotions in early years
   · Early childhood education

5. Middle childhood
   · Physical and motor development Changes and challenges
   · Personality development
   · Social relationship - Peers and parents

UNIT-IV 6. Adolescence (11-18 years)
   · Transition from childhood to sexual maturity, puberty and its consequences.
   · Emotional changes
   · Role of family, peers and community
   · Conformity

7. Youth / Young Adulthood (20-35 years)
   · Developmental Needs - Importance of social organization.
   · Life Cycle Approach - Sexuality, marriage, marital adjustment, parenthood.

UNIT-V 8. Middle Adulthood (35-50 years)
   · Parenting adult off springs and their marriage
   · Menopause in women. Health and disease.
   · Work and career development, gender differences.
9. Late Adulthood (50-65 years)
   · Continuity and change in personality, the family life cycle.
   · Gerard parenthood - Intergenerational relations.
   · Occupational continuity and change - Effect on identity

10. Old Age (65+ years)
   · Physical aspects of ageing
   · Health and disease

PAPER - XI

CHILDHOOD PSYCHOPATHOLOGY Max. Marks: 80

UNIT-I 1. Normality - Meaning, Concept and criteria's of normality
   · Cultural differences in normal adaptation
   · Features of normal adaptation
   · Normal adjustment changes with age
   · Meaning and criteria's of abnormality.

UNIT-II 2. Stress and adaptation to stress
   - Nature of stress
   - Types of stress
   - Sources of stress
   - Effect of stress in psychological functioning

3. Effect of stress on physical health
   - Responding to stress
   - Measurement of stress
   - Theories of stress
   - Factors of moderating the impact of the stress

4. Mental health - Definition, concept, and contents. Importance of mental hygiene.

UNIT-III 5. Introduction to psychopathology
   - History and different models
   - Etiology of mental disorders - Psycho-social models
   - Psychopathology of neurotic, stress related and somato form disorders.
   - Anxiety disorders
   - Dissociative disorders

UNIT-IV 6. Obsessive and compulsive disorder
7. Phobic anxiety disorders
8. Adjustment disorders and behavioral syndromes associated with psychophysiological disturbances.

   · Schizophrenia, Paranoia.
   · Mood disorders

10. Psychopathology of personality and behavioral disorders
   · Specific -personality disorders.
   · Habit and impulse disorders
   · Mental and behavioral disorders

PAPER - XII

CHILD AND HUMAN RIGHTS Max. Marks: 80

UNIT-I 1. Definition and Evolution of Rights
   - Human rights
   - Child rights
   - Women's rights
   - Policy
**UNIT-I**
2. Status of Indian children and their rights
3. Children in difficult circumstances
   - Children of prostitutes
   - Child labour
   - Street children
   - Refugee children

**UNIT-II**
4. Status of women and their rights -
   - Status of women in India
   - Women and human rights
5. Types of violation of women rights
   - Violence against women in home, work place and society

**UNIT-IV**
6. Types of violation against women
   - Sexual harassment
   - Rape
   - Crime against women

7. Classification of human rights
   - Moral rights
   - Legal rights

**UNIT-V**
8. Human rights
   - Civil and political rights
   - Social rights
   - Emotional rights
   - Cultural rights


**PRACTICAL - III**
**PRINCIPLES OF GUIDANCE AND COUNSELING**

Max. Marks: 100

1. Interaction with practicing counsellor's and therapists through visit to schools, clinics, women centres and hospitals etc.
2. Learn about the counselling process - Role play, mock sessions etc.
3. Observation in various ECCE settings e.g. day care, pre-school, ECCE centres, Anganwadi etc.
4. Planning programmes for various ECCE setting.
5. Supervising, monitoring and evaluating ECCE programmes in different settings

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**HUMAN DEVELOPMENT**

**M.Sc. (HOME SCIENCE) FINAL**

4th SEMESTER

Marking Scheme:

**PART I - THEORY**

<table>
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<th>No.</th>
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<td>Methods of Studying Human Development</td>
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<td>10</td>
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<tr>
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<td>Persons with Disabilities</td>
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<td>Study of Family in Society</td>
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<td>Communication Technologies</td>
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B.Sc. (Home Science) - Part-I,II,III, M.H.Sc
PART II - PRACTICAL

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<th>Practical IV</th>
<th>Methods of Studying Human Development</th>
<th>Marks</th>
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PAPER - XIII
METHODS OF STUDYING HUMAN DEVELOPMENT
Max. Marks 80

UNIT-I
1. Different methods of studying human development.
   - Introspection method
   - Experimental method
   - Longitudinal method
   - Cross cultural method
   - Survey method
   - Field study method
2. Issues and concerns related to children in difficult circumstances
   - Street children, girl child, single parent children, adopted children.

UNIT-I
3. Observation Methods
   - Theoretical perspective, use of checklists, establishing reliability in observations, maintaining an observation record, report writing and evaluation.
4. Cognitive development
5. Language development
6. Moral development

UNIT-II
7. Interview Methods
   - Theoretical perspectives
   - Development of different types of interview, protocols, analysis and coding of interviewed data.
8. Trends and issues related to process of development
   - Perceptual development

UNIT-IV
9. Questionnaire Method
   - Theoretical perspectives, development of different types of questionnaire, protocol, analysis and coding of questionnaire data.
10. Trend and issues related to life span development
    - Infancy
    - Childhood
    - Adulthood
    - Old age

UNIT-V
11. Case study method
    - Theoretical perspectives, development of different types of case study, protocols, analysis and coding of data.
12. Some Psychometric Methods
    - The Wechster Intelligence Scale
    - Draw a man test
    - The Kaufman Assessment Battery for children or K-ABC.
    - Binet Test
    - Relation between intelligence and creativity
    - Self esteemed test.
    - Aptitude test
    - Interest test
UNIT-I 1. Various approaches to defining and understanding disabilities-
   - Physical
   - Crippled or orthopaedically handicapped child
   - Unhealthy handicapped children
   - Education of physically handicapped

UNIT-I 2. Sensory handicapped -
   - Visually handicapped
   - Aurally handicapped
   - Speech handicapped

UNIT-II 4. Emotional

UNIT-III 4. Intellectual Handicapped -
   - Nature, causes and classification.
   - Characteristics and identification
   - Diagnosis of mental retardation
   - Formal planning, treatment, educational provision
   - Education of mentally retarded children

UNIT-IV 5. The role of context in the meaning of normality and disability, attitudes of people towards disability.

UNIT-V 8. Welfare and rehabilitation for handicapped.

UNIT-V 7. Guidance of the disabilities


UNIT-V 9. Examples of programmes and policies for persons with disabilities.

STUDY OF FAMILY IN SOCIETY

UNIT-I 1. The family in social context
   - Family as a component of social system, structure and context.
   - Family as an evolving and dynamic institution

UNIT-I 2. Functions of family
   - Basic and universal functions of family

UNIT-I 3. Changes in family

UNIT-I 4. Socio-cultural studies of family patterns in India -
   - Family structure: Traditional / Extended / Joint families
   - Nuclear families: Single parent, childless

UNIT-I 5. Causes and effect of different family structure on changing role of families.

UNIT-II 6. Forms and types of family -
   - Modern family
   - Urban family
   - Rural family

UNIT-II 7. Role of family in the development of personality

UNIT-IV 8. Family and society exchanges / influences
   - Work and family
   - Education and family
   - Health and family
   - Religion and family

UNIT-IV 9. Contemporary Issues and Concerns -
- Family violence, battered women, sexual abuse
- Dowry and family violence
- Child rearing and socialization

UNIT-V
10. Family Disorganization -
- Concept and features of family disorganization
- Causes of family disorganization

11. Family tension - Types of family tension
12. Divorce - Types and causes of divorce
13. Re-marriage.

PAPER - XVI
COMMUNICATION TECHNOLOGIES Max. Marks 80

UNIT-I
1. Meaning of communication
2. Concept of communication
3. Scope of communication
4. Communication process
5. Approaches to communication

UNIT-I
6. Elements of Communication: Their significance and characteristics
7. Introduction to new communication technologies
8. Development and use of transparencies
9. Use of video projector, slide and computers.

UNIT-III
10. Innovation
11. Factors influencing innovation
12. Diffusion of innovation and communication
13. Characteristics of innovation
14. Innovation adoption process

UNIT-IV
15. Mass media of communication : Development of mass communication
16. Different media, their characteristics and use -
   A. Press    B. Radio    C. Television    D. Films    E. e-mail
17. Inter-dependence of mass media on communication
18. Mass media of communication and advertisement.

