

1st SEMESTER
MSc-Foods & Nutrition

MARKING SCHEME

MARKING SCHEME

Sr No	Name of Papers	Theory	Internal Assessment	Seminar	Total
1	Applied Human Physiology	80	10	10	100
2	Food Science	80	10	10	100
3	Clinical & Therapeutic Nutrition	80	10	10	100
4	Research Methods & Scientific writing	80	10	10	100

Practical

Sr No	Name of Practical	Marks
1	Physiology	100
2	Food Science	100

Total Marks = 600

PAPER - I
SEMESTER-I
Applied Human Physiology

Total Marks-80

1. Cell Structure and Tissues:

Structure of a human cell.-Organelles and Inclusions, Elementary study of tissues of the human body- Epithelial, connective, Muscular, Nervous (Neuron).special cells and tissues

2. Endocrine System :

Endocrine glands- structure, regulation of hormonal secretions- Thyroid, Parathyroid, Pancreas, Pituitary, Adrenal, Sex glands.

Disorders of endocrine glands.- Hypo and Hyper Thyroidism, Diabetes Mellitus,, Hyperinsulinaemias, sex hormones related problems, Acromegaly, Acromicria, Gigantism, Dwarfism, Cretinism and other pituitary disorders.

3. Respiratory System :

Structure, functions of organs of Respiratory tract. Exchange of gases. Mechanism of Respiration, Transport of Oxygen and CO₂.Nervous and chemical Regulation of Respiration, Asphyxia, hypoxia.

4. Digestive System :

Structure, function of organs of Gastro- intestinal tract, Liver, Pancreas, Gallbladder. Process of digestion and absorption.

5. Muscular System :

Muscles - Types, structure, functions, Changes during muscular Contraction.

6. Excretory System :

Structure and function of nephron, kidneys, Urinary bladder Urine formation. Composition of urine. Micturition process , role of spinal cord. Maintenance of acid base balance.

SEMESTER-I
Paper II
FOOD SCIENCE

Total Marks - 80

1. Introduction to food Science -

Evolution of the food industry and Allied industries Development of food science as a discipline.

2. Polysaccharides, Sugar and Sweeteners-

Starch: Structure, composition gelatinization. Methods for gelatinization. Changes. Characteristics of some food starches. Effects of ingredients and conditions on gelatinization. Modified food starches.

Sugars and sweeteners- sugar syrups, sugar products Structural relationships to sweetness and crystallization.

3. Cereals and Cereal Products-

Cereal grains - structure and composition, Cereal products, flour and flour quality, Extruded foods. Wheat germ, Bulgur, puffed and flaked cereals.

4. Fats, Oils and Related Products-

Sources. Composition effect of composition on fat properties. Functional properties of fat and uses in food preparation. Fat substitutes. Fat deterioration and antioxidants.

5. Milk and milk products

Composition, physical and functional properties

Dairy products- cultured milk, Yogurt, butter, whey, cheese. Frozen desserts dairy products substitutes.

6. Eggs -

Structure and composition. Changes during storage. Functional properties. Egg use in cookery Egg processing.

7. Fruits and vegetables - composition.. Enzymes in fruits and vegetables. Plant Pigments.. Texture of Fruit and vegetables. Effects of storage processing and preservation.

8. Leavened Products : Leavening agents. Biologically leavened and chemically leavened products. Batters and dough.

SEMESTER - I
Paper - III
Clinical & Therapeutic Nutrition

Total Marks = 80

1. **Nutritional Screening and assessment of nutritional status of Hospitalized and outdoor Patient.** Identification of high risk Patients Assessment of Patient needs based on interpretation of Patient data- clinical, biochemical, biophysical, Personal etc.
2. **Diet nutrient and drug interaction.** Effect of drugs on ingestion, digestion absorption and Metabolism of nutrients. Effect of Food, nutrients and nutritional status on drug dosage and efficacy.
3. **Etio-pathology-** physiology, metabolic and clinical aberrations-complications, prevention and recent advances in the medical nutritional management of-
 - [a] Cardio- vascular disorders-**
 - 1] Hyperlipidemiass-classification and nutritional care
 - 2] Atherosclerosis- etiological factors, pathogenesis, dietetic management
 - 3] Hypertension-classification, etiology, nutritional care
 - 4] Rheumatic heart disease
 - 5] Ischemic heart disease
 - 6] Myocardial Infraction
 - [b] Endocrine Disorders-**
 - 1] Diabetic Mellitus-
 - I] Symptoms, Types, Diagnosis
 - II] Metabolism in Diabetes
 - III] Dietary management and meal management
 - IV] Insulin Types
 - V] Complications
 - 2] Additions Disease
 - 3] Hyperinsulinemias
 - 4] Hyperthyroidism
 - [c] Gastro- intestinal tract Disorders**
 - i) Gastritis- Types and Dietary modifications
 - ii) Peptic Ulcer-Etiology, Symptoms, Dietary Modifications, intervals of feeding, bland Diet
 - iii) Sprue- Types and dietary considerations
 - iv) Indigestion
 - v) Diarrhea- classification and modification of diet
 - vi) Constipation- classification and dietary considerations
 - vii) Celiac diseases

[d] **Liver and gall bladder, Pancreatic disorder**

- i) Jaundice- classification and dietary treatments
- ii) Hepatitis- Types and dietary management
- iii) Cirrhosis- Types and dietary management
- iv) Gallstones- -types and complications.

[e] **Renal Disorders- Basic renal functions, classification of renal diseases**

- i) Nephritis-symptoms and nutritional care
- ii) Nephrosis-types and dietary management
- iii) Kidney stones- types and dietary management
- iv) Renal Failure (Acute & chronic)

[f] **Weight Imbalances- Regulation of Energy Metabolism**

- i) Obesity-
 - (a) types, Etiology, treatment, diet and other measures
 - (b) Complications of Obesity
- ii) Under Weightiness- Causes and Dietetic Management

References

1. Human Nutrition & Dietetics - Davidson & Passmore
2. Clinical Dietetics & Nutrition - F.P. Antis
3. Textbook of Normal & - Robinson
4. Nutrition in Health & Diseases - Babar C. Mitchell
5. Food Nutrition & Diet Therapy - Krause
6. Clinical Nutrition - Jelliffe.

SEMESTER-I
PAPER - IV
RESEARCH METHODS & SCIENTIFIC WRITING

Total Marks-80

Note :- Attempt five question Two questions from each section is compulsory.

SECTION - A

1. Science, scientific methods, scientific approach.
2. Role of statistics and research in Home Science discipline.
Objectives of research: Explanation, control and prediction.
3. Types of Research-Historical, Survey, Experimental, Case-Study, Social Research, Participative Research.
4. Definition and Identification of Research Problems
 - Selection of Research Problem
 - Justification
 - Theory, Hypothesis, Basic Assumptions, Limitations and delimitations of the problem.
5. Types of Variables.
6. Theory of Probability
 - Population and Sample
 - Probability Sampling: Systematic, random Sampling Two Stage and multi stage sampling, cluster sampling.
 - Non-Probability Sampling: Purposive, quota and volunteer sampling/snow ball sampling.

SECTION - B

7. Basic Principles of Research Design-
 - Purpose of research design: Fundamental, applied and action exploratory and descriptive, survey and case study, ex-post facto.
 - Longitudinal and cross sectional.
8. Conceptual understanding of statistical measures, Classification and tabulation of data.
Measurement of central tendency, measures of variation.
9. Frequency distribution, histogram, frequency, polygons, Oliver.
10. Binomial distribution

References

1. Garrett, Henry E (1971). Statistics in Psychology and Educatio. Devid Heley and Co.
2. Edwards. Experimental Design and Psychological Resear5ch.
3. Kerlinger : Foundation of Education Research.
4. SPSS/PC for the IBV PC/XT, SPSS Inc.

SEMESTER-I

PRACTICAL-I

HUMAN PHYSIOLOGY

Total Marks- 100

1. Detection of permanent slides of various body organs.
2. Differential WBC Counting by using diluting fluid.
3. Differential RBC Counting by using diluting fluid.
4. Measurement of blood pressure by auscultatory methods.
5. Determination of erythrocyte sedimentation rate [ESR].
6. Determination of osmotic resistance of RBCs.
7. Effects of high temperature, salt and acid addition on Ptyalin present in saliva.
8. Estimation of titrable in gastric juice.
9. Determination of bleeding and clotting time.
10. Preparation of Haemin crystals.
11. Determination of hemoglobin.
12. Identification of blood group and Rh factor.

