OPJS UNIVERSITY, CHURU (RAJ.)

SYLLABUS

for

Master of Science

(Home Science)

M.Sc. (H.S.)

School of Science
Opjs University, Churu (Rajasthan)
2014-15

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### M.Sc. (Home Science)

#### (Previous)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Paper Code</th>
<th>Name of Papers</th>
<th>M.M.(T./S./P.)</th>
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<tbody>
<tr>
<td>1.</td>
<td>MSHS-101</td>
<td>Statistics and Research Methods</td>
<td>70+30</td>
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<tr>
<td>2.</td>
<td>MSHS-102</td>
<td>Foods and Nutrition (F.N. I) Practical (F.N. I)</td>
<td>70+30+75</td>
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<td>3.</td>
<td>MSHS-103</td>
<td>Human Development (H.D. I) Practical (H.D. I)</td>
<td>70+30+75</td>
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<td>4.</td>
<td>MSHS-104</td>
<td>Clothing and Textile (Cl.T.I.) Practical (Cl.T.I.)</td>
<td>70+30+75</td>
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<tr>
<td>5.</td>
<td>MSHS-105</td>
<td>Home Management (H.Mgt.) Practical (H.Mgt)</td>
<td>70+30+75</td>
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#### (Final)

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<tr>
<td>1.</td>
<td>MSHS-201</td>
<td>Education and Extension Practical (Ext. Edu. I)</td>
<td>70+30+75</td>
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<td>2.</td>
<td>MSHS-202</td>
<td>Foods and Nutrition Practical-I</td>
<td>75+100+100</td>
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<td>3.</td>
<td>MSHS-203</td>
<td>Foods and Nutrition Practical-II</td>
<td>75+100+100</td>
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<td>4.</td>
<td>MSHS-204</td>
<td>Foods and Nutrition Practical-I</td>
<td>75+100+100</td>
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<td>5.</td>
<td>MSHS-205</td>
<td>Dissertation &amp; Viva-Voce</td>
<td>100+50</td>
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Details of Syllabus
(Previous)

MSHS-101-STATISTICS AND RESEARCH METHODS

Unit - 1: Measures of dispersion: Range, Mean deviation, S.D. quartile deviation, C.V. Skewness and Kurtosis Elementary Probability: Random Experiment, Sample space, Events, Classical definition, Addition and Multiplication theories and their applications. Binomial, Poisson and Normal Distribution (application, properties and the use of Normal tables)

Unit - 2: Association of attributes: Class Frequencies, Consistency and Inconsistency of data, kinds of association of attributes, Coefficient of association, partial association, Correlation and Regression correlation coefficient, rank correlation coefficient. Least square methods, fitting of regression lines, regression coefficients, coefficient of determinant. Spurious correlation

Unit - 3: Test of significance: Types of hypotheses and errors, level of significance. Critical region, one tail and two tail tests. Large Sample Test: one sample and two sample test for population means. Test for proportion and equality of proportions, Small Sample Tests: applications of t test for testing of hypothesis concerning single means, difference between two means, significance of correlation coefficient independence of attributes, chi square test of goodness-of-fit

Unit - 4: F-Test: Test for population variance, test of equality of several population means, Analyses of variance (one way & two way classifications) Non – parametric tests: ordinary sing test. Sign test for paired sample run test, median test

Unit - 5: 1. Definition and identification of a research problem, the formulation of hypothesis statement of assumptions involved. Methodology involved and materials required, analysis and interpretation of the findings, preparation and presentation of a technical report
   2. Questionnaire and Schedule, their construction, techniques of primary data collection, scrutiny of date, accuracy of measurements, testing of a questionnaire
   3. Sampling and its importance in home science, Sampling vs. Complete enumeration, availability of frame, principal steps of a sample survey with special reference to surveys related to Home Science studies, sampling and non-sampling errors
   4. Broad classification of sampling techniques, the simple random sampling, the stratified sampling, notion of systematic one-stage and two-stage sampling
procedures.