UNIT-V
19. Designing -
   (a) Leaflets    (b) Pamphlets    (c) Newspaper
   (d) Photograph    (e) Posters    (f) Flash card
   (g) Slide and film strip    (h) Television    (i) Puppets
20. Presentation using Power Point

PRACTICAL - IV
METHODS OF STUDYING HUMAN DEVELOPMENT Max. Marks: 100

(Any Six)
1. Study of social developmental behaviour through observation method.
2. Know about the child through interview method.
3. Case study based on street children and their problems.
4. Case study regarding problems behaviour of the child.
5. To study the curriculum and management of pre-primary standard children in your area.
7. Designing - Leaflets/Pamphlets/Cover pages/Posters
8. Self concept test.
10. Vocational interest test.

B.Sc. (Home Science) - Part-I, II, III, M.H.Sc
RESOURCE MANAGEMENT  
M.Sc. (HOME SCIENCE) PREVIOUS  
1st SEMESTER  
Marking Scheme: 

PART I - THEORY  

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<td>Consumer Economics</td>
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PART II - PRACTICAL  

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<td>Practical I Communication Technology</td>
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PAPER - I  
RESEARCH METHODOLOGY  
Max. Marks: 80  

Objectives:  
- To understand the significance of research methodology in Home Science research.  
- To understand the types, tools and methods of research and develop the ability to construct data gathering instruments appropriate to the research design.

UNIT-I  
1. Science, scientific methods, scientific approach.  
2. Role of research in Home science discipline.  
3. Objectives of research: Explanation, control and prediction.  
4. Types of research: Historical, Descriptive, Experimental, case study.  
5. Social research and survey: Meaning, definition, nature, scope, objects, types. distinction between social survey & research.  
6. Pre-testing and pilot survey.  
7. Definition and identification of research problem.  
   - Selection of research problem.  
   - Justification.  
8. Fact, Theory and concept.  
9. Hypothesis: Definition, sources, characteristics, importance, main difficulties in formation of hypothesis, disadvantages, Limitations and Delimitations of the problems.  
10. Types of variables.  
11. Basic principles of research design:  
   - Purposes of research design: fundamental, applied and action, exploratory, and descriptive, experimental, ex-post facto.  
   - Longitudinal and cross sectional, co-relational.  
12. Data gathering instrument:  
   - Observation,  
   - Questionnaire,  
   - Interview,  
   - Scaling method,
UNIT-IV 13. **Theory of probability**: Non-probability sampling: purposive, Quota and volunteer sampling/snowball sampling

14. **Sampling**: Population and sample, Meaning, Characteristics, advantages and disadvantages.

   **Types**:
   - Probability sampling
   - Random sampling (Simple random, systematic random sampling)
   - Purposive sampling
   - Stratified sampling
   - Other sampling methods (two stages and multistage sampling, cluster sampling).

UNIT-V 15. Classification and tabulation of data.

16. Analysis and interpretation of data

17. Preparation of report

18. Diagrammatic presentation of data

**References**:
- Edwards: experimental design in psychological research.
- Kerlinger: Foundation of educational research.

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**PAPER - II**

THEORY OF MANAGEMENT    Max Marks - 80

**Objectives**:
- To understand the significance of management in the micro and macro level organizations.
- To know the conceptual human & scientific aspects of management functions.
- To develop the ability to evaluate the management efficiency & effectiveness in the family & the other organisations.
- To enhance the understanding of the similarities among all areas of management education & research & dissemination of the professional knowledge, skills & attitude.
- To acquaint the students with housekeeping department & it’s management in the hospitality industry.
- To enable students to manage resources in the housekeeping department to fulfill the hospitality function.

UNIT-I 1. **History and development of management in India & else where**
   - Industrial
   - Farm & Agricultural
   - Institutional
   - Household
   - Education

  2. **Managements System**
   - Definition
   - Elements

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B.Sc. (Home Science) - Part-I, II, III, M.H.Sc
UNIT-I 3. Management Abilities
- Conceptual
- Human
- Technical

4. Decision making
- Meaning
- Types of decision
- Modes of decision making
- Techniques and tools for decision making
- Cost benefit analysis

UNIT-II 5. Management Functions and Processes
- Planning – Objectives, Principles, policies, strategies
- Organising, - Purpose, Principles, processes, delegation authority, responsibility & account ability.
- Staffing, purpose, principles, recruitment, appraisal
- Guiding, directing, leadership, motivation, communication
- Controlling, tools for management control, feedback
- Appraisal/evaluation – Tools & Techniques.

UNIT-IV 6. Human Behaviour in Organisation
- Personality, attitudes, motivating factors.
- Group behaviour and dynamics
- Team management
- Stress & Conflict Management

UNIT-V 7. Ends Sought through Management
- Goals – factors affecting, ends
- Values – Sources of value patterns, status, security
- Standards – Quality control, Total Quality Management
- Harmony Ethics

PAPER - III
CONSUMER ECONOMICS Max. Marks - 80

Objectives:
- To familiarize the students with the changing economic environment and the rising consumerism.
- To enhance the understanding of the marketing system and the marketing strategies.
- To have an overview of the consumer behaviour and the consumer movement.
- To help them to become wise consumers for judicial use of resources in the present market systems and environment.
- To become aware of the socio-economic environment of the families.
- To become aware of the aspects of financial management.
- To familiarize the students with the changing economic environment and the rising consumerism.
- To develop an understanding of the marketing system & marketing strategies keeping in view the consumers.
- To know the techniques of consumer decision making and the aid for wise decision making.
UNIT-I 1. Consumer and the Indian Economic Environment -
- Definition and characteristics of consumers.
- Definition, role, types and how does an economy function, problem of economy.
- Background of Indian economic environment.
- Role of consumer in the economy of the nation.

2. Contemporary Economic Environment -
- Introduction of market Meaning, definition, characteristic, types.
- Changing business environment — Tele markets, global, privatization of monopolistic services, e-business and e-commerce.

UNIT-I 3. Consumer Behaviour -
- Understanding Consumers and their wants.
- Determinates of consumer behaviour- Opinion, leadership, group influence, social class and culture, consumer dissatisfaction.
- Market strategies influencing consumer behaviour.
- Guidelines for wise purchasing practices.

4. Market practices that exploit consumers
- Types of exploitation — Adulteration, packaging, label, weights & measures, advertising & sale gimmicks.
- Causes of exploitation.
- Consumer problems & their solutions.

UNIT-II 5. Consumer protection Need & Rationale
b. Role of consumer organisations — National, regional and international.
c. Role of government agencies, legislation
d. Empowerment of consumers.
e. Ways of promoting consumerism.

UNIT-IV 6. Socio-economic environment
- National income.
- Income distribution, per capital income
- Inequalities of Income
- Consumer price index
- Inflation Vs. Deflation
- Wages & earnings principles of wages determination
- Waste differentials

7. Financial Planning and implementation
a. Budgeting — allocation of resources, identifying aspiration, expectations and goals, objectives, advantages of budgeting, control in the context of changing economic conditions.
b. Purchase storage cost reduction.
c. Planning a budget for a Family
d. Family of fixed income
e. Restaurant / hostel / any selected organisation
f. Boutique
g. Small industry

UNIT-V 8. Record keeping and Accounting -
- Fundamental principles of accounts
- Income and expenditure accounts
- Revenue and capital items of expenditure.
- Balance sheet/ledger
- Ratio analysis, cash flow, Fund flow

9. **Financing of enterprises / consumer durables.**
- Housing
- Automobile
- Equipment
- Education
- Small Scale Industry

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**PAPER - IV**

**ENVIRONMENT MANAGEMENT & LANDSCAPING**

Max Marks – 80

**Objectives:**

a) To be aware of the holistic ecological approaches to environment.

b) To be aware of the environmental problems, hazards and risks.

c) To understand the aspect of environmental pollution and waste management.

d) To be aware of the environmental policies, movements and ethos.

e) To study and understand the landscape designing and its appropriate application.

f) To get familiar with the various materials related to landscaping.

**UNIT-I 1. Fundamentals of environment**

a) Environment definition. Scope of environment studies.

b) Life and the environment. Physico-chemical factors in the environment changes in the environment — anthropogenic and non anthropogenic.

c) Environmental hazards and risks.

d) Natural resources — conservation and sustainable development.

**UNIT-I 2. Eco-system — Earth, Man and Environment**

a) Ecosystem of the world.

b) Forest ecology.

c) Pathways ill ecosystem.

d) Environment implications of energy use.

e) Problem of sustainability of ecosystems.

**UNIT-I 3. Population and Environment**

a) Carrying capacity: Limits to population growth.

b) Population growth and natural resources.

c) Impact of population growth on economic development and environment.

**UNIT-I 4. Land and water resources of the earth**

a) Land resources of the earth

b) Land Use

c) Water resources of the earth.