SEMESTER - I
PRACTICAL - II
FOOD SCIENCE

Total Marks-100

1. Effect of solutes on boiling point and freezing point of water.
 2. Effect of types of water on characteristics of cooked vegetables, pulses and cereals.
 3. Sugar and jaggery cookery: Relative sweetness, solubility and sizes of sugar, stages of sugar cookery, caramalization, and crystallization factors affecting crystal formation.
 4. Starches and cereals: Gluten formation and factors affecting gluten formation.
 5. jam and jellies Pectin content of fruits role of fats and oils in cooking as shortening agent frying medium factors affecting fat absorption, fat crystals, plasticity of fats, Permanent and semi permanent emulsions.
 6. Milk and milk products: Effect of acid salt, alkali sugar, heat
 7. Egg, structure assessing egg quality. Use of egg in cookery Emulsions air incorporation, thickening, binding gelling. Method of egg cookery and effect of eat. Egg white foams and factors affecting foams.
 8. Pulses: Effect of various cooking and processing methods on various characteristics, functional properties of pulses and their products.
 9. Meat and poultry: Methods affecting tenderness of meat effect of various methods of cooking and ingredients on colour, volume, texture, flavor aroma and water holding capacity.
 10. Fish and seafood. Effect of different cooking methods on various fish and seafood.
 11. Gelatin, gel strength and factors affecting gelation process. Ability to foam.
 12. Fruits and vegetables Pigment -effects cooking imitations, pH Effect of various cooking processes on different characteristics of vegetables. Prevention of enzymatic browning.
 13. Leavened Products: Fermentation use of micro organism (Lactic acid yeast) steam as an agent, eggs as an agent, Chemical agent.
 14. Beverages: Factors affecting quality of beverages.
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2nd semester
MSc - Foods & Nutrition

MARKING SCHEME

Sr No	Name of Papers	Theory	Internal Assessment	Seminar	Total
1	Geriatric Nutrition & Applied life Sciences	80	10	10	100
2	Food Chemistry	80	10	10	100
3	Problems in Human nutrition	80	10	10	100
4	Statistics & Computer Application	80	10	10	100

Practical

Sr No	Name of Practical	Marks
1	Clinical, Therapeutic & Geriatric Nutrition	100
2	Statistics & Computer Application	100

Total Marks = 600

SEMESTER - 2nd Semester
PAPER-I

Geriatric Nutrition & Applied Life Sciences

Total Marks-80

1. Nervous System :

Conduction of nerve impulse, synapses, Role of transmitters. Organization of central nervous system. Structure and functions of Brain, Spinal cord, Hypothalamus- role in various body function. Cerebro-spinal fluid.

2. Sense Organs :

Review of Structure and function. Role of Skin, Eye, Ear, Nose and Tongue in perception of stimuli.

3. Blood :

Functions, Composition - Plasma - formation and functions of plasma proteins, Red blood corpuscles, white blood corpuscles, Hemoglobin, Platelets, Blood groups, Clotting of blood. Blood Volume .

4. Circulatory System :

Heart - Structure, functions. Cardiac cycle, Heartbeat & Sound cardiac output., ECG

Blood vessels - Structure, functions. Blood- pressure., Measurement and adjustment of BP.

5. Reproductive System :

Structure and functions of Male & female reproductive organs Ovarian, uterine cycles, spermatogenesis, pregnancy, lactation. Parturition. Role of hormones.

6. The ageing Process :Metabolism during aging.

8. Nutritional requirement of elderly and dietary management to meet nutritional needs.

9. Chronic degenerative diseases and nutritional problems of the elderly-

Their Etiopathogenesis , management, prevention and control.- Gout, Arthritis, Parkinson's disease. Alzheimer's Disease., Osteo-dystrophy.

SEMESTER - 2nd Semester

Paper-II

FOOD CHEMISTRY

Total Marks- 80

1. **Palatability of food and the measurement of its acceptance-** Sensory testing Appearance, smell, taste etc. Objective testing volume tenderness tension. Viscosity, weight, moisture loss etc.
2. **Browning Reaction - enzymatic and non-enzymatic-** Gel structure, formation, strength types . Emulsion - formation, stability and emulsifiers, Foams structure formation and stabilization.
3. **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, Meat products.
4. **Fish and sea food:** Types and composition storage and changes during storage changes during processing, By products and newer products.
5. **Pulses and Legumes:** Structure, composition, processing, Toxic constituents.
6. **Nuts and Oilseeds-** Composition, oil extraction and by products.
7. **Spices and condiments-** Composition, flavoring extracts, natural and synthetic.
8. **Processed Foods-** Jam, Jellies, Squashes, Pickles.
- 9 **Beverages-** Synthetic and natural, alcoholic and non-alcoholic, carbonated and Non carbonated coffee, tea, cocoa, confectioneries and chocolate products, baking products dehydrated products.
10. **Traditional Processed Products: fermented foods-** cereal based, pulse-based, fruit vegetable based,- vinegar, pickles.
11. **Salt and Substitutes**

References

1. Food-Selection & Preparation - Sweetman

2. Foods- their Selection &Preparation - Stanley & Clive
 3. Experimental Foods - Griswald.
 4. Food Chemistry - Meyer
 5. Foundations of Food Preparation - Peackman.
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SEMESTER - 2nd Semester

Paper-III

Problems In Human Nutrition

Total Marks-80

- 1. Newer trends in delivery of nutritional care and dietary counseling.**
- 2. Cancer - Types of cancer, nutritional effects of cancer, disorders related to treatments, Diet in cancer.**
- 3. Neurological disorder and Stress**
(i) Lathyrism (ii) Allergy (iii) Migraine
- 4. Musculo- skeletal disorder- Arthritis- Nutritional Care**
Gout Characteristics and Nutritional Care & other muscular diseases.
- 5. Infections and AIDS-**
(i) Typhoid
(ii) Tuberculosis
(iii) AIDS
- 6. Respiratory Problems-**
(i) Asthma
(ii) Cough & Cold
(iii) Emphysema
- 7. Childhood Problems/disorders including inborn errors of metabolism and their nutritional management..**
- 8. Historical background, Prevalence, etiology biochemical and clinical Manifestations, Preventive and therapeutic Measures for the Following.**
(i) PEM
(ii) Vitamin A deficiency
(iii) Nutritional anemia's
(iv) Rickets, Osteomalacia and Osteoporosis
(v) Fluorosis.

SEMESTER - 2nd Semester
PAPER-IV
STATISTICS & COMPUTER APPLICATION

Total Marks- 100

Note :- Attempt five question Two questions from each section is compulsory.

SECTION - A

1. Normal distribution- Use of normal probability tables
2. Parametric and non-parametric tests.
3. Testing of hypothesis. Type I, Type II, errors, Levels of significance.
 1. Chi-square test. Goodness of fit. Independence of attributes 2x2 and rxc contingency tables.
 2. Application of student 't' test for small samples. Difference in proportion for means and difference in means.
4. Correlations, coefficient of correlation, rank correlation.
5. Regression and prediction.
6. Analysis of variance- one-way and two-way classification.
7. Experimental Designs
 - Completely Fundamental design
 - Randomized block design
 - Latin square design
 - Trend Analysis

SECTION - B

8. Quantative Research methods
 - Theory and design in quantative research
 - Definition and types of quantative research
 - Methods and techniques of data collections
 - [1] Informal group discussion
 - [2] Interviews: Key information, in-depth interviews
 - [3] Observations
 - [4] Social mapping
 - [5] Participatory rapid assessment
 - [6] Participatory Learning assessment
9. Data Gathering Instruments- Observation, Questionnaire, Interview, Scaling methods, case study, home visit, reliability and validity of measuring instruments.
10. Scales of measurement and the appropriate statistical techniques.
11. Critical analysis of research.
12. Writing a research proposal.
13. Analysis of data and research reports.
14.
 1. Scientific writing as a means of communication
 - Different forms of scientific writing.

- Articles in journals, Research notes and reports, Review articles, Monographs,

- Dissertations, Bibliographies, Book chapters and articles..

2. How to formulate outlines

- The reasons for preparing outlines:

- * As a guide for plan of writing

- * As skeleton for the manuscript

- Kinds of outline

- * Topic outlines

- * Conceptual outline

- * Sentence outlines

- * Combination of topic and sentence outlines

3. Drafting titles, Sub titles, tables, illustrations

- Tables as systematic means of presenting data in rows and columns and lucid way of indicating relationships and results.

- Formatting tables: Title, Body stab, Stab Column, Column Head, Spanner head, Box Head

- Appendices: use and guidelines

1. The writing process- Getting started

Use outline as a starting device.