References:
Taro Yatnmue: Sampling Theory

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MSHS-102- HUMAN NUTRITION REQUIREMENTS AND PROBLEMS AND FOODMICROBIOLOGY

Unit - 1
1. Body Composition: Normal body composition, Changes through the life cycle, influence of nutritional status, Methods of assessing body composition
2. Nutritional requirement and recommended dietary allowances for the entire life span (infancy to old age),
3. Methods of estimating and critical evaluation of research findings for assessing the adequacy of the requirements of the following:
   a.) Energy b.) Proteins and amino acids c.) Vitamins and d.) Minerals

Unit – 2
Human Nutrition Problems: Historical background, prevalence. Etiology biochemical and clinical, manifestations. Preventive and therapeutic for the following:
(a) Protein energy malnutrition (b) Vitamin ‘A’ deficiency (c) Iodine deficiency disorders (d) Fluorosis e) Nutritional Amaemias - Iron deficiency, Vit B12 deficiency, Folate deficiency

Unit – 3
1. Geriatric Nutrition : The aging process and altered nutrition
2. Nutrition and immune response
3. Nutrition in community:
   a) The role of public Health Nutritionist in Health Care Delivery system
   b) Designing of Health and nutrition education programmes
   c) Nutritional Surveillance

Unit – 4
1. Toxicity of heavy metals (Cd. Pb, Al and Hg)
2. Inborn errors of metabolism: Disorders of amino acid metabolism, Phenyl Ketonuria, by hypertyrosinemia, hyper-histidinemia, hyper- lysinemia, homo cystinuria, hyper-valinemia, Carbohydrate Metabolism : Pentosuria, galactosaemia
Lipid metabolism : Hyper chyloin icronaemia, purehyper-cholestrolaemia, mixed
hyper-lipidaemia responding to vitamin therapy

Unit – 5 Food Microbiology: Introduction to microbiology: Microorganism importance in foods: Cultivation of microorganism: Sterilisation and disinfection: Microbes in foods and fermented foods and Food sanitation: Microbiology of food plant sanitation, Personal testing, Water and Milk testing, Micro-biological criteria for food testing: Food toxicants

References:
Frazier : Food Microbiology,
Sumathi Mudambi : Food Science
R. Anathanarayan & C.H. Jayaram : Text Book microbilogy
John Willy and Sons: Energy and Protein Requirements
Nutrient Requirements and Recommended Dietary Allowances for Indian ICMR, 1990

MSHS-103- CHILD PSYCHOLOGY AND ISSUES IN EARLY CHILDHOOD EDUCATION

Unit – I : 1. Introduction to Psychology :
• Historical Perspective
• Emergence of Child Psychology as a Scientific discipline
• Techniques of Child Study, Longitudinal, Cross sectional, experimental, Case Study, Interview and Observation

2. Genetic Biological Basis of development- influence on physical, physiological and intellectual characteristics and personality of children, Effect of prematurity and birth weight on the different facets of child’s personality

Unit –2 : 1. Psychological Development:
• Infancy-Importance of early social experience, mothering attachment (Bowlby), maternal deprivation, Role of care giver and consequence of the interaction with care giver
• Per School years: Socialisation during pre-school years- Effect of identification and sex typing on the child’s behavior, Role of family with special reference to rewards and punishment

2. School age : Important influences on development of child
a) Family b) School c) Peers Importance of School Achievement and factors influencing it

Unit – 3 : 1. Language Development : Role of language, process of language acquisition.
Different theories of Language development (Vygotsky)
2. Cognitive Development: Development of Awareness and beginning of Intelligence,
Reasoning, concept formation, perception Cognitive activities and skills intelligence
tests for measuring intelligence of children, Characteristics of a good test. Use and administration of test
3. Emotional Development, Functions of Emotions, Theoretical perspective of Emotional development
4. Personality: Definition, Self concept, Self esteem, Factors influencing personality development