**UNIT-I 5. Factor affecting changes in ecosystem and environment** (Socio, economic, cultural and geographic)

**UNIT-I 6. Population and environment with reference to Air, Water, Soil, Noise**

a) Source of pollution

b) Effect of pollution

c) Remedies to control pollution

**UNIT-II 7. Environment and Public Health**

a) Environmental population and community health

b) Water borne diseases
d) Air borne diseases

d) Chemical insecticides and its impact on health

e) Toxic actions of metals and biological substances

UNIT-IV & Waste Management

a) Types of waste

b) Methods of waste management

c) Water pollution and treatment of waste

d) Solid waste management

e) Air pollution control technology

UNIT-V & Environmental Control Measurement

a) Environmental legislation

b) Environmental policies

c) Human rights issues relating to environment

d) Environment movements

e) Women and environment

f) Environment ethics

g) Role of Municipal authority, government agencies in propitiating better health environment.

PRACTICAL – I

COMMUNICATION TECHNOLOGY

Max. Marks 100

DISTRIBUTION OF MARKS

Sessional - 20

Viva - 20

Two Practical - 60

1. Concept of communication, Scope of communication process, approaches to communication.

2. Different media, their characteristics and use.

3. Use of video projector, slide/filmstrip Projector computers.

4. Introduction to new communication technologies.
   - Satellite distribution and broadcast networking.
   - Developing close circuit television package on (CC TV) topics
   - Incorporating the use of video films in presentation i.e. The selected clippings.
   - Slides : Making use of slides with audio commentaries for presentation.
   - Development and use of transparencies.
   - Digital method of communication.
   - Computer Graphic Designing.

5. Preparation of graphics for research reports/seminars/other presentation.


7. Presentation using power points.
RESOURCE MANAGEMENT
M.Sc. (HOME SCIENCE) PREVIOUS
2nd SEMESTER
Marking Scheme:

**PART I – THEORY**

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**PART II – PRACTICAL**

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**PART III – INTERNSHIP / FIELD PLACEMENT**

1. The student will be required to undergo an internship/field placement for a total duration of six to eight weeks in their chosen area of interest after IIInd semester which will facilitate their pursuing a professional career in same field.

2. This programme could be taken up either as a single block or in two different blocks. It is mandatory that the organization / institution (public/private) participating in the field.

3. Placement programme will be of good professional standing. The student will be required to submit and present a report of the internship/field placement project after its completion. It is also envisaged that participating organization/institution will give their performance appraisal of the student work. Grade A (60% and above), Grade B (48% to 59%), Grade C (40% to 47%) should be given to the student after evaluation of field placement/ internship report by the department. The grade will be mentioned in the mark sheet of the IVth semester of the student.

4. Excursion trip/field visits should be arranged regularly by the department for the upliftment of the knowledge of the students.

5. This programme is designed with the following objectives:
   I. To enable the students to acquire an in-depth understanding of the practical aspects of knowledge and skills acquired during the course in the relevant subject/subjects.
   II. To gain hands on experience for higher proficiency in their selected area of expertise.
   To help the students to develop and have their analytical abilities for situation and analysis and bringing about improvements.

**PAPER - V**

STATISTICS AND COMPUTER APPLICATION Max. Marks: 80

Objectives:

1. To understand the significance of statistics and research methodology in Home Science research.
2. To understand the types, tools and methods of research and develop the ability to construct data gathering instruments appropriate to the research design.
3. To understand and apply the appropriate statistical technique to the measurement scale and design.
4. To understand the role of statistics and computer application in research.
5. To apply statistical techniques to research data for analysis and interpreting data meaningfully

UNIT-I 1. **Conceptual understanding of statistical measures** – meaning, definition, scope, importance, characteristics, distrust of statistics.
   2. **Classification and tabulation of data.**
   3. **Measurement of central tendency**
      - Mean
      - Median
      - Mode

UNIT-I 4. **Graphic presentation of data**
   - Frequency distribution
   - Histogram
   - Frequency polygons
   - Frequency curve
   - Ogive
   - Binomial distribution
   - Parametric and non-parametric tests

UNIT-II 5. **Methods of Dispersion and variation**
   - Mean déviation
   - Standard déviation
   - Quartile déviation
   - Independence of attributes 2x2 and rxc contingency tables
   - Analysis of variance - one way method Direct and short cut.

6. What is computers characteristics components of computer system, block diagram of computer, CPU, I/O devices and memory (RAM and ROM) second storage devices (hard disk Floppy disk Magnetic tape etc.)

UNIT-IV 7. **Computer generations** – Classification of computers; Analog digital hybrid general and special
8. **Types of computers** - Micro Mini Mainframe and super computer
   - Chi square test Goodness of it
   - Application of student ‘t’ test for small samples

UNIT-V 9. **Correlation** - definition, meaning and types.
10. **Methods of determining coefficient of correlation**
    - Product moment correlation
    - Rank correlation.
11. **Working with MS Word**
    - Getting started with word, formatting text and paragraph.
    - Applying text and language tools, designing pages, with columns and tables, using graphics.

References:

PAPER - VI

HOSPITALITY ADMINISTRATION Max. Marks 80

UNIT-I 1. Types of institution offering hospitality services.
2. Hospitality functions
- Role of housekeeping in hospitality industry.
- Housekeeping in relation to commercial and welfare sections.
- Management of housekeeping department.

UNIT-I

Layout of housekeeping department:
- Planning, organizing and communication of housekeeping activities.
- Coordination with other departments
- Roles/responsibilities of personnel in the housekeeping department.

UNIT-II

Administrative policies:
- Personnel management: Recruitment, training, handling personnel promotion, evaluation, distribution of jobs, Job analysis.
- Money Management, Budget

UNIT-IV

Safety, security and sanitation: Safety, fire fighting, first aid, safety in equipment use, pest control, sanitation standard.
7. Uniform, types, selection, distribution and control.
8. Hostess training
9. Banquet Management

UNIT-V

12. Human behaviour in organization:
- Personality, attitudes, motivating factors
- Group behaviour and dynamics
- Team management
- Stress and conflict management

References:

PAPER - VII

PUBLIC FINANCE Max. Marks 80

UNIT-I

National income:
- Income distribution, per capita income
- Inequalities of income
- Consumer price index
- Inflation vs Deflation
- Wages and earning principles of wage determination
- Wage differentials

UNIT-II

Financial planning and implementation:
- Budgeting: Allocation of resources, identifying aspiration, expectations and goals, objectives and advantages of budgeting, control.
- Planning a budget for a:
  - Family of fixed income
  - Restaurant/hostel/ any selected organization
UNIT-II 3. Tax planning:
- Types of taxes
- Principles and procedures of income tax
- Preparation of statement of income and filling of income tax in case of returns.
- Individuals (Salary class)
- Knowledge of various exemptions and deductions

UNIT-III 4. Channel of distribution:
- Meaning and types of channels of distribution
- Advantage and disadvantage of types of channels
- Factors considered in the selection of channels

UNIT-IV 5. Saving and investments:
- Importance of savings components
- Savings facilities and investment opportunities
- Evaluations of savings components
- Economics security and components
- Economics security and financial alternatives

UNIT-V 6. Impact of globalization and direct foreign investment on business opportunities in India.
- Income and property rights - Wills, trusts and legal aspects of economic insecurity.
- Unemployment, its nature and causes. Government programmes designed to increase family financial security.

UNIT-V 7. Markets and Marketing:
- Basic concept of market and marketing
- Types of markets: Wholesale, retail, speciality, local, residential.
- Changing nature of the business world i.e. e-business and c-commerce.
- Marketing environment, marketing theories, models.

UNIT-VIII 8. Markets and prices:
- Definition and types of market prices
- Pricing under perfect and imperfect competition and monopoly.

PAPER - VIII
LANDSCAPING Max. Marks 80

UNIT-I 1. Introduction of landscaping from interior design point of view.
2. Historical references of landscape.
3. Location & Orientation.
4. Climatic condition
5. Land Profile

UNIT-II 7. Availability of Water sources
8. Understanding of various materials for paving, walk way etc. (Stone masonry Brick masonry).
9. Fencing to entrance gate and other gates.
10. Tree guards sit-outs.

12. Green House
13. Gazebo
14. Pedestals, monuments, status, abstract etc.
15. Parapoles ill various materials.
16. Study of Indoor & outdoor plant species. (Natural / Artificial)
17. Variety of Shrubs, Creepers grass etc. (Natural / Artificial).

UNIT-IV 18. Drainage
   a. Storm water drains
   b. Troughs potted plants
   c. Rain water form race
   d. Waterproofing & checking the strength of Terrance slab for terrance garden

20. Garden Furniture

UNIT-V 21. Study of indoor and outdoor plant species (Natural/artificial)
22. Variety of shrubs, creepers, grass etc. (natural/artificial).
23. Pot Culture.