References

1. Bandarkar, P.L. and Wilkinson T.S. (2000): Methodology and Techniques of Social Research, Himalaya Publishing House, Mumbai.
2. Bhatnagar, G.L. (1990): Research Methods and Measurements in Behavioural and Social, Agri. Cole Publishing Academy, New Delhi.
3. Dooley, D. (1995): Strategies for Interpreting Qualitative Data; Sage Publications, California.
4. Gay, L.R. (1981, 2nd Ed): Educational Research, Charles, E. merill, Columbus, Ohio.
5. Long, J.S. (Ed) (1989); Common Proper Solution Avoiding Errors in Quantitative Research, Beverly Hills, Sage Publications, m California.
6. Mukherjee, R. (1989): The Quality of Life: Valuation in Social Research, Sage Publications New Delhi.
7. Stranss, A. and Corbin, J. (1990): Basis of Qualitative Research : Grounded Theory Procedures and Techniques, Sage Publications, California.
8. Garrett, Henry E (1971). Statistics in Psychology and Educational.
9. Edwards. Experimental Design as Psychological Research.
10. Kerlinger : Foundation of Education Research.
11. SPSS/PC for the IBM PC/XT, SPSS Inc.

SEMESTER - 2nd

PRACTICAL - II

Clinical, Therapeutic & Geriatric Nutrition

Total Marks-100

- [A] Planning & preparation of Diets for patients with common multiple disorders-
- [1] Weight Imbalances.-Over-weight. Obesity, Under-Weight
 - [2] Cardio-Vascular Disorders-
 - i) Arteriosclerosis
 - ii) Hypertension
 - [3] Endocrine Disorders- Diabetes Mellitus
 - [4] Gastro-Intestinal Tract Disorders-
 - i) Gastritis
 - ii) Gastric and Duodenal Ulcer
 - iii) Sprue
 - iv) Indigestion
 - v) Diarrhea
 - vi) Constipation
 - [5] Liver and Gall Bladder Disorders-
 - i) Jaundice
 - ii) Hepatitis
 - iii) Cirrhosis
 - [6] Renal Disorders-
 - i) Nephritis
 - ii) Nephrosis
 - iii) Kidney Stones
 - iv) Renal Failure
 - [7] Fevers & Infections-
 - i) Typhoid
 - ii) Tuberculosis
- [B] Planning & preparation of diets for the elderly. in health and sickness.
- [C] Visit to old age homes & dietetic departments of hospitals.
- [D] Case Studies
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SEMESTER - 2nd Semester

PRACTICAL - II

STATISTICS & COMPUTER APPLICATION

Total Marks - 100

1. Introduction of Computer - Hardware & Software, Opening & Formatting Documents.
2. Running Multiple Programms- Accessories, C.D. Writing, Paints & Brush, Scanning, Zipping of File, Creating Shortcut.
3. M.S. Word-Typing, Fonts-types & Size, Auto Text, Auto Correct, Word Art and Table Creation and operation.
4. M.S. Excel- Data Finding and Statistical Calculation- S.D., Mean, Median, Mode, Average, Sum., Anova, 't' Value, Correlation.
5. Graphical Presentation of Data- Custom, Plain Type.
6. M.S. Power Point- Making of Slides, Show with Different Slide Lay Out, Colour Scheme, Mode of Presentation.
7. Inter Net-Hard-Ware Required Soft-Ware Required, Different Search Engiens.
8. Searching of Documents & Pictures and References, Researching, Saving of PDF File. Conversion of PDF in to HTML File.

M.Sc. (3RD Semester)
Food & Nutrition

MARKING SCHEMES

Serial	Name of the Paper	Theory	Internal Assessment	Seminar	Total Marks
1	Methods of Biochemical Investigations	80	10	10	100
2	Principles of Nutrition	80	10	10	100
3	Institutional Food Administration	80	10	10	100
4	Advanced Nutrition	80	10	10	100

PRACTICALS

1. Methods of Biochemical Investigation	100
2. Institutional Food Administration & New Trends in Nutrition	100
Total Marks =600	

PAPER I
Semester - III
ADVANCED NUTRITIONAL BIOCHEMISTRY
Total Marks - 80

1. **Carbohydrates-**

Definition classification, Structure and Properties Monosaccharide's, Disaccharides, Polysaccharides-Glycosides, Tannins, Chitin, Heparin, Glycoprotein's. Muco Polysaccharides. Metabolism- Glycolysis Gluconeogenesis, Citric acid cycle, HMS, GYlycogenesis, Glycogenolysis.

2. **Lipids-** Definition, Classification, Structure, importance and Properties.

Triglycerides, Phospholipids (Lecithin, Cepahin, Sphyngomyelin), Cholesterol, Glycolipids (Cerebrosides Gangliosides), Bile acids.

Metabolism- Beta-oxidation, synthesis and Breakdown of fatty acids, Triglycerides, Phospholipids, Cholesterol.

3. **Protein-** Definition, classification. Different theories of Protein structure,

Properties. Plasma Proteins- Nature, Properties & function. Protein Biosynthesis.

Amino Acids- Structure, classification, Properties.

Metabolism- Deamination, Transamination, Krebs's henseleit's Urea cycle.

4. **Nucleic Acids-** Definition, Structure, Properties of RNA, DNA, Rep0lication,

Transcription. Purines & Pyrimidines- Synthesis and Breakdown.

5. **Detoxication-** Metabolism of foreign compounds in the body. Types of

Detoxication Oxidative, Reductive, Hydrolysis, Conjugation.

PAPER -II

Semester - III

PRINCIPLES OF NUTRITION

Total Marks - 80

1. **Water:** Regulation of intra and extra cellular volume. Water balance and its regulation.
2. **Body Composition**
 1. Concept of body composition
 2. Biochemical composition of body
 3. Methods of measuring composition
 4. Application of body composition data.
3. **Growth and Development**
 1. Growth and hormones.
 2. Growth and nutrients.
4. **The nutrient content in food**
 1. Food analysis Chemical composition
 2. Food composition Table
 3. Co nutrient in food. Goitrogens, Enzymes. Ant vitamins, Antibodies, Fluorides. Additives.
5. **Dietary Standards**

_____ Scientific basis of standards uses and misuses of dietary standards.
6. **Nutrient Inter relationship**
 1. Protein interrelation ship
 2. Amino Acids and Vitamins
 3. Vitamins and Minerals
7. **Nutrition Management in special condition-** Space travel

Semester - III

PAPER - III

INSTITUTIONAL FOOD ADMINISTRATION

Total Marks - 80

1. Introduction to Food Service Systems- Definition of the catering industry. Various types of catering, establishment. Welfare Catering, residential establishment catering for industry.
Evolution of the food service industry.
Characteristics of the various types of food service units.
2. Approaches to Management.
Theories of Management
Aspects of management
Steps and function of management
Management tools
3. Strategies in Planning
Conceptual strategy
Marketing strategy
Financial Strategy
Types of plans
4. Management of Resources
Finance
 - Determining the finance needed to establish or run an unit.
 - Budgets
 - Sources of finance
 - Planning adequate cash flowSpace & Equipment
 - Steps in planning layouts
 - Determining equipment
 - Selection and placement
 - Maintenance of equipment
 - Layout analysisMaterial
 - Menu planning
 - Planning the material needed
 - Methods of selection
 - Storage
 - Quantity food production

Semester - III
PAPER -IV

FOOD MICROBIOLOGY

Total Marks - 80

1. Microorganisms of importance in food: Their primary sources in foods Morphology cultural characteristics and biochemical activities.
2. Factors affecting the growth of microorganism in food. Intrinsic and Extrinsic parameters that affect Microbial growth.
3. Methods of isolation and detection of Microorganism or their products in food. Conventional methods. Rapid methods (Newer techniques) Chemical methods and PCR (Polymers chain reactions) only principles in brief.
4. Spoilage of different groups of foods Cereals and cereal products vegetables and fruits meat and meat products. Eggs and poultry fish milk and milk products.
5. Food preservation- Physical methods- Drying, freeze drying, cold storage Heat treatment Irradiation High pressure processing Chemical Preservatives and Natural antimicrobial compounds.
6. Foods borne disease Bacterial and viral food borne important animal parasite.
7. Role of microbes in fermented foods.

REFERENCES

- [1] Pelzar, M.I. and Reid, R.D. [1993] Macgregw Hill Book Company, New York, 5th ed.
- [2] Atlas.M. Renold [1995]-Principles of Microbiology, Mosbey Year Book, Inc Missouri, USA.

SEMESTER -3rd Semester

PRACTICAL-1st

Methods of Biochemical investigations

Total Marks - 100

1. Estimation of Total Lipid Profile in the given blood sample.
2. Estimation of Sodium and Potassium by Flame Photometry.
3. Estimation of the Total Nitrogen by Kjaldol Method.
4. Estimation of the fat in food by Sauxlet Method.
5. Estimation of the Calcium by Clark and Collip Method.
6. Estimation of the Energy Value of food by Bomb Colorimeter.
7. Estimation of the Serum Albumin of the given serum sample.
8. Separation and identification of Amino Acids by Paper Electrophoresis.
9. Estimation of serum urea in the given serum.
10. Estimation of Serun Creatinine in the given serum.
11. Estimation of Enzymes in the given serum.