Unit – 4: 1. Non-formal vs. Formal Education:
   • Concept of non-formal and formal education
   • Play way method
   • Psychological effects of pressures on children for academic achievements on children
2. Administration and Management of Preschools:
   Admission tests and intake policy
   Class size and Child teacher ratio paper
   Teacher’s role for meeting the goals of early childhood
   Parent involvement

Unit – 5: 1. Child Development Perspective:
   • Focus on all round development
   • Individual needs/Groups needs
   • Neglected areas of Child Development Creativity, Language and Concept formation
2. Assessment and Monitoring in Preschools:
   i. Programmes
   ii. Children

References:
Boston, Allyn & Bacon: Child Development, 1989
Judith, R. Harris, Rober Liebert, I: the child Development from Birth Through Adolescence, 2nd Prentice Hall, New Jersey, 1987

Practical:
PSYCHOLOGICAL TESTING AND HUMAN DEVELOPMENT
   • Administration, Evaluation and Interpretation of available individual tests of (one from each area):
   • Intelligence
   • Personality
   • Projective Techniques
   • Aptitude test
   • Educational test (Details in file)
• Observation and recoding of sensory capacities of neonates (Report in file)
• Visits to various types of centers of early childhood care and education:
  • Nursery Schools
  • Day care centers
    Report on the institutions curriculum and organizational structure &
    physical & human infrastructure
• Crèches
• Slum balwadis anganwadis
• Preparing a case study of a child from an orphanage and recording his all round
development:
• Literature review to know the changing trends of adolescent psychology from news
  papers, magazines, stories and novels (Term Paper
• Exposure to reviewing films, strips and programmes on development aspects of children
  eg. Interactive programme on computers :
• Seminar on old age: pertaining to
• The understanding of old age as a development
• The problems of old age
• Status of old persons in society
• Agencies and programmes for old persons in India and abroad
• Towards happiness in old age
  Term and Presentation based on research finding, through exploring the journals and field
work reports
References:
Allison Blatt & Zimmet: The Interpretation of Psychological Tests, Harper & Row
Publishers, New York, 1986
Home Economics Publication

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MSHS-104-HISTORIC TEXTILES AND SOCIOLOGICAL AND
PSYCHOLOGICAL ASPECTS OF CLOTHING

Unit – I : Origin of Clothing
• Theories of Clothing: Theory of Modesty, immodesty, protection, adornment,
  combined need and other theories
• Role of clothing in psychological and personality development of human
  beings, self concept, personality expressed through clothing
• Psychological effect of colour in clothes and psychological effect of clothing
  on children

Unit – 2 : Sociological aspect of clothes: Fashion, fads, role of uniforms national
  costumes, occupational clothes, social importance of clothes, impact of
  society on clothing choices, Fashion Cycle
• Conformity, mobility, Class distinction family and social influences
• Factors influencing choice of clothes, physical, aesthetic, economic, social

**Unit = 3 : A) Indian costumes: Historic approach from ancient period to 20th Century:**
- Dress in Harappa and Mohan Jodaro
- Dress of Aryans
- Dress of 600 BC -320 BC (Buddhist, Jains)
- Islamic influence
- British period


**Unit – 4 a. Historical development of woven textiles origin of weaving, spinning, looms, weaves**
- Wardrobe planning for different stages in family cycle.

**Unit – 5 a. History of Carpets. Rugs and Durries**
- History of hand printing and dyeing
- Study of Indian sarees of different types

**REFERENCES**
- Ahury, G.S.: Indian Costumes, Popular Prakashan, Bombay
- Moti Chandra: Costumes, Textiles, Cosmetics and Chiffons in Ancient and Medieval India, Orient Publisher, New Delhi, 1973
- Akazi Roahan; Ancient Indian Costumes. Art Heritage, New Delhi
- Mary Shawn Rayan: The study in Human Behaviour
- Flugel, J.G.: Psychology of Clothes