PRACTICAL - II
LANDSCAPING Max. Marks 80

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<td>Two Practical</td>
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1. Designing of Terrace Garden.
2. Designing of partly outdoor & Indoor Landscaping.
3. Preparation of Herbarium file-shrubs, creepers, flowers & grass.
5. Garden Furniture.
7. Bonsai

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RESOURCE MANAGEMENT
M.Sc. (HOME SCIENCE) FINAL
3rd SEMESTER
Marking Scheme:

PART I – THEORY

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B.Sc. (Home Science) - Part-I,II,III, M.H.Sc
UNIT-I 1. Ergonomics:
- Definition and meaning of Ergonomics
- Scope of Ergonomics in home & other occupations.
- Nature of work in household & other occupations.
- Importance of Ergonomics study.
2. Sources of Energy for muscular work
3. Energy requirement for muscular work & effect

UNIT-II 4. Physiological Aspects of Work
- Structure & function of the muscles and joint
- Physiological Factors involved in muscular
  * Carbohydrates , fats & proteins
  * Oxygen
  * Cardio Vascular & respiratory system

UNIT-III 5. Thermo regulatory system.
6. Energy expenditure for different activities.
7. Anthropometry and Bio-mechanic
- Definition, Scope
- Human body as a system of levers

UNIT-IV 8. Identification and analysis of postures, Types of postures
9. Effect of wrong postures on cardio vascular & muscular skeletal system
10. correct techniques of lifting & carrying weights

UNIT-V 11. Environment
- Physical
- Heat
- Heat regulation of the body at rest
12. Factors responsible for exchange heat between body & surrounding
- Heat stress
- Thermal comfort

References:
12. Steidle and Braton : Work in Home.

PAPER - X

ENTREPRENEURSHIP

Max. Marks 80

Objectives:
- To provide conceptual inputs regarding entrepreneurship management.
- To sensitize motivate the students towards entrepreneurship management.
- To orient and impart knowledge towards identifying and implementing entrepreneurship opportunities.
- To develop management skills for entrepreneurship management.

UNIT-I 1. Conceptual Framework
A. Entrepreneurship
   i. Concept, nature & types of Entrepreneurship.
   ii. Development of Entrepreneurship in India,
   iii. Entrepreneurship and socio-economic development.

UNIT-I 2. Entrepreneurship
- Institutional finance and Entrepreneurship organisation, concept, nature process and importance of organisation.
3. The Entrepreneur:
   i. Meaning, definition, characteristics and function,
   ii. Social responsibility of an Entrepreneur,
   iii. Effectiveness of Entrepreneurs.

UNIT-II The Entrepreneurs:
4. Organisation supporting Entrepreneurs
5. Licensing & regulation of industries
6. Infrastructure facilities
UNIT-IV 7. Launching & organising Entrepreneurship
   i. Economic and sociological view points.
   ii. Entrepreneurial development programmes

UNIT-V 8. Preparation of a new project
   9. Project report
   10. Start and expansion of a new business.

References:

PAPER - XI
HOUSING
Max. Marks 80

Objectives:
To enable the students to:
- Recognize the role of housing for national development
- Be aware of the housing problems in India and the measures for alleviating the problems.
- Understand and apply the principles of design in housing.

UNIT-I 1. History of Housing
2. Housing — Needs definition and importance.
3. Changes in Housing needs & standards.
4. Housing In India As Affected by Trends In
   - Population
   - Establishment of Households
   - Level of Income Per Households
   - Occupation
   - Family Mobility
   - Technological Development

UNIT-II 5. Present Housing Condition in India
   - Rural & Urban
   - Cost of Housing
   - Quality of Housing Available.
6. Private and Public Housing
   - Various Hons Schemes & Local Government Programs, Industrial Housing.
7. Study of building materials.

UNIT-III 8. Factors To Be Considered While Designing
   - Orientation
   - Grouping of user’s area
   - Circulation between & within user’s area
   - Light & Ventilation
   - Flexibility
   - Privacy
   - Roominess

B.Sc. (Home Science) - Part-I,II,III, M.H.Sc
UNIT-IV 9 Study of various Types of fixtures fitting used in interiors their use, selection and case.

10. Types of Floor
11. False Ceilings – Different types in various materials.
   - Storage arrangements in different rooms.

16. Entrepreneurship management.
17. Housing Research
   - Agencies for research & Development
   - Methods & Techniques

References:
7. Publication of Housing Boards, NBO, LSL, HUCPO etc.

PAPER - XII

FUEL TECHNOLOGY Max. Marks 80

Objectives:
- To understand the potential and limitation of different energy sources and environment impacts of their use.
- To understand the need and the ways of energy conservation.
- To study the innovation in fuel technology and energy management.

UNIT-I 1. Sources of energy and their classifications, non-renewable us renewable. Alternative, conventional vs non conventional commercial Vs Non - Commercial.
2. Energy Consumption Pattern.

UNIT-I 3. Fossil fuels power; Fossil fuels – The theories of their formation.
4. Fuel - Introduction, what is a Fuel?, Classification of fuel, solid liquid & Gaseous origin & Artificial fuel, Solid , Liquid & Gaseous their properties and composition.

UNIT-II 5. Solar Energy
   - Solar radiation reaching the earth surface.
   - Characteristics of Solar Energy.
   - Application of Solar Energy to system for.
       i. Water heating  ii. Refrigeration  iii. Cooking


8. Energy Conservation
- Principles of improving the efficiencies of 1) Combustion, 2) heat exchange, 3) energy conservation, 4) waste heat recovery and utilisation etc.
- Proper use and maintenance’s of domestic heating, cooking, lighting and other appliances.
- Energy conservation in the transport sector.

References:

PRACTICAL - III
ERGONOMICS
Max. Marks 100

Distribution of marks
Seasonal - 25
Work Book - 35
Practical Work - 20
Viva - 20

Contents :
1. Use of instumais employed in ergonomics research (any five)
   - Treadmill, step-stool
   - ECG, Heat rate monitor
   - Noise level meter, environment kit
   - Skin thermometer
   - Sphygmomanometer
   - Height & weight measuring instruments
   - Stopwatch
2. Determination of workload using heart rate - Treadmill or By-cycle ergo meter
3. Determination of workload of some selected household activities by using
   - Pulse rate techniques
   - Time and motion study
   - Energy cost
   - Temporal cost
4. Postures
   - Identifying the types of posture assumed by women during work, analysis &
interpretation to risks.

5. Analysis of individual approaches

RESOURCE MANAGEMENT
M.Sc. (HOME SCIENCE) FINAL
4th SEMESTER
Marking Scheme:

PART I - THEORY

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PAPER - XIII
RESIDENTIAL AND ESTABLISHMENT  Max. Marks 80

Objectives:
- To familiarise the students with the various services in residences and other establishments.
- To analyse the services the respect to design cost and maintenance.

UNIT-I 1. Water supply system
- Water supply system to commercial and residential buildings.
- Water pipes and traps used in water supply system.
- Types of water supply system.
- Water supply to bathrooms, Toilets, W.C. and Kitchen.

UNIT-I 2. Drainage System
- Drainage system — with municipal drain line.
- Septic tank
- Soak pit
- Drainage system using septic tank and soak pit
- Types of drains, pipe size for drain.

UNIT-II 3. Electrical layout and wiring system
- Types of lamps and light fixtures
- Types of wiring system

4. Air Conditioning
- General purposes
- System of Air Condition
- Essentials of A/c System

UNIT-IV 5. Building safety constructions
- Termite proofing - Essentials of Termite Proofing, Method of Termite Proofing
- Damp prevention - Sources of damp, Effects of damp, Techniques of damp prevention, Methods of damp prevention
- Heat Insulation – Definition, Principles, Materials

UNIT-V 6 Fire fighting
- General measures of fire safety in building.

7. Building Disaster Management
- Anti disaster constructions.

8. Garbage Disposal
- Vermi composting
- Vermi culture

References:

PAPER - XIV

CONSUMER EDUCATION

Max. Marks 80

Objectives :
- To sensitize the students with the need for consumer education.
- To develop an understanding of market environment and business strategies for better consumption practices.
- To strengthen the consumer knowledge and to equip them to face challenges in the market situations.

UNIT-I 1 Consumer Education
a. Brief History, b. Definition, concept and significance / need., c. Objectives

UNIT-I 2 Approach to consumer education – Economic, environment, sociocultural, health & safety and legal.
3. Action line for consumer education
   b. Methods for imparting lucation – Role-plays and games, project testing and evaluation

UNIT-II 4 Resource management, decision-making, sound purchasing habits, learning skills, conservation and protection of environment.

5. Resources – Media- Written, audio and visual. Market place, government agencies consumer organisations.

6. Problems faced and remedial measures.

7. Classification selection.

UNIT-IV 8 Teaching Consumerism
a. Plans for teaching better consumption practices, factors affecting.
   b. Consumer aids – Meaning, Classification types.
   c. Consumer Rights and responsibilities.

