M.Sc. Home Science

2018-19

Specialization-Foods & Nutrition

St. Joseph's College for Women
Visakhapatnam

Foods & Nutrition

M.Sc Home Science (Foods & Nutrition)
List of Papers

RESEARCH METHODOLOGY AND STATISTICS

Code : Fn 1.1
Credits : 4
Periods / Week : 6
Marks : (80+20=100)

OBJECTIVES: To enable the students to **-**

- understand the significance of statistics and research methodology in Home Science research.
- identify the types, tools and methods of research and develop the ability to construct data gathering instruments appropriate to the research design.
- apply the appropriate statistical technique for the measurement of scale and design.

CONTENTS:

Unit :

1. Science, scientific methods, scientific approach.
2. Role of statistics and research in Home Science. 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 a Research Problem - 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 stages and multistage sampling, cluster sampling. Non – Probability sampling: purposive, quota and volunteer sampling/snowball sampling
7. Basic principles and Purpose of research design - Fundamental, applied and action exploratory and descriptive experimental, survey and case study, ex – post facto' Longitudinal and cross sectional

   - Qualitative Research Methods: Theory and design in qualitative research

   - Definition and types of qualitative research -Methods and techniques of data collection - Observation, questionnaire, interview, scaling methods, case study, home visits, reliability and validity of measuring instruments
8. Classification & tabulation of data - Measures of central tendency Measures of variation - Testing of Hypothesis - Parametric & Non-parametric tests, chi-square test, correlation ANOVA.

RESEARCH METHODOLOGY AND STATISTICS PRACTICAL

Code : Fn 1.15
Credits : 2
Periods / Week : 4
Marks : (30+20=50)

Content:

1. Developing Research Design
2. Observation, questionnaire, interview, scaling methods, case study, home visits, reliability and validity of measuring instruments
3. Plotting of Frequency Distribution : line, bar, pie, frequency polygon
4. Plotting Histogram
5. Computation of mean, median and mode for ungrouped and grouped frequency distribution
6. Computation of variance, standard deviation, mean deviation
7. Moments, quartiles, skewness and kurtosis of frequency distribution
8. Parametric & Non- parametric tests, chi-square test, t test, correlation ANOVA. Calculating correlation coefficient from ungrouped and grouped data

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 Sciences, Agri. Cole Publishing academy, New Delhi.
3. Dooley, D. (1995): Strategies for Interpreting Qualitative Data; Sage Publications, California.
4. Gay, L.R. (1981): Educational Research, proper Solutions: Avoiding Errors in Quantitative Research. II Edn. Sage Publications: Beverly Hills, California.
5. Long; J.S. (Ed) (1988): Common Problems Proper Solutions: Avoiding Errors in Quantitative Research, Beverly Hills, Sage Publications, 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.

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COMPUTER APPLICATIONS

Code : Fn 1.2
Credits : 4
Periods/Week: 6
Marks : (80+20=100)

Objectives : To enable the students to –

- Acquire knowledge about computer fundamentals.
- Learn and use the applications of MS office
- Apply the skills learnt to situations in Home Science.

Content:

1. **Review Windows :**

   Desktop settings and creating shortcuts. Start menu, How to launch programs using start menu. Recycle bin, task bar, Windows accessories M.S.WORD 2003: Creating , saving and closing a document . Opening an existing document. Page set up . Spell check. Tables. Selecting in tables. Modifying table structure. Edition text. Text formatting Headers and footers. Bullets and numbering. Borders and shading . Auto correct Auto text. Creating styles. Columns. Printing in 2003.

2. **MS EXCEL 2003 :**

   Starting. Parts of Excel Screen. Quitting Excel. Selecting a cell. Entering data in a cell, Editing, clearing and formatting data in a cell. Inserting and deleting rows and columns, charts, Formulae and simple statistical applications.

3. **MS POWERPOINT 2003 :**

   Starting & Quitting PowerPoint. Creating of Presentation. Use of design templates, slide show. Inserting clip art. Application of special effects setting up a slide show.

4. **Page Maker**

   PageMaker Basics, Working with a publication, The Drawing tools, The text tools, Importing Graphics, Transformations, Utilities, working with large amounts of text, The story editor.

5. **CorelDraw :**

   CorelDraw Concepts, Exploring the work area , drawing & shaping , working with text, using writing tools blending, exporting, distorting, importing, exporting & ole.