**Practical:**
**TRADITIONAL TEXTILES AND APPAREL DESIGN**
- Drawing a collection of traditional designs given on fabrics
- Sketching designs for various textures and prints to suit the figures, sizes and type of fabrics
- Adaptation by flat pattern using half scale bodice block making samples on fabric
- Part – basic darts
- Yokes
- Fullness
- Sleeves
- Collars
- Pockets
- Neck lines
- Focus on design details of style and rendering techniques using different medias
- Sketching of different action croquei (front, brak and side view)
- Sketching of garments and accessories
- Basic rendering techniques
- Colour matching using different medias charcoal, brushes, colours and paper
- Pattern and texture (checks, line)
• Theme rendering – Developing a line of garments based on theme and fabric selected
• Casual wear
• Sports wear
• Formal (Business wear)

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**MSHS-105- ERGONOMICS AND INSTITUTIONAL MANAGEMENT**

**Unit 1: Ergonomics**
- Scope of ergonomics in Home and other occupations
- Nature of work in household and other occupation
- Interdisciplinary and applied nature of ergonomics as a field of study
- Man Machine Environment system

**Unit 2: Ergonomics in work place (Elbow room)**
- Anatomical Dimensions and its relation to space needs
- Postures at work and their effect on health
- Anthropometric Measurements for different postures, standing and sitting
- Work space and storage needs
- Functional design of work places equipments and tools

**Unit 3: Finance**
- Financial Management in Catering Institution
- Principles of Accounting functions
- Financial Statement Analysis
- Food cost control Designing for profits Pricing the product
- Financing of Consumer Durables/Enterprises
  - Housing, Automobile, Education, Equipment and Small scale Industry
- Consumer Economics
- Consumer Behaviors
- Redressal Mechanism for consumer Grievances (in brief)
  - Verbal and Written complaints
  - Appeal to district, state of national commissions
  - Public service litigation
  - Media connected services

**Unit 4 :**
1. Introduction to Food Service Industry with historical Development (in Brief)
2. Food Service Planning
   - Layout (Kitchen, store and Institutional dinning)
   - Equipment
3. Food Service operations
4. Food Management
   - Food acceptability and sensory evaluation
   - Menu Planning
   - Quantity food production
Quantity and Quality control
Kitchen production

**Unit 5:**

1. Food purchasing
   • Receiving and store room management
2. Manpower and personnel
   • Staff planning and pay roll control
   • Administrative leadership
3. Management of Dinning Room
   • Table Service
   • Maintenance & care of Linen and Floor coverings
   • Maintenance & care of furniture
4. Hostess training
   • Table setting
   • Manners and etiquette
   • Table ware for various occasions

**References:**
- Malhan & Sethi: Catering Management An Integrated Approach, 1989
- Dessler, B.: Personal Management Modern Concept and Techniques, 1978
- Kotshavar, L.N. & Terrekk, M.E.: Food Service Planning Layout and Equipment, 1967
- Dewitt, R.J. and Singh: Indian Economics, Premier Publishing Co. Bombay
- Sundaram, K.P.M. and Versha, N.G.: Principles of Economics, Agra
- Chakraborth, S.K.: Management by objectives- integral approach, MacMillan Co. 1980
- Drucke, P.: Management: Task, responsibilities and practices, Allied publisher

**Practical:**
- Visit to food service canteens, hotels, hospital, railway kitchen, restaurants, Industrial canteens and hostel catering of different class of people, Lay-out Planning-existing and Improved. (Submit the report)
- Planning in detail the Catering for various occasions, Social gathering, restaurants canteen etc.
- Menu Planning
- Food Purchasing
- Setting Profits
- Minute Management
- Table setting for different covers (Breakfast, Dinner, Tray Service)
- Theme based Party: Traditional, Festive and contemporary Decoration and menu planning
- Standardization of Recipes
- Work Analysis
- Pathway Chart
- Flow Process Chart
MSHS-201- COMMUNICATION AND EXTENSION IN HOME SCIENCE