UNIT-V 9 Consumer Protection
a. Need, measures and methods.
b. Role of consumer organisations - National and International.
c. Consumers International regional Office at Pune India.
d. Consumer laws - Role and Provisions of the acts - Implications.

PAPER - XV
SPACE DESIGN

Max. Marks: 80

Objectives:
- To understand the factors influencing space design organization for optimum comfort and functionalism.
- To understand the application of anthropometric data in designing interior.
- To evaluate ergonomically residential interior space for various activities.
- To provide adequate facility for work, relaxation, rest, comfort, privacy, care, aesthetics etc. through interior space designing.
- To study the materials along with fittings and fixtures used in residential interiors.
- To develop skills of drawing the working details and execution drawings.

UNIT-I 10. Analysis of Housing Design
   i. Selection of site
   ii. Analysis of Plan — Needs and definition importance
   iii. Process of Map making.
   iv. Site plan & floor plan

UNIT-II 11. Types of Designs
   i. Structural design decorative design Styles of Interior Designs, Traditional style, cottage style, modern style.
   ii. Design and Colour, Colour theory, dimensions of colour, classification of colours, Psycho-social and physical effects of colours, types of colour schemes.

   13. Classification selection.
   14. Residential Furniture — Sketch, form and sizes of all and details of any 6 items, such as sofa, divan, chairs, buffet centre table, wall unit, dining table, side board, kitchen unit, bed, wardrobe, dressing table etc.

UNIT-IV 15. The Special Needs
   - Division of Rooms and their arrangement.
   - Circulation in building.
   - Space needs in relation to furniture and fitments
   - Space in room and passage.

UNIT-V 17. Current Trends in Interior Design
   - Place of Art in the Home.
   - Use of Principle of Art in the decoration
   - Uses of colour in Home decoration.
   - Current trends of Indian decorative regional art.

References:

B.Sc. (Home Science) - Part-I, II, III, M.H.Sc
13. Encylopedia of Interior Design

PAPER - XVI

MANAGEMENT OF HUMAN RESOURCES Max. Marks 80

Objectives:
- To increase awareness of human beings as resource potentials of attaining goals of daily life and as an important national resources
- To acquire ability to use scientific facts and principles for decisions related to use of time and energy.
- To develop the ability to use and revaluate, to improve human resources.
- To recognise the need for further research in practical life in relation to use of human resources.

UNIT-I 1. Principles of human resources use.
2. Fatigue and impairment in man Physiological — Causes and remedy
   Psychological — Causes and remedy

UNIT-I 3. Motivation
- Meaning of motivation
- Nature and characteristics of Motivation
- Process of motivation
- Methods of motivation
- Importance of motivation
- Factors of Motivation.

UNIT-II 4. Productivity
- Meaning of Productivity
- Factors in productivity
- Effect of motivation on productivity.

UNIT-II 5. Methods and techniques for improving resources use
- Development of labour saving device
- Improvement of working conditions
- Changing of attitudes
- Development of efficient work methods.

6. Personality & Development of Manager
- Introduction and Definition
- Types of personality
- Development of Manager’s
- Development methods of Executive Management
UNIT-IV 7. Training
- Introduction and definition
- Objectives of Training
- Characteristics of Training
- Principles of training
- Value of Training
- Methods of training

8 Leadership
- Introduction
- Quality of leader
- Styles of leadership

UNIT-V 9. Training for personality development & Leadership

10. Goals of training and development

11. Efficiency in use of human resources
- Concept of efficiency Vs effectiveness
- Types of efficiency
- Factors affecting efficiency
- Factors affecting effectiveness

References:
2. Rae, NP. (1986); Human Resource Development in Management and Administration, B.K. Publishers, Delhi.

PRACTICAL IV- HOUSING & SPACE DESIGN

Distribution of Marks:
- Seasonal - 25
- Work Book - 35
- Practical Work - 20
- Viva - 20

1. Floor Plan Evaluation
2. Drawing house plan for various income groups.
4. Drawing sketches of interior decorative aspect like - Interior schemes of rooms.
5. Color Schemes.
6. Analysis rate of certain items like stool, tables etc.
7. Preparation of art object.
8. Collection of false ceiling material.
9. Floor decoration – Alpna, Rangoli and Flower medium.

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**TEXTILES AND CLOTHING**

**M.Sc. (HOME SCIENCE) PREVIOUS**

**1st SEMESTER**

**Marking Scheme:**

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**PAPER - I**

**RESEARCH METHODOLOGY**

Max. Marks: 80

Objectives:
- To understand the significance of research methodology in Home Science research.
- To understand the types, tools and methods of research and develop the ability to construct data gathering instruments appropriate to the research design.

**UNIT-I**

1. Science, scientific methods, scientific approach.
2. Role of research in Home science discipline.
3. Objectives of research: Explanation, control and prediction.
4. Types of research: Historical, Descriptive, Experimental, case study,
5. Social research and survey: Meaning, definition, nature, scope, objects, types. distinction between social survey & research.
6. Pre-testing and pilot survey.

**UNIT-II**

7. Definition and identification of research problem.
   - Selection of research problem.
   - Justification.
8. Fact, Theory and concept.
9. Hypothesis: Definition, sources, characteristics, importance, main difficulties in formation of hypothesis, disadvantages, Limitations and Delimitations of the problems.
10. Types of variables.

**UNIT-III**

11. Basic principles of research design:
   - Purposes of research design: fundamental, applied and action, exploratory, and descriptive, experimental, ex-post facto.
   - Longitudinal and cross sectional, co-relational.
12. Data gathering instrument.
• Observation,
• Questionnaire,
• Interview,
• Scaling method,
• Case study,
• Home visits,
• Reliability and validity of measuring instruments.

UNIT-IV

13. **Theory of probability:** Non-probability sampling: purposive, Quota and volunteer sampling/snow ball sampling

14. **Sampling:** Population and sample, Meaning, Characteristics, advantages and disadvantages.

Types:
- Probability sampling
- Random sampling (Simple random, systematic random sampling,)
- Purposive sampling
- Stratified sampling
- Other sampling methods (two stages and multistage sampling, cluster sampling).

UNIT-V

15. Classification and tabulation of data.

16. Analysis and interpretation of data

17. Preparation of report

18. Diagrammatic presentation of data

References:
1. Edwards: experimental design in psychological research.
2. Kerlinger: Foundation of educational research.

PAPER - II

TEXTILE CHEMISTRY

Max. Marks: 80

Objectives:

1. To acquaint the student about the polymers of which the textile fibers are made.
2. To understand the chemistry, production and fundamental properties of natural and synthetic fibers.
3. To familiarize with the chemical processing from desizing to finishing of textiles and x-principals.
4. To acquaint the students with some advance textile technology.
5. To develop an understanding of the methods and techniques used to analyze textile fiber, yarns, and fabric for end-use performance.
6. To acquire knowledge and understanding of various structural properties of textiles and relate them to end fabric performance and product.

UNIT-I

1. **Introduction:**
   - Why study of textile chemistry is needed.
   - Why this subject is related to textile and clothing.

2. **Polymer chemistry:**
   - Polymers, Methods of polymerization, polymerization process.
   - Definition of co-polymer, oligomer, graft-co-polymer.
UNIT-I 3. Orientation and crystallinity of polymers, their influence on fiber properties.

4. Chemistry of cellulosic fibers:
   - Introduction to cotton, varieties, properties, longitudinal and cross-sectional view.
   - Molecular structure of cellulose, action of acids and alkalis, hydro-cellulose and oxy-cellulose, mercerization, liquid ammonia treatment.

5. Regenerated cellulosic fibers: viscose rayon, cuprammonium rayon cellulose acetate rayon polyylonic-their manufacture, properties and uses.

UNIT-II 6. Protein fibers-Wool and silk
   - Chemical composition, molecular structure, physical and chemical properties, action of acids, alkalis and other chemicals on protein fibers.
   - Brief description on felting of wool, degumming and weighting silk, shrink proofing of wool.

UNIT-IV 7. Synthetic Fibers-polyester, polyamide and acrylo nitrite fibers.

8. Chemistry of the fibers- raw material, manufacturing process from polymer to fiber stage.

9. Physical and chemical properties of all the fibers and their uses Examples of commercial production in India.

UNIT-V 10. Blends of different fibers composition and properties and uses in textiles and clothing.

11. Other natural synthetic fibers-Their chemical composition, properties and uses jute, flex, hemp, tencel, polyethylene, polypropylene, carbon, polycarbonate, metallic, glass fiber and polyurethane fibers

References:
5. ASTM standards.