SEMESTER - 3rd

Practical - 2nd

INSTITUTIONAL FOOD ADMINISTRATION

Total Marks - 100

1. Market survey and analysis of processed and finished products.
2. Evaluation of Food Service units- 2 Conventional, commissaries.
3. Market survey of Food service equipment.
4. Layout analysis of Kitchens-2
5. Planning menus for quantity.
 - Banquet
 - Outdoor catering
 - Packed meals
 - Restaurant
6. Standardizing recipes for quantity 100, 250, 500.grams.
7. Cost Analysis of menus in- -
 - College canteen
 - Hostel mess
 - Hospitals (private, charitable government)
8. Analysis of Food safety and Hygiene.

**M.Sc. Final Food & Nutrition
MARKING SCHEMES**

Semester - IV

THEORY

Name of the Paper	Theory	Internal Assessment	Seminar	Total
Method of biochemical Investigations	80	10	10	100
Advanced Nutrition	80	10	10	100
Institutional Management	80	10	10	100
Maternal Nutrition	80	10	10	100

PRACTICAL-

Analytics of Nutrients practical	100
<u>Project work:</u> Project Work (in Material Nutrition & Food Microbiology)	100
Total Marks = 600	

Semester - IV

PAPER - I

METHODS OF BIOCHEMICAL INVESTIGATIONS

Total Marks - 80

1. Biological Oxidation-The redox potential, the biological Chain, The energy Production. Oxidative Phosphorylation, Inhibitors of the Chain.
2. Immunology-types, principles and related advancements. Heptans, Adjuvants, Antigens- Structure Exo and Exo toxins, Antigen and Antibody-interactions site of Antibody productions, Anti toxins, Agglutinins, and Precipitins, Lysins, Complement Reactions, Fixation Reactions, Opsonins, Hypersensitivity, Anti Histamines.
3. Electrolytic Dissociation- Acids, Bases, Salts, Buffers, Hendersen Hasselbach Equation. Theory of Indicators and Principles of measurement of pH.
4. Basics of Instrumentation- calorimetric, Photometry, Fluorimetry, and Spectrophotometry, Their Principles, Instrumentations and their applications in the field of biological sciences.
5. Chromatography-Different Techniques, Plane Chromatography, Paper Chromatography, Thin Layer Chromatography, Column Chromatography, Adsorption Chromatography, Partition Chromatography, Liquid-liquid Chromatography. Gas-Liquid Chromatography, Ion Exchange Chromatography, HPLC.
6. Use of Isotopes- Radioactive and Stable., Production of Isotopes, Synthesis of Stable Compounds, Measurements of Radio-activity, The Tracer Techniques, Uses of Isotopes as Tracer in Biological Sciences, Commonly used tracer, safety aspects, Dosimetry.
7. NMR and its applications.- Basic Principals of Nuclear Magnetic Resonance, Magnetic Properties of nucleus, Hyperfine Splitting, Instrumentation, Spin Labelling.

Semester - IV
PAPER - II

ADVANCED NUTRITION

Total Marks - 80

Energy : Energy content of foods. Physiological fuel value- review. Measurement of Energy expenditure: MBR, thermic effect of feeding and physical activity, and methods of measurement. Estimating energy requirements of individuals and groups. Regulation of energy metabolism: control of food intake, digestion, absorption and body weight.

Carbohydrates: Types, classification, digestion, and transport- review dietary fiber, starch-chemical composition and physiological effects, Glycemic index of foods. Sweeteners- nutritive and non-nutritive.

Proteins: Classification, digestion, absorption and transport- review. Metabolism of proteins: Role of muscle, liver and gastro intestinal tract. Protein quality, methods of evaluating protein quality. Protein and amino acid requirements. Therapeutic applications of specific amino acids.

Lipids: Classification, digestion, absorption, transport- review, Functions of EFA, Role of n-3: n-6 fatty acids in health and disease Requirements of total fat and fatty acids. Prostaglandin.

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

Macr5o minerals: calcium, phosphorus, magnesium, sodium, potassium and chloride. Microminerals: iron, copper, zinc, manganese, iodine, fluoride.

Trace minerlas: Selenium, cobalt, chromium, vanadium, silicon, boron, nickel.

Vitamins: Historical background, structure, food sources, absorption and transport, metabolism, biochemical function, 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.

REFERENCES

1. Annual reviews of Nutrition. Annual Review Inc. California, USA.
2. Shits M.E. Op.. Shile M. and Ross C. [1988] Modern Nutrition in Helath and Diseases.
3. Bodwell, C.F. and Erdunan W. [1998]- Modern Nutrient Interactions Marvel Dekkar Inc. New York

PAPER -III
SEMESTER - IV
INSTITUTIONAL MANAGEMENT

Total Marks - 80

Staff functions of personal management

- Manpower planning
- Manpower placement
- Recruitment, induction, training, motivation and performance appraisal.

Time and Energy

- Measures for utilization and conservation

Cost accounting/analysis

- Food cost analysis
- Records to be maintained
- Reports and trend analysis

Marketing and sales management

- Marketing strategies
- Sales analysis
- Market promotion

Quality assurance

- Food quality
- Total quality management

Food safety and Hygiene-

- Hygiene and sanitation, Safety and Security
- Environmental Hygiene.
- Food Handling Practices.

Personal Hygiene

Customer Perceptions and Hazards

References

1. West. B. Bessic & Wood. Levelle [1988] Food Service management 6th Indian Revised be Harger Fv. Shuggart SG & Palgne-Palacio June Macmillian Publications company New York.
2. Sethi Mohini [1993] Catering Management An integrated Approach 2nd Edition Wiley Publication.
3. Kotas Richard & Jayawardardene, C (1994): Profitable Food and Beverage Management. Hodder & Stoughton Publication
4. Brodner. J. Maschal. H.T.. Carlon. H.M. [1982] Profitable Food and Beverage Operation 4th Edition, Hayden Book company New Jersey.
5. Green. E.F., Drake. G.G. Sweeny. J.F. [1978] Profitable Food and Beverage Management Planning. Planning, Operations Hayden Book Company. New Jersey

6. Knootz, H₂O Donnel C [1968] Principal of Management McGraw Hill Book Company Personnel Management.
7. Desseler, Garry [1986] Personnel Management Modern Concepts and Techniques, Prentice Hall New Jersey.
8. Kumar, H.L. [1986] Personnel Management in Hotel and Catering Industries, Metropolitan Book Company N. Delhi.
9. Hichcock, M.J. [1980]: Food Service System Administration. Macmillan Publishing Company. Cost Control.
10. Keiser, J. & Kaillo E. [1974]: Controlling and Analysis of Cost in Food Service Operations Wiley and Sons N. York.
11. Khari, W.L. [1] [1977] Introduction To Modern Food and Beverage Service. [1979] Advanced Modern Food and Beverage service. Prentice Hall Series.
12. Coltman. M.M. [1977] : Food and Beverage Cost Control Prentice Hall Series.
13. Levison [1976]: Food and Beverage Operation Cost Coontrol & System Management Prentice Hall series.

PAPER - IV

Semester - IV

MATERNAL NUTRITION

Total Marks - 80

1. Current Nutrition and Health Status of Women and Children in India.
2. Changing concepts and controversies in Maternal and Child Nutrition.
3. Importance of Maternal Nutrition:
 - Importance of nutrition prior to and during pregnancy.
 - Pre-requisites for successful outcome. Effect of under-nutrition on mother-child dyad including pregnancy outcome and Maternal and Child Health-Short term and Long term.
 - Physiology and endocrinology of pregnancy and embryonic and fetal growth and development.
 - Nutritional requirements during pregnancy.
 - Adolescent Pregnancy.
 - Pregnancy and AIDS
 - Pregnancy and TB.
 - Intra-uterine growth retardation
 - Complications of pregnancy and management and importance of antenatal care.
 - Congenital Malformation fetal alcohol syndrome and gestrional diabetes mellitus.
4. Lactation:
 - Development of mammary tissue and role of hormones.
 - Physiology and endocrinology of lactation- Synthesis of milk components, let down reflex role of hormones, lactation amenorrhea, effect of breast feeding on maternal health.
 - Human milk composition and factors affecting breastfeeding and fertility.
 - Management of lactation- Pre-natal breastfeeding she education Rooming in problems- sore nipples engorged breast inverted nipple etc.
 - Baby friendly hospitals initiative
 - Breast feeding in the age of AIDS
5. Infant physiology and the pre-term and LBW infants: Implications for feeding and management.
6. Growth and development during infancy, childhood and adolescence.
7. Feeding of infants and children and dietary management.
8. Malnutrition in mothers and children: etiology and management (in brief).
9. Concept of small family, methods of family- planning, merits and demerits.
10. Policies and programmes for promoting maternal and child nutrition and health.
11. Nutritional assessment as a tool for improving the quality of life of various segments of the population including hospitalized patients.