Unit 1: Introduction to communication
- Origin, Concept, definition, nature of communication
- Models of communication
- Levels of communication
- Effective communication- Frame of reference, perception, fidelity, communication gap, time lag, empathy, homophily, heterophily
- Functions of communication

Unit 2: Communication media and Technology
- Classification of media
- Selection of appropriate media
- Production and use of selected media in Home Science
- Writing scripts for radio talk, television talk, puppet play, street play
- Writing for newspapers, magazine

Unit 3: Developmental communication
- Problems in Development and grass root participation (need and participation)
- Development communication strategies for grass root mobilization
- Importance of leadership in developmental communication.
- Understanding the role of traditional and modern media in developmental communication
- Participatory approach in developmental communication

Unit 4: Communication process
- Elements of communication.
- Principle of effective communication
- Channels of communication
- Problems of communication (related to the communicator, message receiver and other factors)

Unit 5: Appropriate technology for women
- Role and status of women in rural development
- Approach and methods of socio economic analysis- PRA and RRA
- Need of appropriate technology for women
- Transfer of technology and factors affecting TOT
- TOT process and improvement

References:
Benjamin James: Communication Concepts and Contexts, 1986
Kumar Keval J.: Mass Communication in India: A Comprehensive and Critical Look at the

Practical:
• Writing script for one of the media referred in theory
• Production of selected media in Home Science Extension a communication
• Pre testing of the selected media
• Use of Selected media in the field
• Developing skill in any of the folk media
• News and report writing of programme for farm/ slum women.

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MSHS-202- ADVANCED NUTRITIONAL BIOCHEMISTRY

Unit 1:
• Enzymes: Intracellular distribution, Kinetics of enzyme reaction-effects of time.
  Temperature, PH on Velocity, Km Value and its significance, Inhibition, active site and
  specificity, Mechanism of enzyme action, Enzymes in clinical diagnosis.
• Biological Oxidation: Electron Transport, Oxidative Phosphorylation, TCA cycle.

Unit 2:
Carbohydrates: Isomerism, Ring structure, Proof of ring structure, glycolysis, metabolism
of glycogen, gluconeogenesis; hexose mono phosphate shunt, altered metabolism in
diabetes mellitus

Unit 3:
Lipids: Oxidation of fatty acids, Oxidation of odd and even number: B-Oxidation, W- Oxidation.
Bio- synthesis of fatty acids: Elongation of fatty acid, synthesis of unsaturated fatty acids, Bio
synthesis of triglycerides and phosphatides.; Formation and metabolism of the Ketone
bodiesketosis, biosynthesis and regulation of cholesterol, bile acids.

Unit 4:
Proteins: Metabolism of amino acid, Urea cycle creatinine and creatine synthesis. Plasma
protein and their function,. Changes in Blood picture in Proteins malnutrition.

Unit 5 :
• Nucleic acid: Mechanice of DNA, Replication and transcription of DNA and translation
  (Protein biosynthesis). Regulation of biosynthesis and breakdown of purine and
  pyrimidine nucleotides.
• Hormones: Mode of action and Regulation of metabolism-Follicle stimulating and
  interstitial cell stimulating hormone adrenocortico tropic hormone, growth hormone
  Thyrotropic hormone, adreocortical hormone, sex hormone-testosterone, estrogenic
  hormone.

References:

**Practical- I**

**BIOCHEMISTRY AND NUTRITION LABORATORY**

- Estimation of Calcium in food.
- Estimation of Protein by micro Kjeldahal method.
- Colorimetric and fluometric: Phosphorus, Glucose, Iron, total and free cholesterol, Hemoglobin, Vit. A & C, riboflavin
- Enzyme Assay: Alkaline Phosphastase, transaminase
- Chromatography: Paper Separation of amino acids, Column Separation of lipids (only demonstration)
- Electrophoresis: Separation of Serum Proteins
- Blood analysis: Blood count, DLC, I- hemoglobin – blood indices
- Urine: Glucose detection
- Techniques in handling laboratory animals balance studies in:
  - Nitrogen balance
  - Iron balance
  - Calcium balance.