PAPER - III
FASHION RETAILING
Max. Marks: 80

Objectives :
1. Focus on design details creation of styles and rendering techniques using the different media. Pencils, Pens, Markers, Charcoal, Brushes, colours, Papers.
2. To understand the dynamics of fashion and role of fashion designers.
3. To develop understanding visual merchandising and its importance in today’s consumer market.
4. To gain knowledge about the management aspects of retailing.

UNIT-I 1. The Dynamics of Fashion.
   Fashion Terminology, Fashion cycle, Fashion Adoption theories, fashion forecast, the role of designers in merchandising.

2. Famous national and international fashion designers.

UNIT-I 3. The concept of Retailing:
   - Definitions, role of retailing in merchandising, the retail mix, retail environment, types of retail store
Planning and budgeting for a retail store.

UNIT-II 4. **Elements and principles for Art and design:**
- Elements of design: Colour, texture, line, form space.
- Principles of design: Rhythm, Balance, Proportion, Emphasis, Unity.
- Interpretation for designing a retail store.

UNIT-IV 5. Sketching of different action croaky (based on the basic figures learnt earlier).
6. Maintenance and ordering of stocks, preparation of sales reports

UNIT-V 7. **Visual Merchandising.**
- Plans and schedule – seasons, holiday promotions, sales, themes / ideas.
- Types and displays – Window displays interior displays.
- Elements of Display- the merchandise the backdrop walls and shelves mannequins and forms, signage lightings- illuminance levels relation to colour.

References:

PAPER - IV

TEXTILE DESIGNING  Max. Marks: 80

Objectives:
- To develop awareness and appreciation of art and aesthetics in textiles.
- To impart creative and technical skills for designing textiles with special emphasis on structural design.
- The course aims at providing in depth working – knowledge of line development and enables a student to use and practice skills and knowledge already acquired and use it to market situation.

UNIT-I 1. Elements used in creating a design.
- Composition
- With one element.
- With more than one element.
- Colour - Its sensitivity and composition in dress.
- Harmony - in form of space coverage to design of the dress.

UNIT-I 2. **Design analysis:**
Structural and applied design variation in fiber, yarn and fabric construction, embroidery, dyeing printing and finishes.
3. Sources of inspiration for basic sketching and painting: nature, religion and mythology arts and crafts architecture.
4. Understanding the tools and equipment and their appropriate use for sketching, painting and achieving textural effects.
5. Process of designing

UNIT-II 6. **Components of fashion:**
- Silhouette
- Colour
- Texture
- Trims
UNIT-IV 7. Motif development - geometrical, simplified, naturalized, stylized abstract
  namental.
  - Big and small motifs - enlargement and reduction, growth of a motif.
  - Colour consideration - colour harmonies and colour ways.
  - Creation of patterns and designs
  - Combining motifs a) big and small and b) different sources.
  8. Placement and repeats for all over patterns.

  - Scouring, bleaching, designing.
  - Reagents used and their application.
  - Specific preparatory steps for cotton, wool, silk and man made fibers.
  - Equipment used at cottage and industrial level for yarn, fabric and price goods.

PRACTICAL - I

TEXTILE CHEMISTRY

Max. Marks: 100

1. Identification of fibers - cotton, polyester, viscose, polyimide, silk, wool jute, etc use of
test microscopic examination, chemical tests solubility and staining tests.
2. Dyeing of cotton (yarn) with direct, reactive and Val dyes (one each) by exhaust method
dyeing of wool and silk with an acid dye.
3. Use of natural dyes and mordant.
4. Study chemical properties of fiber as related to textile finishing
   - Chlorination of wool.
   - Mercerization in cotton.
   - Felting of wool.
   - Weighing of silk.
   - Degumming of silk.
5. Determination of hardness of water.
   - Fibers-Length, diameter, fineness.
   - Yarn - Count, heaviness twist, crimp, strength.
   - Bursting, Water vapour permeability, cover, stiffness, drapability, crease recovery
     pilling abrasion.
   - Chemical testing
   - Identification of fibers.
   - Binary fabrics - Blend composition.
   - Shrinkage water, oil repellency.
7. Dyes
   - Identification of dye class.
   - Colour Fastness.
8. Mechanical Testing
   - Seam strength.
   - Identification of fabric weave, Thread count
10. Mill visit to acquaint students with modern chemical processing
TEXTILES AND CLOTHING
M.Sc. (HOME SCIENCE) PREVIOUS - FINAL
2nd SEMESTER

Marking Scheme:

PART I - THEORY

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PART II - PRACTICAL

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<tr>
<td>Practical I Textile Designing</td>
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PART - III

INTERNSHIP / FIELD PLACEMENT

1. The student will be required to undergo an internship/field placement for a total duration of six to eight weeks in their chosen area of interest after IIInd semester which will facilitate their pursuing a professional career in same field.

2. This programme could be taken up either as a single block or in two different blocks. It is mandatory that the organization / institution (public/private) participating in the field.

3. Placement programme will be of good professional standing. the list could include government/non-government textile industries small scale industries (handloom), garment manufacturing units, fashion designing institutes, embroidery units etc. The student will be required to submit and present a report of the internship/field placement project after its completion. It is also envisaged that participating organization/institution will give their performance appraisal of the student work. Grade A (60% and above), Grade B (48% to 59%), Grade C (40% to 47%) should be given to the student after evaluation of field placement/internship report by the department. The grade will be mentioned in the mark sheet of the IVth semester of the student.

4. Excursion trip/field visits should be arranged regularly by the department for the upliftment of the knowledge of the students.

5. This programme is designed with the following objectives:
   I. To enable the students to acquire an in-depth understanding of the practical aspects of knowledge and skills acquired during the course in the relevant subject/subjects.
To gain hands on experience for higher proficiency in their selected area of expertise and help the students to develop and have their analytical abilities for situation and analysis and bringing about improvements.

PAPER - V

STATISTICS AND COMPUTER APPLICATION Max. Marks: 80

Objectives:
1. To understand the significance of statistics and research methodology in Home Science research.
2. To understand the types, tools and methods of research and develop the ability to construct data gathering instruments appropriate to the research design.
3. To understand and apply the appropriate statistical technique to the measurement scale and design.
4. To understand the role of statistics and computer application in research.
5. To apply statistical techniques to research data for analysis and interpreting data meaningfully.

UNIT-I

1. Conceptual understanding of statistical measures - meaning, definition, scope, importance, characteristics, distrust of statistics.
2. Classification and tabulation of data.
3. Measurement of central tendency
   - Mean
   - Median
   - Mode

UNIT-II

4. Graphic presentation of data
   - Frequency distribution
   - Histogram
   - Frequency polygons
   - Frequency curve
   - Ogive
   - Binomial distribution
   - Parametric and non-parametric tests
5. Methods of Dispersion and variation
   - Mean déviation
   - Standard déviation
   - Quartile deviation
   - Independence of attributes 2x2 and rxc contingency tables
   - Analysis of variance - one way method Direct and short cut.

UNIT-IV

7. Computer generations - Classification of computers; Analog digital hybrid general and special
8. Types of computers- Micro Mini Mainframe and super computer
   - Chi square test Goodness of fit
   - Application of student ‘t’ test for small samples

UNIT-V

9. Correlation-definition, meaning and types.
10. Methods of determining coefficient of correlation
    - Product moment correlation
    - Rank correlation.
11. Working with MS Word
- Getting started with word, formatting text and paragraph.
- Applying text and language tools, designing pages, with columns and tables, using graphics.

References:

PAPER - VI
QUALITY CONTROL IN TEXTILE Max. Marks: 80

Objectives:
1. To familiarize with the chemical processing from designing to finishing of textiles and x-principals.
2. To acquaint the students with some advance textile technology.
3. To develop an understanding of the methods and techniques used to analyze textile fiber, yarns, and fabric for end-use performance.
4. To acquire knowledge and understanding of various structural properties of textiles and relate them to end fabric performance and product.
5. To familiarize students with the different testing equipments, their underline principles and the international accepted standards, test methods and the language of measurement.
6. To be able to analyze and interpret the result and predict the general textile testing.

UNIT-I 1 Scientific basis of dyeing and printing of textiles-Classification of textiles dyes, commercial dyes, C.I. constitution number and C.I generic number.
h. Chemical structures of various classes of dyes.
c. Application of dyes on various substrates including blends.

UNIT-I 2 Textile finishing.
- Classification of finishes.
- Mechanical finishes.
- Chemical finishes-Mercerization, parchmentisation, durable press, wash ‘n’ wear, wrinkle recovery, chlorination.
- Resins, their application and chemistry.
- Special purpose finishes
  - Flame retardant, water repellent, antistalic, stain and soil release, proofing.

UNIT-III 3 Introduction to Testing.
- Concept and scope.
- Application areas.
- Use of statistics in data management.
- Sampling procedures.