12. Current methodologies of assessment of nutritional status, their interpretation and comparative applications of the following:
 - Food consumption
 - Anthropometry
 - Clinical and Laboratory
13. Nutritional Surveillance- Basic concepts, uses and setting up of surveillance systems
14. Monitoring and Evaluation.

M.SC, HUMAN DEVELOPMENT (2019-20)
SEMESTER - I

MARKING SCHEME

Sr No	Name of Papers	Theory	Internal Assessment	Seminar	Total
1	Early Childhood care & Education	80	10	10	100
2	Advance Study in Human Development	80	10	10	100
3	Psychology in Normal Adaptation	80	10	10	100
4	Research Methods and Scientific Writing	80	10	10	100

Practical

Sr No	Name of Practical	Marks
1	Early Childhood Care & Education and Creativity	100
2	Normal Adaptation & Psycho-Pathology	100

Total Marks = 600

SEMESTAR-I

PAPER-I

EARLY CHILDHOOD CARE AND EDUCATION

Total Marks- 80

1. Principles of Early Childhood Care and Education

- Importance, need and scope of ECCE.
- Objectives of ECCE.
- Type of preschool/programmes : Play centre day care Montessori, Nursery School Kindergarten. balwadi anganwodi etc.
- Concepts of non-formal. formal and play way methods.

2. Organization of Pre-school Centers

- Concept or organization and administration of early childhood centers.
- Administrative set up and functions of personnel working in different level.
- Building and equipment location and site, arrangement of rooms, different types of outdoor and indoor equipment. maintenance and display of equipment and material.
- Staff/Personnel service conditions and role : Role and responsibilities essential qualities of a care giver/teacher, other personnel.
- Record and Report : Types aim and purpose/need, general characteristics e.g. annual, cumulative, sample work, medical etc.

3. Programme Planning

Planning : Setting goals and objectives of plans-long term short term. Weekly and daily planning, routine and schedules.

4. Activities for ECCE

- Language Arts : Goals of language, type of listening and activities to promote listening various activities- (songs, objects talk, free conversation, books, game, riddles, jokes, stories, Criteria and selection of activities, teacher's role).
- Arts and Craft Activities (Creative activities of expression) : Type of Activities- chalk, crayon, paints paper work and best out of waste. Role of teacher in planning the activity, motivating children. Fostering appreciation of arts and craft activities.
- Music: Songs, objectives of music education, establishing goals, setting the stage and role of the teacher. Three aspects of music. Making, listening and singing.
- Mathematics : Goals of mathematical learning, development concepts at different stages; principles of teaching mathematics firsthand experience, interaction with other using language reflection. Mathematical concepts like: classification, conversation, seriation, comparison counting, fraction, one correspondence, addition and subtraction.

- Science : a) Thinking : Observing, inferring, classifying, communicating. b) Concept formation : Differentiation grouping, labeling. Role of science, developing scientific outlook by a spirit of inquiry, objectivity, observation. Role of teacher in some important science experiences.
- 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 teacher.

References

1. Bhatia and Bhatia (1975) Theory and Principles of education, Doaba house delhi.
2. Brewer J.A. (1998) Introduction to early childhood Education (3rd Ed.) Boston: Allyn & Bacon.
3. Carol. E.C. and Jan Allen (1993) Early Childhood curriculum, University of Tennessee, New York : Macmillan.
4. Day Barbara (1993) Early Childhood education, New York : Macmillan.
5. Gordon & Browne (1989) Beginning and Beyond, Second edition, Delmar Pub. Inc.
6. Grewal. J.S. (1984) Early Childhood education, Agra National Psychological Corporation Pub.
7. Hildebrand Verma (1984) Introduction to Early Childhood Education N.K. Macmillan.
8. Hildebrand Verma (1985) Guiding the young child N.Y. Macmillan.
9. Jenkins. E. (1977) . A practical guide to early childhood curriculum, C.V. Mostey Co.
10. Judith, E and Meyers, R.G. (2000). Early Childhood Counts : A programming guide on early childhood care for development. Washington: The World Bank. (Learning Resources Series).
11. Kaul.V. (1997). Early childhood education programme New Delhi : NCERT.
12. Kohn Ruth (1972) The Exploring child. Mumbai.: Orient Longman
13. Kulkarni S. (1988) Parent Education, Perspectives and Approaches. Jaipur : Ravat Publications.
14. Maxmim G. (1980) The very Young. Coalifornia : Wordworth
15. Mohanti & Mohanti (1966). Early Childhood care & education. New Delhi : Deep & Deep Publication.
16. Moyley. J.R. (1996) Just Playing : the role and status of play in early childhood educational milition Kayness : Open University Press.
17. Murlidharan, R. (1991) Guide to nursery school teacher. New Delhi : NCERT.
18. Pankajam, G. (1994) Preschool Education. Ambala : Indian Pub.
19. Rao, V.K. and S. Khurshid (Eds.) (1977). Early Childhood : Care and Education New Delhi : Commonwealth Publication

SEMESTAR-I

PAPER-II

ADVANCED STUDY IN HUMAN DEVELOPMENT

Total Marks- 80

1. Principles and Concept of Development

- Principles and Concept of Development
- Developmental Task
- Factor Affecting Development - Heredity and Environment.
- Basic concepts of development - maturation and learning, individual differences.

2. Prenatal Development

- Recapitulation of stages in prenatal development, genetic and environment factors : maternal conditional and teratogens. Significance of the genome project for understanding human development.

3. Infancy ; (birth-2 years)

- The newborn : birth process and the neonate. Physical description, sensory capacities and reflexes, Becoming coordinated- feeding, sleeping, crying.
- Early language development.
- Social relationship during infancy.

4. Childhood (2-11 years)

- Transition from infancy to childhood.
- Physical and Motor Development.
- Play and social relationship. The emerging self.
- Language, cognition and emotions in early years.
- Social relationship- peers siblings and parents.

5. Adolescence (11-18 years)

- Transition from childhood to sexual maturity, puberty and its consequences. Emotional changes.
- Emotional changes- Heighted Emotionality and Development of Emotional Maturity.
- Concept of Identity and Identity Formation.
- Role of family, peers, community and ethnic group.
- Juvenile Delinquency

References

- 1] Rice, F.P. (1995). Human Development. New Jersey : Prentic Hall. Berk, L.E. (1995). Child Development. London : Allyn & Bacon.
- 2] Cole, M. & Cole, S. (1993). The Development of children. (2nd Ed.) New York : Scientific American Books Freeman & Co.
- 3] Dutt, S. (1998) Moral Values in child Development. New Delhi Anmol.

SEMESTAR-I

PAPER-III

PSYCHOLOGY OF NORMAL ADAPTATION

Total Marks- 80

- [1] **Normality:** Concept of Normality; Medical, Statistical, Utopian, Subjective, Social, Ideal and process perspectives: How one adapts normally-Cultural differences in normal adaption features of normal adaptation; Normal adjustment changes with age.
- [2] **Stress and Adaptation to Stress :** Nature of Stress: Type of Stress: Sources of Stress: Effects of stress on psychological functioning: Effects of stress on physical health: Responding to stress: Measurement or Stress: Theories of Stress, emotion: Types of adaptive responses Self-protective, Direct Control, Direct, Action responses to Stress; Factors moderating the impact of stress; Examples of overload (stressful) condition; features of overload condition; helping other and ourselves in this state; practical approaches to overcomes stress.
Frustrations and Conflicts.
- [3] **Personality trait Disturbances.**
- [4] **Psychopathology of Personality and Behavioral Disorders-** Specific Personality Disorders, Habit and Impulse Disorders, Mental and Behavioral Disorders Due to Psycho active Substance used. Sexual Dysfunctions and Disorders. Alcoholism. Psychopathic Personality.
- [5] Psychopathology of childhood and Adolescence Disorder-Psychopathology of emotional, Behavioral and Development Disorder, Disorder of childhood and Adolescence, Professional Criminals, Crime and Criminals, Juvenile Delinquencies Mental Retardation
- [6] Old age disorders