6. **ILLUSTRATOR**

   Using the Illustrator tools, using selection tools, Gradients, Brushes . Applying transformations over objects, using layers, applying filters.

7. **Photoshop**

   Tools – Painting, Editing, Selection, Filters, Layers, Working with type – paths

8. HTML

Understanding HTML, Creating a web page, publishing HTML, Pages , Text alignment & lists, text formatting & font control, Creating HTML forms, creating web page graphics, putting graphics on a web page, custom background & color.

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COMPUTER APPLICATIONS PRACTICAL

Code : Fn 1.25
Credits : 2
Periods/Week: 4
Marks : (30+20=50)

Content :

Application of each of the following units in Homescience related areas

1. Creating a Word document on Homescience topic
2. MS EXCEL 2003
3. MS POWERPOINT 2003 :
4. Page Maker
5. CorelDraw :
6. ILLUSTRATOR
7. Photoshop
8. HTML - Creating a web page

References:

1. Peter Norton, Introduction to Computers, Sixth edition, TAta McGraw Hill (2007)
2. Fundamentals of Computers, IV Edn V Rajaraman Prentice – Hall of Indias Limited, New Delhi.()
3. Computer fundamentals by A Lexix Leon and Mathews Leon, Leon – Tech World , New York 1999
4. Ron Mansfield, Workin in Microsoft Office Tata McGraw Hill (2008)
5. Adobe Pagemaker (Training Guide) – By Shashank Jain and satish Jain, BPB Publications, 2001
6. CorelDraw 9 (Training Guide) – By Manohar Lotia & Shailesh Tank, BPB Publications, 2001
7. Adobe Illustrator in 24 hours Mordy Golding (Tech Media)
8. Photoshop 7.0 in easy steps – Robert Shuffle Botham, Dream Tech, 2003

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HUMAN PHYSIOLOGY

Code : Fn 1.3
Credit : 4
Periods / Week : 6
Marks : (80+20) = 100

Objectives: This course will enable students to :

- Advance their understanding of some of the relevant issues and topics of human physiology.
- Understand the integrated function of all systems and the grounding of nutritional science in Physiology
- Understand alterations of structure and function in various organs and systems in disease conditions.

Content:

1. **a. Nervous system**

   Review of structure and function of neuron, conduction of nerve impulse, synapses, role of neurotransmitters.

   Organization of central nervous system, structure and function of Brain and spinal cord, Afferent and efferent nerves, Blood Brain Barrier, CSF, Hypothalamus and its role in various body functions-obesity, sleep, memory.

   b. **Sense organs**

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

2. **Endocrine system**

   Endocrine glands – structure, function, role of hormones, regulation of hormonal secretion. The neuroendocrine axis. Disorders of endocrine glands. Emphaiss on physiology of diabetes and stress hormones

3. **Digestive system**

   Review of structure and function. Secretory, Digestive and Absorptive functions, Role of liver, pancreas and gall bladder and their dysfunctions. Motility and hormones of GITract.

4. **Respiratory system**

   Review of structure and function. Role of lungs in the exchange of gases. Transport of oxygen and Co_2. Role of haemoglobin and buffer systems. Cardio-respiratory response to exercise and physiological effects of training

5. **(a) The circulatory system**

   Structure and function of heart and blood vessels. Regulation of cardiac output and blood pressure, heart failure, hypertension.

(b) Blood formation, composition, blood clotting and haemostasis: Formation and function of plasma proteins. Erythropoesis. Blood groups and histocompatibility. Blood indices. Use of blood for investigation and diagnosis of specific disorders. Anemia.

(c) Immune system: Cell mediate and humoral immunity. Activation of WBC and production of antibodies. Role in inflammation and defence.

6. **The excretory system**

   Structure and function of nephron. Urine formation. Role of kidney in maintaining pH of blood.

   Water, electrolyte and acid base balance, diuretics

7. **The Musculo – skeletal system**

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

   Types of muscles, structure and function.