4. Standardization.
- Organization for standardization (National and International)
- Quality control of Textile products.

UNIT-IV 5 Properties of textiles at different stages of processing and their principle of measurement.
- Quality standards as applicable to various types of textiles (Garments, Yard- age, knits, woven, carpets, processing, dyeing).
- Fibers-Length, fineness, evenness.
• Yarn - strength, evenness, openness, load, elongation, crimp.

**UNIT-V 6. Fabrics** - strength, elongation, shrinkage, thickness, cover, air permeability, crease recovery, weight, comfort, stiffness, flammability, repellency, colour, fastness.


8. Concept of fabric faults as related to stages of manufacture and the remedies.

**References:**
2. Billie, J Coller and Helen H. Bpoe- Textile testing and analysis- Prentice hall, New Jersey.
5. ASTM standards.

**PAPER - VII**

**FASHION ILLUSTRATION**

Max. Marks: 80

**Objectives:**
• Focus on design details creation of styles and rendering techniques using the different media. Pencils, Pens, Markers, Charcoal, Brushes, colours, Papers.
• To understand the dynamics of fashion and role of fashion designers.
• To develop understanding visual merchandising and its importance in today’s consumer market.
• To gain knowledge about the management aspects of retailing.

**UNIT-I 1. Garments and garment details:**
• Necklines and collars
• Frills, fringes and gathers, cowls and cascades.
• Sleeve details
• Hemlines and insertions.
• Skirts and pants

**UNIT-I 2. Lacing, macramé’s and patch work**
• Blouses, coats and jackets
• Pleats, quilting and ties
• Drawstring and fastenings
• Shirring, smoking and zips
• Tassels and tucks
• Yokes and underskirts.

**UNIT-II 3. Sketching of Accessories**
• Hats and head gears
• Footwear
• Bags and purses
• Jewellery

**UNIT-IV 4. Basic Rendering Techniques:**
• Colour matching using different mediums
• Stripes
• Checks, gingham and plaids
• Patterns and textures
• Reducing a print
• Shading

**UNIT-V 5. Theme, Rendering : developing a line of garments based on a theme** (any one of the following)
- Beachwear
- Cocktail wear
- Swimwear
- Eveningwear
- Casual wear
- Ramp wear
- Sportswear
- Executive wear
- Nightwear
- Traditional Indian costume

References:
4. Ireland, Patrick John, Fashion Illustration, B.T. Batsford Ltd London.

PAPER VIII
DYEING AND PRINTING Max. Marks: 80

Objectives:
1. To impart the knowledge about preparation of fabric for dyeing and printing.
2. To understand the theory of dyeing in relation to various classes of dyes.
3. Application of various dyes and properties related to it.
4. To introduce the concept of dyeing at commercial level.
5. To inculcate awareness of the different methods of printing and appreciate the technical advantages of each.
6. To develop technical competency in printing with different dyes on different fabrics.

UNIT-I 1. Dyes
- Classification, definition, components.
- Colour and chemical constitution of dyes.
- Dyeing with chemical dyes.
- Direct, reactive, vat, sulphur, azo (for cellulosic).
- Acid, metal complex, chrome mordent (for protein).
- Basic, nylomine, disperse (for man-made).

UNIT-I 2. Dyeing with: natural dyes.
- Use of pigments.
- Dyeing machines for fibers, yarns and fabrics.
- Industrial dyeing practices.
- Dyeing auxiliaries and their uses.
- Dyeing of blends.

UNIT-II 3. Textiles design through dyeing.
- Tie and dye.
- Union and cross dyeing.
- Batik

4. Dyeing defects and remedies.

UNIT-IV 5. Introduction to printing - difference between dyeing and printing.
6. Methods of printing
7. Historical development of printing -block stencil, screen roller and rotary.
8. Screens used at cottage and industrial level.

UNIT V

9. Printing pastes

Thickening agents and auxiliaries for printing and their suitability to various classes of dyes and fibres. Preparation of printing pastes for different dyes and different fibres.

10. Styles of printing

- Direct style, resist or reserve style, discharge style and raise style.
- Style and methods of printing traditionally used in India

PRACTICAL - II

TEXTILE DESIGNING

Max. marks: 100

Marks Distribution:

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<th>Two practical</th>
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2. Dyeing of yarns and fabric with different classes of dyes, in fibre and fibre blends (variables- MLR, conc, temp, Leveling/exhausting agents)
   - Direct, reactive, vat, sulphur, azo.
   - Basic, disperse.
   - Acid, chrome, metal complex.
   - Natural dyes.
3. Preparation of fabric for printing - different fibre groups with different dyes, different styles of printing
   - Preparation of screens for printing.
   - Printing with blocks and screens on cotton, silk, wool and blends in different dye classes.
4. Direct style
5. Mordant or dyed style, Azok style
6. Discharge style
7. Resist style.
8. Report of visits to processing and printing units (cottage and industrial level).

TEXTILES AND CLOTHING

M.Sc. (HOME SCIENCE) FINAL

3rd SEMESTER

Marking Scheme:

PART I - THEORY

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<td>Historic Textiles</td>
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PART II - PRACTICAL

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PAPER - IX

**FABRIC CONSTRUCTION**

Max. Marks: 80

Objectives:
1. To enable the students to understand and learn methods of developing fabrics, using different fibres, yarn and fabric making techniques.
2. To gain knowledge and understanding of fundamentals of weaving machinery and processes.
3. To analyze different weave patterns and learn principles of creating design through weaving.
4. To enable the student to obtain perfect fit and harmony between the fabric and design of the garments.

UNIT-I
1. Modern developments in yarns at their manufacture.
2. Modern yarn production - Principles of spinning in production of man made fibre hot and cold drawing, spun yarn, blend yarn and bicomponent yarn.

UNIT-II
3. Texturing yarn technology - Principles method and process of variables in texturing and their effect on properties of textured yarns morphological changes induced by texture core yarns, network and film yams and laminated yarns.
   - Weaving.
   - Parts and functions of handlooms
   - Types of weave - basic decorative.

UNIT-IV
5. Knitting.
   - Knitting machines, types of knitting.
   - Properties.

6. Felts and non wovens - different non woven
   - Knotting, braiding and lace making.

UNIT-V
7. Introduction to technical textiles -
   - Geo textiles
   - Medical textiles - Nano technology in India


References:
1. Spun yarn technology - Eric oxtoby butterwall publication.
4. Amalsar D.M yarn and cloth calculation.
5. Amalsar handloom Weaving.

PAPER - X

**APPAREL DESIGN**

Max. Marks: 80

Objectives:
1. To impart an in-depth knowledge of style readings, pattern making and garment
construction techniques.
2. To develop and understand the principles of pattern making through flat pattern and draping.
3. To create awareness of quality assurance norms and evaluating of quality in apparel.

UNIT-I 1. Detailed study of industrial machines and equipment used for-
   - Cutting the fabric - Objectives, methods of cutting fabric and cutting system
   - Sewing - Properties, types, sewing machines
   - Sewing threads - Type of fiber, thread size, thread package, thread costs, thread properties.
   - Sewing problems - Stitch formation, damage along with seam line, puckering.
   - Finishing

UNIT-I 2. Embellishment
3. Study the interrelationship of needles, thread.
4. Stitch length, and fabric
5. Stitch Types

   - Drafting.
   - Flat pattern.
   - Draping.
   - Coping paper pattern.

UNIT-IV 7. Understanding the commercial paper pattern
8. Layouts on different fabrics, widths and types
9. Buying criteria for-
   - Knits, silks, denim and other special fabrics

UNIT-V 10. Readymade garments.
11. Fitting - factors affecting good fit, common problems encountered and remedies for fitting, defects (upper and lower garments).
12. Fitting problems and pattern correction

References:
3. Armstrong, Pattern making for fashion design.

PAPER - XI
HISTORIC TEXTILES Max. Marks: 80

Objectives:
1. To gain knowledge of the significance developments in production of textiles in the world.
2. To assess similarities and dissimilarities in different civilization in terms of fibre production, ornamentation and usage.
3. To develop sensitivity and understanding towards historic silhouettes and designs.
4. To learn about the designers of international fame and their contribution to the fashion of today.

UNIT-I 1. Introduction to textiles: Indian textile development, study of traditional textiles and embroideries of India.
   a. Chicken of U.P.
   b. Kantha of Bengal.

B.Sc. (Home Science) - Part-I,II,III, M.H.Sc (129)
c. Phulkari of Punjab.  
d. Kathi of Gujarat.  
e. Manipuri of Manipur.  
f. Chamba rumal of H.P.  
g. Kasmiri of Kashmir.  
h. Kasuti of Karnataka.