SEMESTAR-I

PAPER-IV

RESEARCH METHODS & SCIENTIFIC WRITING

Total Marks- 80

1. Science, Scientific methods, scientific approach.
2. Role of statistics and research in home science discipline.
Objectives of research: Explanation, control and predication.
3. Types of Research- Historical, Survey, Experimental, Case-Study, Social Research, Participative Research.
4. Definition and Identification of Research Problems
 - Selection of Research Problem
 - Justification
 - Theory Hypothesis, Basic Assumptions, Limitations and Delimitations of the problem.
5. Types of Variables.
6. Theory of Probability
 - Population and Sample
 - Probability Sampling: Systematic, Random Sampling Two Stage and multi stage sampling, cluster sampling.
 - Non-Probability Sampling : Purposive, quota and volunteer sampling/snow ball sampling.
7. Basic Principles of Research Design-
 - Purpose of research design : Fundamental, applied and action exploratory and descriptive, survey and case study, ex-post facto.
8. Conceptual understanding of statistical measures-Classification and tabulation of data
Measurement of Central tendency, Measures of Variance.
9. Frequency Distribution-Histogram, Frequency Polygons Oliver.
10. Binominal Distribution

SEMESTAR-I

PRACTICAL - I

EARLY CHILDHOOD CARE & EDUCATION & CREATIVITY

Total Marks- 100

1. Visits to various centers, which cater to the preschool stage e.g.: Day care Centre, Balwadi, Anganwadi, Mobile Crèches etc.
2. Preparing a resources unit file on the basis of the play way method/approach.
3. Preparing teaching material kit and Presentation in mock set up :-
 - Story and their techniques, story book
 - Types of puppets and mobiles
 - Art and craft Portfolio
 - Song booklet and low cost musical instruments
 - Readiness games and material
 - Picture talk and object talk related material etc.
4. Preparing a programme of activities for children with special abilities.
5. Planning and executing activities in ECCE centers.
6. Use of brainstorming techniques for problem solving
7. Use of Palme's 5 stage method of 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 an artwork.)

SEMESTAR-I
PRACTICAL - II
NORMAL ADAPTATION & PSYCHO-PATHOLOGY

Total Marks- 100

1] List of Psychological Tests [Any Ten]

- Group General Intelligence Test- 13-17 years [Dr. S.S. Jalota/Dr.A.C. Joshi]
- Non Verbal Test of General Ability- 8-13 years [Joshi & Tripathi]
- Knox Cube Imitation Test- 4-16 years.
- Rorschach Ink Blot Test
- Thematic Apperception Test [TAT]
- Children Apperception Test [CAT]
- Test of Self [Mukta Rani Rastogi]
- Adjustment Inventory for School Students [Sinha & Sinha]
- Stress Scale
- Depression Scale
- Anxiety Test
- Word Association Test [WAT]
- Sentence Completion Test [SCT]
- Value Test
- Memory Test
- Brain Damage Test
- Differential Aptitude Test

2] Case Study- Do any two normal and any two Clinical.

3] Visit to mental Hospital.

4] Clinical Interview

5] Clinical Observation

M.SC, HUMAN DEVELOPMENT
SEMESTER - II

MARKING SCHEME

Sr No	Name of Papers	Theory	Internal Assessment	Seminar	Total
1	Development of creativity	80	10	10	100
2	Methods of Studying Human Development	80	10	10	100
3	Psychopathology	80	10	10	100
4	Statistics and Computer Application	80	10	10	100

Practical

Sr No	Name of Practical	Marks
1	Methods of Studying Human Development	100
2	Statistics and Computer Application	100

Total Marks = 600

SEMESTAR-II
PAPER - I
DEVELOPMENT OF CREATIVITY

Total Marks- 80

1] Historical Trends (Overview)

- Contributions of the following thinkers to the development of ECCE (their principals applications and limitations) in the context of ECCE.
- Pestalozzi Rouseou Froebel, Maria Montessori, John Dewey Commenius. Plato Hebert Spancer, Tarabai Midak, M.K.Gandhi, Rabindranath Tagore, Vivekanand.

2] ECCE in India

- Pre Independence period, Post Independence- Kothari Communication, Contribution of the five-year plans to ECCE- Yashpal Committee.

3] Contribution of the following Agencies/Programmes to ECCE India ICCW, IAPE, NCERT, ICDS, UNICEF, NCTE, Mobile Creche etc.

4] Creativity-

- Definition and Concept
- Types and degree of creativity(everyday creativity and eminent creativity)
- Domains, insight and problem solving as related to creativity.
- Relevance and scope of the study of creativity
- The role of the individual - cognition, abilities, interests, motivation, intelligence, knowledge, skills, beliefs, values and cognitive styles.
- Relationship between creativity and intelligence
- Influence of child-rearing practices, family and culture
- Enhancing creativity-brainstorming, problem solving, creative dramatics & visualization.
- Measurement-
- Psychometric and alternate methods of assessing creativity.

References

1. Vernon, P.E. (ed.) (1982) creativity : Selected readings. Middlesez U.K. Penguin.
2. Petty, G.. (1998). How to be better at creativity. London : Kagan Page (The industrial Society)
3. Passi, B.K. (1979). Passi Test of Creativity. Agra : London : Kagan Page (the industrialeal Society).
4. Dagar. B.S. (1989). Cultural Education and Creativity. New Delhi : Uppal Publication House.
5. Khandwall P.N. (1988) Forth eye : Excellence through crativity. Allaabaad : A.H. Wheeler.
6. Chaddha. N.K. (1964). Perspectives in Creativity. New Delhi : Ess Ess Publication.

7. Sternberg, R.J. (Ed.) (1999). Handbook of creativity. U.K. Cambridge University Press.
8. Runco, M.A. et al. (eds.) Encyclopaedia of creativity. Vol. I & II. New York : Academic Press.
9. Weisberg, R.W. (1986) Creativity. Genius and other myths. N.Y; Freeman.

SEMESTAR-II
PAPER - II
METHODS OF STUDING HUMAN DEVELOPMENT

Total Marks- 80

Contents-

1] Early Adulthood (20-40 Years)-

- Physical Continuity and Changes, Adult Intelligence, Personality Development.
- Life Cycle Approach, Sexuality, Marriage, Marital Adjustment, Parenthood.
- Friendship.
- Parenting Adult Offspring's and their Marriage
- Work and Career Development - Gender Differences.
- Intergeneration Relationship-maintaining Family Relationship
- Adjustment to Single-hood.

2] Late adulthood (40-60 Years)

- Physical and Mental Changes
- Social Relationships.
- Grand Parenthood- intergenerational relations.
- Occupational Continuity and change- effect on identify.
- Retirement from formal work.
- Health and disease, Menopause and changes.

3] Old age (60+ years)

- Physical aspects of aging.
- Change in cognitive abilities and creativity.
- Psychosocial development.
- Changes in family life cycle. Health and disease.
- Death, dying and bereavement.

1. Observation method

Theoretical Perspectives use of checklists, establishing reliability in observation, maintaining an observation record, report writing and evaluation.

2. Interview method

Theoretical Perspectives, development of different types of interview protocols, analysis and coding of interview data.

3. Questionnaire method

Theoretical Perspectives, development of different types of questionnaire protocols, analysis and coding of questionnaire data.

4. Case study method

Theoretical Perspectives, development of different types of case study protocols, analysis and coding of data.

1. Rice, F.P. (1992). Human Development : A life-span approach. New jersey : Prentice Hall.
2. Schiamberg, L.B. & Smith, K.U. (1982.) Human Development. New York : Macmillan.
3. Santrock. J.W. (1997). Life span development. Brown and Bench mark.
4. Lefrancois, G.R.(1996) The lif Span. New York; Wadsworth Publishing.
5. Deats, S.M. & Lenker, I.t. (Eds.)(1999). Aging and identity. London : Prager.

SEMESTAR-II

PAPER - III

Psycho-pathology

Total Marks- 80

Contents-

- 1] Abnormality -Meaning, Etiology, Symptomatology Classification.
- 2] Personality Traits - Disturbances,
- 3] Motivation
- 4] Personality and Adjustment.
- 5] Neurosis- nature, Classification, Types
 - Anxiety Neurosis.
 - Phobic Reactions.
 - Obsessive, Compulsive, reactions, Conversion reactions.
 - Hysteria- disassociated and conversion
 - Neurotic Depressive Reactions.
 - Neurasthenia & other Neurotic Reactions.
- 6] Psychosis - Nature, Symptoms and Causes.
 - Schizophrenia,
 - Psychotic Affective Reactions
 - Paranoia.
 - Involuntary Melancholia.
 - Primary Organic Psychosis.
 - Epilepsy.
- 7] Psychometric Disorder.
- 8] Suicide.