8. **Reproduction**

   Menstrual cycle, spermatogenesis, physiological changes in pregnancy

References:

1. Ganong, W.F. (19852) : Review of Medical Physiology, XII Edn, Lange Medical Publication.
2. Moran Campbell E.J., Dickinson, C.J., Slater, J.D., Edwards, C.R.W. and Sikora, K. (1984): Clinical Physiology, V Edn, ELBS, Blackwell Scientific Publications.
3. Guyton, A.C (1985): Function of the Human Body, IV Edn, W.B. Sanders Company, Philadelphia.
4. Guyton, A.C. and Hall, J.B. (1996): Text Book of Medical Physiology, IX Edn, W.B. Sanders Company, Prism Books (Pvt.) Ltd., Bangalore.
5. Wilson, K.J. W. and Waugh, A. (1996): Ross and Wilson Anatomy and Physiology in Health and illness, VIII Edn, Churchill Livingstone.
6. McArdle, W.D. Katch, F.I. and Katch, V.L. (1996): Exercise Physiology. Energy, Nutrition and Human Performance, IV Edn, Williams and Wilkins, Baltimore.
7. Jain, A.K.: Textbook of Physiology. Vol. I and II. Avichal Publishing Co., New Delhi.

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HUMAN NUTRITION

Code : Fn 1.4
Credits : 4
Periods/Week : 6
Marks : 80+20 =100

Objectives: This course is designed to:

- Provide in – depth knowledge of the physiological and metabolic role of macro and micro nutrients and their importance in human nutrition.
- Familiarize with the recent advances in nutrition and apply this knowledge in planning for public health programme.
- enable the students to translate the knowledge into practical guidelines for dietary needs of human nutrition at different stages of life.

Content:

1. **Body Composition**
   - Significance of body composition and changes through the life cycle.
   - Methods used for measurement of body components.
   - Body fat, Fat Free Mass (FFM), Factors affecting.
   - Influence of Energy Excess and Energy deficit in body composition

2. **Energy**
   - Energy intake versus Energy Expenditure, Energy Balance.
   - Components of energy expenditure: RMR, BMR, PAL, PAR, Thermic effect of food. Control of food intake – Role of leptin and other hormones.
   - Latest concepts in energy requirements and recommendation for different age groups.
   - Energy imbalance: An overview

3. **Carbohydrates**
   - Physiological functions
   - Types of carbohydrates in Indian diets and their contribution to energy intake
   - Dietary fibre – Components, Sources Role of dietary fibre in human nutrition
   - Resistant starch and fructo oligosaccharides – Physiological effects.

4. **Proteins**
   - Classification, Physiological functions
   - Protein quality- Classification, Methods of evaluation
   - Protein and amino acid requirements
   - Protein deficiency - Kwashiorkor and Marasmus – clinical features and biochemical changes

5. **Lipids**
   - Physiological functions
   - Nutritional significance of fatty acids-SFA, MUFA, PUFA,Role of n3 and n6 fatty acids.
   - Role of lipoprotein and cholesterol, triglycerides in health and disease
   - Requirements of total fats and fatty acids requirements.
   - Deficiency of Essential fatty acids

6. **Water**
   - Distribution and functions
   - Water balance and its regulation – Role of hormones and electrolytes
   - Requirements for water
   - Disturbances in fluid balance – Dehydration, oedema and water toxicity

7. **A. Recent advances in minerals**
    a. Macro minerals – Calcium, Phosphorous, Magnesium, Sodium, Potassium Chloride, Sulphur
    b. Micro minerals - Iron, Copper, Zinc, Manganese, Iodine, Fluoride

    For each mineral the following should be discussed:
    - Physiological functions
    - Food sources
    - Bioavailability (wherever applicable) factors affecting bioavailability.
    - Interaction with other nutrients.
    - Requirements, deficicency.

B. Recent advances in vitamins

a. Fat soluble vitamins – Vitamin A, Vitamin D, Vitamin E, Vitamin K
b. Water soluble vitamins – Thiamine, Riboflavin, Nicotinic acid, Pyridoxine folic acid, B_{12}, pantothenic acid, biotin, choline, innositol, vitamin C

For each nutrient following should to discussed:
- Physiological functions
- Food sources
- Interaction with other nutrients – Macro nutrients, vitamins, minerals.
- Requirements, deficiency and toxicity
- Assessments techniques
- Bioavailability

8. **Nutritive and non nutritive foods**
    - Functional foods, classification: prebiotics and probiotics – Dietary and their mode of action and effect.
    - Polyphenols – definition, bioavailability, health benefits.
    - Health benefits of other dietary factors and anti nutritional effects, amylase, protease inhibitors, leptins, phytates.