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**MSHS-203- CLINICAL NUTRITION AND DIETARY COUNSELLING**

**Unit 1:**

- Nutritional and the gastrointestinal- tract malabsorption and patho physiology, carbohydrate intolerance
- Parasitic infections
- Diagnostic tests in gastrointestinal disease- Measurement of motility and gastric acidity. Influence of food on gastric acidity and motility
- Disorders of the Esophagus- Esophagitis, Hiatus, Hernia, Esophageal Reflux, Achalasia, Esophageal obstruction, Indigestion gastritis
- Disorders of the stomach- peptic ulcer. Disorders of small intestine and colon Diarrhea, constipation, irritable colon syndrome, crone’s disease, diverticulosis ulcerative colitis
- Nutrition and Dental health- Structure, development and maturation of dental caries, role of nutrients in dental health
Unit 2:
- Fevers and Nutrition - Acute and chronic
- Food allergy

Unit 3:
- Nutrition and liver diseases
- Gall bladder diseases
- Renal diseases - Previous diseases in brief. Acute and chronic renal failure dialysis
- Surgery, burns and nutrition

Unit 4:
- Nutrition and cardiovascular diseases, Role of lipid and other - Nutrients
- Bile acid metabolism
- Prostaglandins
- Diabetes Mellitus - Nature classification, high risk factors, metabolic effects, symptoms, diagnosis for diabetes treatment - Diet, Nutritional requirement, glycogenic sweeteners, drugs, acute complication in diabetes

Unit 5:
- Nutrition and weight managements – Obesity, over weight underweight
- Food nutrient and drug interaction- classes of drug, their gastrointestinal side effects, other nutritional effects and their dietary precautions
- Drug metabolism
- Effects of drugs on nutrition - Alteration in taste, appetite and food intake, alteration in nutrient absorption, alteration in nutrient metabolism, alteration in nutrient excretion
- Effects of food on drug utilization - Alteration in drug absorption, alteration in drug metabolism and drug excretion
- Alcohol and metabolism, effects of alcohol and nutrition, wrenickes and korsakoffs syndromes
- Dietitians: Classification, code of ethics, responsibilities
- Diet counseling - the dietitian in India, computer application in clinical nutrition

REFERENCE
Anita, F.P.: Clinical Dietetics and Nutrition, Oxford Univ. Press UJ ed. 1989
Shills, M.E. and Young, V.R.: Modern Nutrition in Health and Disease
Joyar M.C and Keteroon: Nutrition and Disease
Comparative Aspects of Nutrition and Metabolic Diseases - CRC Press

PRACTICAL II
CLINICAL NUTRITION, DIETARY COUNSELLING AND INTERNSHIP
- Planning, calculation, preparation, services, evaluation and dietary counseling for the therapeutic diets, covered in theory the practical includes block placement of the students in the real work situations of hospitals: Medical ward, Dietary department for 6 to 8 wks
• Planning, calculation and preparation of diets in Protein Energy malnutrition, Vitamin A Deficiency.

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MSHS-204- ADVANCE NUTRITION II

Unit 1: Carbohydrates: hormonal control of carbohydrate homeostasis, Dietary fibre

Unit 2: Lipids: Role in Nutrition, Essential and Non-essential fatty acids
   Lipoproteins: Classification and importance, Hyperlipoproteinemia, prostaglandins
   Nutrition aspects of atherosclerosis, inter-relationship with carbohydrate metabolism

Unit 3: Proteins: Regulation of protein metabolism by G.I. tract and liver, protein reserves, protein malnutrition


Unit 5: Biochemical roles of vitamins and minerals inter relationships: Vitamin A & E, SE & E, Ca & D, Vit. C & Fe Prevention and Therapeutic measures (if applicable).

References:
   Solomans and Rosenberg: Absorption and Malabsorption on Mineral Elements

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