SEMESTAR-II
PAPER - IV
STATISTICS & COMPUTER APPLICATIONS

Total Marks- 80

1. Normal Distribution use of normal Probability tables.
2. Parametric and nonj-parametric Tests.
3. Testing of hypothesis 1] Type 2] Errors and 3] Levels of significance
 1. Chi-square test. Goodness of fit Independence of attributes 2×2 and $r \times c$ contingency.
 2. Application of student test for small samples Difference in proportion for mean difference in means.
 3. Correlations coefficient of correlation, rank correlation.
 4. Regression and prediction.
 5. Analysis of variance - one way any two way classification.
6. Experimental Designs
 - Completely Fundamental Design.
 - Randomized block design
 - Latin square design
 - Trend Analysis
7. Quantitative Research methods
 - Theory and Design in quantitative research
 - Definition and type of quantitative research
 - Methods and techniques of data collections
 - [1] Informal Group discussion
 - [2] Interview : Key information, in depth interviews
 - [3] Observations
 - [4] Social Mapping
 - [5] Participatory rapid assessment
 - [6] Participatory Learning assessment
8. Data gathering Instruments - Observation, Questionnaire, interview, Scaling methods case study, home visits. reliability and validity of measuring instruments.
9. Scales of measurement and the appropriate statistical techniques.

10. Critical analysis of research.
11. Writing a research proposal.
12. Analysis of data and research reports.
14. 1] Scientific writing as a means of communication
 - Different forms of scientific writing.
 - Articles in journals research notes and reports Review articles Monographs,
 - Dissertations Bibliographies, book chapters and articles
- 2] How to formulate outlines
 - The reasons for preparing outlines.
 - As a guide for plan of writing
 - As skeleton for the manuscript
 - Kinds of Outlines-
 - Topic Outlines
 - Conceptual Outlines
 - Sentences Outlines

Combination of topic and sentence outlines

- 3] Drafting Title, Sub Title, Tables, illustrations
 - Tables as systematic means of presenting data in rows and columns and lucid way of indicating relationships.
 - Formatting tables : Title, Body stub column head, spannerhead, box head.
 - Appendices : use and guidelines
- 4] The writing process - Getting started
 - Use outline as a starting device.

References

1. Bandarkar, P.L. and Wilkinson T.S. (2000 : Methodology and Techniques of social, Research, Himalaya Publishing House, Mumbai.
2. Batnagar G.L. (1990) Research Methods and measurements behaviour and Social Agri Cole Publication Acadmey, New Delhi.
3. Dooley, D. (1995): Strategies for interpreting Qualitative data; sage Publication, California.
4. Gay, L.R. (1981, 2nd Ed.) : Educational Research, Charles, E. merill, Columbus ohio.
5. Long, J.S. (Ed.) (1989) : Common Proper Solution Avoiding Errors in Quantitative Research , , Beverly Hills SAGE Publications, California.
6. Mukharjee, R. (1989) : The Quality of life : Valuation in Social Research SAGE Publications, New Delhi.

Strass, A. and Corbin, J. (1990) : Basis of Quantitative Research : Grounded Theory Procedures and Techniques, Sage

Publication California.

7. Garrett, Henry E (1971). Statistics in Psychology and Education.

8. Edwards. Experimental Design as Psychological Research.

9. Kerlinger : Foundation of Education Research.

10. SPSS/PC for the IBM PC/XT, SPSS Inc.

SEMESTAR-II
PRACTICAL - I
METHODS OF STUDYING HUMAN DEVELOPMENT

Total Marks- 100

1. Some psychometric methods (Any ten of the following)

- Scales for infant assessment,
- The Wechsler battery of tests, Bhatia Battery
- Children's Apperception Test,
- Draw a man Test,
- TEST OF CREATIVITY
- Raven's Progressive Materials,
- Self-Esteem Inventory,
- Sex-Role Inventory.

2. Recall of completed and incomplete task effect of reward and punishment Interest test
personality test short test short term memory

3. Serial position Effect Problem solving

4. Level of Aspiration

5. → Concept Formation

SEMESTAR-II
PRACTICAL - II
STATISTICS & COMPUTER APPLICATION

Total Marks- 100

1. Introduction of Computer-Hardware & Software, opening & Formatting Documents.
2. Running Multiple Programms Accessories, C.D. Writing , Paints & Brush, Scanning , Zipping of File, Creating Short-Cut.
3. M.S Word-Typing, Fonts-Types and Size, Auto Text, Auto Correct, Word Art and Table Creation and operation.
4. M.S Excel-Data Finding and Statistical Calculation- S.D Mean, Median, Mode, Average, Sum. ANova, "t" Value, Correlation.
5. Graphical Presentation of Data-Custom, Plain Type.
6. M.S Power Point-Making of Sildes, Show with Different Slide Lay Out, Color Scheme, Mode of Presentation.
7. Inter Net-Hard ware Required Soft Ware Required, Different Search Engines.
8. Searching of Documents and Pictures and References, Researching, Saving of PDF File, Conversion of PDF into HTML File.

MSc HUMAN DEVELOPMENT

III SEMESTER

MARKING SCHEME

Sr No	Name of Papers	Theory	Internal Assessment	Seminar	Total
1	Communication Technologies	80	10	10	100
2	History & Theories of Human Development	80	10	10	100
3	Study of Family in society, Culture & Psychology	80	10	10	100
4	Persons & Children with Disabilities and Illnesses		10	10	100

Practical

Sr No	Name of Practical	Marks
1	Parenting in Early Childhood	100
2	Programmes of Guidance & Counselling for children & Families	100

Total Marks = 600

M.Sc. Human Development SEMESTER-III
PAPER-I
COMMUNICATION TECHNOLOGIES

_Total Marks-80

1. Concept of communication. Scope of communication, communication process, approaches to communication. Factors that help of hinder communication.
2. Different media, their characteristics and use.
3. Use of wide projector, slider/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 clipping.
Sliders : Making use of slides with audio commentaries of presentation. Preparation of Slides, Types of Slides.
 - Computer Graphic designing.
 - Digital method of Communication.
5. Preparation of Graphics for research reports/seminars/ other presentations.
6. Presentations - Using power points.

SEMESTER-III

HISTORY AND THEORIES OF HUMAN DEVELOPMENT

PAPER-II

Total Marks-80

1. Ethological theory of Darwin

2. Freud's psychoanalytic theory -

Freudians theory, neo- Freudians, Cross- Cultural relevance current status. Jung's theory, Karan Horhey, Erick Fromm, Harry Stock Sullivan.

3. Learning theories

Thorndike, Pavlov, Watson, Skinner, Tolman, Cross- culture relevance and current status of learning theory.

4. Cognitive developmental theory

Piagets theory, Cross- cultural relevance and current status.

5. Social learning and cognition theories.

Sears theory, Banduras theory, Cross-cultural relevance and current status.

6. Theories of the self

Mead, Rogers.

7. Gastalt theory

SEMESTER-III

STUDY OF FAMILY IN SOCIETY, CULTURE AND PSYCHOLOGY

Total Marks-80

1. The family in social context.
 - Family as a component of social system, structure and context.
 - Family as an evolving and dynamic institution.
 - Functions of family.
2. Socio-cultural studies of family patterns in India.
 - Family structure: Traditional extended/Joint families.
 - Alternate families- single parent, childless, female headed.
 - Cause and effect of different family structures on changing roles of family.
3. Approaches and theories in Family Studies.
 - Family life-cycle approach.
4. Family and societal exchanges/ influences.
 - Work and family.
 - Education and family.
 - Health and family.
 - Religion and family.
 - Ecology and family.
 - Government and family.
5. Contemporary Issues and concerns-
 - Family violence, battered women, child maltreatment, sexual abuse.
 - Dowry and family violence.
 - Child rearing and socialization.
 - Gender roles.
 - Family Disorganization - Symptoms and cause of family disorganization and its effect on the child. Family & social welfare-
 - (a) Family welfare programme.
 - (b) Population problem & family planning programme.
6. Understanding Culture and Development -
7. Methodological Issues and Theoretical Consents in Study of culture and psychology
 - Cultural Approach.

**SEMESTER-III
PAPER-IV**

PERSONS AND CHILDREN WITH DISABILITIES AND ILLNESSES

Total Marks-80

1. Defining and understanding disability.
2. Different types of impairments, their causes and classification. Effects on individuals-Psychological and behavioral characteristics, educational considerations for impaired.
 - Physical- Neurological Impairments, Musculo-skeletal conditions, Congenital Malformations.
 - Intellectual- Mental Retardation..
 - Emotional-
 - Sensory-Visual and Hearing Impairment.
 - Illnesses such as Juvenile Diabetes, Asthma
3. The role of context in the meaning of morality and disability, attitudes of people.
4. The philosophy of inclusion.
5. Techniques of identification and assessment.
6. Physical and social barriers in the development of persons and children with disabilities, modification of physical and socials environment, enabling participation of persons with disabilities as a contributing member of society.
7. Use of assistive devices.
8. Care of the child in the family-role of parents, siblings and other members.
9. The rights versus needs of persons with disabilities.
10. Examples of programs and policies for persons with disabilities.