References:

1. Mahan L.K. and Ecott – Stump, S. (2000): Krause's Food, Nutrition and Diet Therapy
2. Shils, M.B Olson, J.A.Shike, N and Ross, A.C. (Ed). (1999): Modern Nutrition in Health and Disease, 9th Edition, San Williams and Wilkins
3. WHO Technical Report Series
4. Indian Council of Medical Research, Recommended Die=arty intake for Indians – Latest Recommendations
5. Sarren S. Gropper, Jack. L.Smith, James, L. Gruff. Advanced Nutrition and Human Metabolism. IV Edn
6. Williams Basic Nutrition and Diet Therapy. Staci Nix.XII Edn (2005)

Journals:

1. Nutrition Reviews
2. Internal Journals of Vitamin and Nutrition Research

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COMMUNICATION TECHNOLOGY

Code : Fn 2.1
Credits : 4
Periods/week : 6
Marks : (80+20=100)

Objectives – To enable the students to

- understand the vital aspects of communication, various Audio and visual media and their use.
- identify the new communication technologies and their use.
- Impart skills in preparation and use of communication technologies for various presentations.

Contents:

1. **Communication Systems**
   - Types of Communication systems – concept, functions and significance.
   - Elements, characteristics and scope of mass communications.
2. **Communication Types**
   - Mass communication – models and theories; role of gatekeepers and opinion leaders.
   - Visual communication–elements of visual design– colour, line, form,texture and space;
   - Principles of visual design – rhythm, harmony, proportion, balance and emphasis.
   - Visual composition and editing.
3. **Media Systems: Trends and Techniques**
   - Concept, scope and relevance of media in society.
   - Functions reach and influence of media.
   - Media scence in India, issues in reaching out to target groups.
   - Contemporary issues in media – women and media, human rights and media, consumerism and media
   - Historical background: nature, characteristics, advantages and limitations and future prospects of media.
4. **Media types:**
   - Traditional media: role on enhancing cultural heritage, co-existence with modern media systems and applicability in education and entertainment – puppetry, folk songs, folk theatre, fairs.
   - Print media: books, newspapers, magazines leaflets and pamphlets.
   - Electronic media – radio, television, video, computer based technologies.
   - Outdoor media; exhibition, fairs and kiosks.
   - Media planning and scheduling, selection of media on the basis of suitability, reach, impact, frequency and cost.
   - Introduction to ethics in mass media, freedom of speech, expression and social responsibility.

5. Advertising

- Definition, concept and role of advertising in modern making system and national economy.
- Inter-relation of advertising and mass media system.
- Types of advertisements-commercial, primary demand, selective demand, classified and display advertising, comparative and co-operative advertising.
- Techniques of preparation of effective advertisements for various media.
- Ethics in advertising.

6. Computer Graphic Designing

- Introduction to Basics of Computers.
- Concepts of multimedia
- Multimedia Applications.
- Advantages of Digital Multimedia.
- Multimedia System.

7. Animation and Graphics -I

- Animation and Graphic using 3D Studio or such other packages
- Introduction to Graphic
- Drawing objects, shaping, transforming, stretching, mirror and scaling, making curves, lines rectangles, circles and ellipses. Creating special effects, adding perspective to an object, editing it, extruding an object and using blends.
- Introduction to Scanning.
- Scanning and developing Color Ways-Basic

8. Animation and Graphics -II

- Introduction to Animation using 3D Studio, Key framing and motion control.
- Basic of 3D modelling, transition from 2D space to 3D space.
- 3D shaping and rendering.
- International media – email, internet, teleconferencing, video conferencing, Video displayer, CD ROM writer, Microphone, LCD Projector, Video disc technology, virtual reality.

COMMUNICATION TECHNOLOGY PRACTICAL

Code : Fn 2.15
Credits : 2
Periods/Week: 4
Marks : (30+20=50)

Content:

1. Designing a visual composition-book cover, or Folder with the help of computers.
2. Evaluation of advertising, a newspaper story, a radio programme and a television broadcast.
3. Planning, development and evaluation of Communication strategies and techniques for selected traditional, print electronic and outdoor media systems.
4. Preparing effective advertisements keeping in Consideration headlines, illustration, slogan, logo, seal of approval and colour effectiveness with the help of computer.
5. Individual Project on 3D Studio max. (animation).