UNIT-I 2. Dance costumes of India:  
a. Bharatnatyam.  
b. Kathak.  
c. Odissi.  
d. Kuchipudi.  
e. Kathakali.  
f. Manipuri.

UNIT-II 5. Folk dance costumes of India:  
a. Rajasthan.  
b. Maharashtra.  
c. Gujarat.  
d. Chhattisgarh.  
e. Madhya Pradesh.

UNIT-IV 3. Development of different fibers:  
Cotton, silk, wool, linen in India in terms of processing, tools and equipments used, design and ornamentation applied and specialties achievement.

UNIT-V 6. Historical textiles of special significance:  
a. Carpets.  
b. Tapestries.  
c. Brocades.  
d. Laces.  
e. Shawls.

References:  
3. Boucher Francois, A history of Costumes in the West Thames and Hudson.  
5. Revolution in Fashion: The Kyoto costume institute, Abbeville Presi, New
UNIT-V
14. Corporate and division strategic planning.
15. SWOT analysis

PRACTICAL - III
FABRIC CONSTRUCTION AND PATTERN MAKING

Marks Distribution:
Sessionals - 20
Viva - 20
Two Practical - 30 each

1. Dart manipulation.
2. Development of various in sleeves. Sleeves an bodice combination.
3. Development of variation in collars.
   • Roll over collar.
   • Collar with bodice (shawl).
4. Necklines and facings.
   • Scooped necklines.
   • Built up necklines.
   • Cowl necklines.
5. Weaving on simple loom, plain, rib, matt, and twill structures.
6. Visit to weaving mills.
7. Fashion sketches.

TEXTILES AND CLOTHING
M.Sc. (HOME SCIENCE) FINAL
4th SEMESTER
Marking Scheme:

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<td>Paper XIV</td>
<td>Apparel And Its Social, Psychological Aspects</td>
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<td>Paper XV</td>
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<tr>
<td>Paper XVI</td>
<td>Fashion Merchandising</td>
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PART II – PRACTICAL

Practical IV Apparel Designing its Construction and Historic Textiles 100

PAPER - XIII
KNITTING TECHNOLOGY AND DRAPING Max. Marks: 80

Objectives:
1. To enable the students to understand and learn methods of developing fabrics, using
different fibers, yarn and fabric making techniques.

2. To gain knowledge and understanding of fundamentals of weaving machinery and processes.

3. To analyze different weave patterns and learn principles of creating design through weaving.

4. To enable the student to obtain perfect fit and harmony between the fabric and design of the garments.

UNIT-I 1. Woven: sequence of operations in wrap and weft preparation.
   - Various types of looms and their drive.
   - Fabric classification and analysis of fabrics for its construction weaves.

   2. Basic and decorative weaves plain, twill and satin derivatives.

   UNIT-I 4. Principle of colour and design in weaving construction of pattern for Dobby and Jacquard looms, brocade, damask, tapestry, wrap and weft pile weaving.


   UNIT-II 7. Introduction to draping and silhouette of the individual - Dress Farm, Elements of fabric - Woven knitted.

   8. Developments of the ladies block crotch line garments by drafting and draping (short, Bermudas, Trousers etc)

UNIT-IV 9. Development of pattern with variation in
   - One piece dresses.
   - Two piece dresses
   - Dart less dresses, Dart manipulation.
   (Incorporating various collars, sleeves, yokes, necklines, pockets and plackets etc.)

UNIT-V 10. Draping of bodice block and shirt block and their variation.
   11. Draping of symmetrical designs and preparing patterns.


References:
1. Spun yarn technology- Eric oxoby butterwall publication.
4. Amalsar D.M yarn and cloth calculation.
5. Amalsar handloom Weaving.

PAPER - IX

APPAREL AND ITS SOCIAL, PSYCHOLOGICAL ASPECTS

Max. Marks: 80

Objectives:
1. To impart an in-depth knowledge of style readings, pattern making and garment construction techniques.
2. To develop and understand the principles of pattern making through flat pattern and draping.
3. To create awareness of quality assurance norms and evaluating of quality in apparel

UNIT-I 1. Caps and Hoods
UNIT-I

4. Clothing for people with special needs.
   - Maternity and lactation period.
   - Old age.
   - Physically challenged.

UNIT-II

5. Evaluating the quality of apparel
   - Identification of the components of apparel.
   - Fibre content, shaping devices, underline fabrics, pockets, necklines, hem treatments, decorative details and alteration potential.

UNIT-IV

7. Origin of clothing.
   - Why costumes differ all over the world, material aspects and climate.
   - Religious influence.
   - Events of the world.
   - Clothing symbols.

8. Socialization and development of the self.
   - Social norms.
   - Individuality and conformity

UNIT-V

9. The study of dress and adornment
10. Personality and Types of Personality.
11. Determinants of Personality
12. Personality theories - Definition, theories, personality traits.
   - Sigmund Freud defense mechanisms.
   - Jung
   - Murray

References:
3. Armstrong, Pattern making for fashion design.
6. Slampler, Sharp and donnell: Evaluating

PAPER - XV

HISTORIC COSTUMES

Max. Marks: 80

Objectives:
1. To gain knowledge of the significance developments in production of textiles in the world.
2. To assess similarities and dissimilarities in different civilization in terms of fibre production, ornamentation and usage.
3. To develop sensitivity and understanding towards historic silhouettes and designs.
4. To learn about the designers of international fame and their contribution to the fashion of today.

UNIT-I

1. Clothing- Origin and functions of clothing
2. Resist dyeing and ikat fabrics.
3. Printed and painted fabrics.
4. Banarasi saree
5. Sarees of M.P.
6. Costume in ancient civilization emphasize on fabric, garment features, use of
colour decoration and accessories.

- Indian
- Egyptian.
- Greek.
- Roman.

UNIT-I 7. History of Indian state costumes for Male and Female

a. Kashmir
b. Maharashtra
c. Gujarat
d. Rajasthan
e. West Bengal
f. Tamilnadu

UNIT-II 8. Costumes for men and women during 10th to 17th century (Medieval costumes)

a. India
b. French
c. European.
d. English.
e. Costumes and China and Japan.

UNIT-IV 9. Costumes Of 18th century to 20th century

- Indian
- French.
- Italian.
- England.
- American.
- Japanese.
- Australia

UNIT-V 10. Growth of costume:

11. Fashion- Terminology, fashion concepts, its creation and analysis

- Mass Production of clothing.
- Fashion Designers and his role.
- Fashion Forecasting.
- Design Development.

References:
3. Boucher Francois, A history of Costumes in the West Thames and Hudson.

PAPER - XVI

FASHION MERCHANDIZING

UNIT-I 1. Market segmentation, Targeting and Positioning (STP) concepts and methods of market segmentation need for positioning through various means, formation of positioning maps

UNIT-I 2. Product its type and relation to fashion classification of fashion product life cycle, the process of product life cycle, the process of products development

3. Brand management and brand image building the making of a brand.

4. Branding strategies

UNIT-II 5. Promotion and Distribution- Role of promotion, methods of promotion, Advertising, Sales promotion, personal selling, designing and management of different methods of promotion and their employment-in relation to cost effectiveness and product life cycle, different channels of distribution-selection and management

UNIT-IV 6. Designing of retail outlets.

7. Store layout and design.Front design, Interior design, Lighting design.
8. Elements of store environment, allocating space, circulation.

UNIT-V
10. Domestic vs. Export market - principles of marketing and merchandising for the domestic and export market, channels of distribution.
11. Visual merchandising
12. Types of Displays - window displays, interior displays.
13. Elements of displays

PRACTICAL - II
APPAREL DESIGNING ITS - CONSTRUCTION AND HISTORIC COSTUMES

Max. Marks: 100

Distribution of Marks:

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<th>Sessional</th>
<th>Viva</th>
<th>Two practical</th>
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<td>30 each</td>
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2. Designing through draping
3. Basic draping principles and techniques.
4. Developing a pattern.
5. Designing, drafting and construction of skirts.
6. A line, flared, circular, pleated, yoked with godet.
7. Pockets, plackets, seams, pleats, Tucks, Bows etc.
8. Plackets - Centre button closing
9. A symmetrical closing
10. Double breasted.
11. Garments - Drafting and construction of different types of blouses:
   - Choli Cut blouse.
   - Belt Blouse.
   - Plain Blouse.
12. Drafting of Salwar and Kammez with design:
   - Semi fitted Kurta.
   - A line kurta.
   - Paneled kurta.
   - Lucknowi Kalidar Kurta.
   - Flared Kurta.
13. Salwar and its different kinds:
   - Churidar.
14. Preparing samples of traditional embroidery of different states.
15. Preparing samples of novelty embroidery stitches.

OPTIONAL
(IN PLACE OF PRACTICAL)

Max. Marks: 100

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<th>External</th>
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Project work: Current trends in textile and clothing