SEMESTER-III

Practical-I

PARENTING IN EARLY CHILDHOOD

Total Marks-100

- => Conducting home visits and interviewing / talking to parents.
- => Arranging work shops for parents.
- => Organizing parent education programs based on parent's needs.
- => Conducting parent-teacher meeting.
- => Reports and resource files to be maintained by student.
- => Five family visits.
- => Writing articles for news papers.
- => Prepare different audio-visuals aids.

SEMESTER-III

PRACTICAL-II

PROGRAMMS OF GUIDENCE & COUNSELLING FOR CHILDREN & FAMILIES

Total Marks-100

- 1] Review and critic of portrayal of persons with disabilities in the media.
- 2] Tools and approaches to assessments.
- 3] Case study of two persons with disabilities. A child and an adult.
- 4] Case study of an organization with particular reference to its physical and social environment.
- 5] Planning and working with children and parents.
- 6] Interactions with practicing counseling and therapists through visits to schools, clinics and woman center and hospitals etc.
- 7] Learn about the counseling process-role-play, mock sessions etc.

MSc HUMAN DEVELOPMENT

VI SEMESTER

MARKING SCHEME

Sr No	Name of Papers	Theory	Internal Assessment	Seminar	Total
1	Management of Programmes for Children & Families- Maternal & Child Nutrition	80	10	10	100
2	Current Trends and Issues in Human Development	80	10	10	100
3	Mental Health in Development Perspectives	80	10	10	100
4	Principles in Guidance & Counselling	80	10	10	100

Practical

Sr No	Name of Practical	Marks
1	Care of Elderly	100
2	Dissertation	100

Total Marks = 600

MSc HUMAN DEVELOPMENT

SEMESTER-IV

PAPER-I

**MANAGEMENT OF PROGRAMMES FOR CHILDREN AND FAMILIES,
MATERNAL AND CHILD NUTRITION**

Total Marks-80

1. Management

- Meaning and scope of management.
- Importance of management.
- Management skills.
- Review of success & failure of different Programmes.
- Elements or functions of management. Main functions. planning, organization, motivation, Control, Subsidiary function.

2. Programmes for children

- Identification of Specific Programmes for Children & family- Nutritional and Health programs of poverty alleviation.
- Types of programmes & their management.

3. Maternal & Child Nutrition

- Feeding. Weaning, supplementary, food. diet for pre-school children. Pregnancy and lactation. Assessment of nutritional status.

PAPER - II
CURRENT TRENDS AND ISSUES IN
HUMAN DEVELOPMENT

PART -1

Total Marks-80

- 1] Motivational theory by Murray & Maslow.
- 2] Personality theory by - All port and Murphy.
- 3] Field theory by Kurt Lewin.
- 4] Erikson's theory.
- 5] Adler's Theory.
- 6] Kohlberg's theory- Moral Development

PART-II

- 7] Current Trends and Issues related to Process of Development-
 - => Psycho-motor Development
 - => Perceptual Development
 - => Cognitive Development
 - => Social- emotional Development
 - => Language Development
 - => Moral Development
- 8] Trends and Issus related to Early Child Care and Education.-
 - => Demographic Status. Attention in early pre school / and Primary Years, Gender Equity and Quality.
 - => Issues and Concern related to Quality in Early Childhood and Primary Curriculum.
 - => Issues and Concern related to Training of ECCE.-Personal and Accreditation Processes
- 9] Trends and Issues related to Life Span Development-

=> Infancy.

=> Early childhood

=> Young adulthood

=> Adulthood

=> Old age

10] Trends and issues related to family studies.

Note:

The course would be based on current readings. Understanding of researches and policies and conducted. Through presentations on various assigned topics by students.

SEMESTER-III
PAPER-III
MENTAL HEALTH IN DEVELOPMENT PROSPECTIVES

Total Marks-80

- 1] Mental Health-
 - I] Definition, concepts and importance of Holistic Health, well being and Happiness.
 - II] National Mental Health Policy of India. (1982)
 - III] Community Mental Health : Needs and Programms.
- 2] Infancy-
 - I] Implication of Attachment & bonding for mental health : Deprivation Syndrome.
 - II] Malnutrition and its Effect on growth and Behaviour.
 - III] Intervention with families and professionals from allied fields.
- 3] Early childhood Years-
 - I] Mental Health needs-safety, security, relationships, autonomy and self concept, nutrition and health.
 - II] Behaviour difficulties, manifested at this stage e.g.-feeding problem, aggression Withdrawal problems related to early schooling and formal living.
 - III] Intervention works with children, families, teachers and other significant adults.
- 4] Middle Childhood-
 - I] Mental Health Needs-Recognition, Appreciation, Friendship and Industry.
 - II] School Related Problems-Discipline, Truancy, Fears, Phobia, Learning Difficulties and Disabilities.
 - III] Mal-adjustment at home and School.
 - IV] Providing Guidance to children, Parents, Teachers, Peers and School Administrations.
- 5] Adolescence-
 - I] Mental Health Needs, Sense of Identity, Autonomy, Individualism/Feminism.
 - II] Problem related to Physical Ares; Problems relate to sexuality.
 - III] Authority-Adolescence Conflicts. (e.g.-Parents, Grand Parents, School Authorities)
 - IV] Guidance & Counselling of Adolescents, Parents and other significant adults.
 - V] School Personnel.
- 6] School Mental Health Programs-
 - I] Need for Mental Health Programmes for identification and intervention.
 - II] Importance of Sensitizing and involving administrators and teachers in mental health aspects of the children.
- 7] Adulthood-
 - I] Mental Health Problems in Community.
 - II] Life events that cause stress-e.g.-separation due to death, migration etc.

III] Substances abuse and addiction.

IV] Management of stress-Counselling, training in relaxation, Yoga, Meditation.

SEMESTER-III

PAPER-IV PRINCIPLES OF GUIDANCE & COUNSELLING

Total Marks-80

- * Meaning and definition of Guidance.
- * Need for Guidance.
- * Principles of Guidance.
- * Types of Guidance.
- * Educational and vocational Guidance-meaning, aims, purpose, need of vocational and educational guidance.
- * How to impart vocational and educational guidance.
- * Personal guidance-Area of personal guidance, nature of personal guidance at different levels,-preprimary, elementary, Junior high school, High School, Collage and university level.
- * Group guidance-meaning, need, aims and purpose of group guidance.
- * Problems of guidance at the primary, secondary and college level.
- * Counseling-meaning and definition of counseling.
- * Types of counseling.
- * Approaches to counselling,-person centered, Directive and behavioral, eclectic, Psycho-analytic, Existential, Cognitive.
- * Processes of counseling-First contact, Assessment, Intervention, Closure and Follow-up.
- * Counselling Interview.
- * Qualities and skills of a counseller.

SEMESTER-IV

PRACTICAL-I

CARE OF THE ELDERLY

Total Marks-100

- * Visit and Report of Old Age center/homes.
- * Organize Recreational Activities in Homes for the aged.
- * Prepare Case Studies on any two inmates.
- * Arranging special service/counseling activities for the aged with the help of resource persons, if necessary e.g.- Yoga, Lectures, etc.
- * Term papers, presentations, Debate on issues and perspectives related to different aspects of the senior citizen's life.
- * Plan programs for mental health in crisis situations- {Preventive and intervention}

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PRACTICAL -- I
ANALYTICS OF NUTRIENTS

Total Marks - 100

1. Estimation of Ascorbic Acid in Foods.
2. Estimation of Saponification Value of the given fat.
3. Estimation of the Iodine Number of the given fat.
4. Estimation of the Acid Value of the given fat.
5. Estimation of the Serum Glucose of the given Serum Sample.
6. Estimation of the Total Protein of the given serum sample.
7. Estimation of the Serum Albumin of the given serum sample.
8. Separation and Identification of Amino Acids by Paper Chromatography.

SEMESTER - IV

PRACTICAL --II

PROJECT WORK

Total Marks - 100

- 1. Projects related to the community problems of maternal and child nutrition will be under taken.**
 - 2. Microbiology-**
 1. Preparation of common Laboratory media and special media for cultivation of bacteria yeast & Molds.
 2. Staining of bacteria Grams. Staining acid fast. Motility of bacteria staining of yeast and molds.
 3. Cultivation and identification of important molds and yeast (Slides)
 4. Bacteriological analysis of water and milk. Total count.
 5. Enzymatic Activities of different microbes in the culture media.
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