References:

1. Curran,J.et al(1997): Mass communication and Society, London.
2. Banerjee(Eds) (1985) Culture and Communication, Paroit Publishers, Delhi.
3. Ruloof, M.E. and Miller, G.R.(Eds) (1987): Interpersonal Process; New Directions in Communication Research, Sage, USA.
4. Chatterjee, P.C.(1988): Broadcasting in India, New Delhi, Sage Publication.
5. Berger, C.R. and Chafee, S.(Eds)(1987): Handbook of Communication Science, Sage Publications, New Delhi.
6. Brown, J., Lewis, R. and Harcleroad, F. (1985): All Instruction: Technology Media and Methods, McGraw Hill; New Delhi.
7. Ellington, H.(1985): A Handbook of Educational Technology, Kogan Page, London.
8. Nair, R. (1993): Perspective in Development Communication, Sage Publications, New Delhi.
9. Nair, K.S. and White, Shirley (1993): Perspective on development Communication, Sage Publications, New Delhi.
10. Narula, U.(1994): Development Communication, Haran & Publications.
11. Sandllio, K. Problems of Communication in Developing Countries - Vision Books.

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NUTRITIONAL EPIDEMIOLOGY

Code : Fn 2.2
Credits : 4
Period/week : 6
Marks : (80+20= 100)

Objectives: This course is designed to equip the student to

- Understand the principles of Epidemiology, nutritional epidemiology and its importance in Community and Public Health.
- Be able to design and evaluate studies/nutritional programmes.

Content:

1. Introduction to Epidemiology and Branches of Epidemiology- Types of Epidemiology

2. Epidemiological Information: Collecting epidemiological data, Secondary- Routine Data.

3. Patterns of Disease: Descriptive Epidemiology, Cross sectional Analysis, Prevalence and Incidence, Risk, factors, Risks and ODDs. Relative and Attributable risks

4. Principles of Nutritional Epidemiology.

5. Measurement Issues, Measurement of Disease, Occurrence and Measures of association, Exposure and Outcome.

6. Assessment of Food Consumption, Intake and validation of Assessment.

7. Biochemical Markers of nutrient intake and nutritional status. Socio demographic and psycho social variables.Anthropometric measurements.

8. Design and planning of Nutritional Epidemiological studies. Assessing, Applying and Evaluating Epidemiological Studies.Discussion of selected case studies.

References:

1. Anisa Basheer (1995) Environmental Epidemology, Rawat Publications, Jaipur.
2. Margetts B.M. and Nelson, M.(1998) Design Concepts in Nutritional Epidemiology. Oxford, New York.
3. Moon, G., Gould, M.,(2000) Epidemiology: An Introduction, Open University Press, Philadelphia.
4. Cox, B. Blaxter, M., Buckle, A. et al (1987), Health and Life style Survey, 1984 – 85. Health Promotion Research Trust, London.
5. Farmer, R. Miller, D. and Lawerson, R.(1996) Lecture Notes on Epidemiology and Public Health Medicine. Oxford, New York.
6. Janes, C., Stall R. and S. Gifford(1986): Anthropology and Epidemiology: Interdisciplinary approaches to the Study of Health and Disease Reidel, Dordrecht.
7. Gordis, L.(1996) Epidemiology/ Saunders, Pennsylvania.
8. Morris, J.(1975) The uses of Epidemiology. Oxford, New York.
9. Norell, S.E(1988) Work book of Epidemiology. Oxford: University Press, New York.
10. Armstrong, B.K., White, E., and Saracci, R.(1992): Principles of Exposure Measurement in Epidemology. Oxford University Press.

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COMMUNITY HEALTH MANAGEMENT

Code : Fn 2.25
Credits : 2
Periods/week : 4
Marks : (30+20=50)

Objectives:

- To Understand the concept of health and health indices popularly used
- To realized the health problem of the community and the scientific intervention
- To Know the sensitized to management information systems in health

Content:

1. **Concept of Health and Health Care**
   - Concepts of health and positive health, definitions of health. Health – disease continuum, factors affecting health, health as a human right. Concept of community health and global health, health for all. Primary Health care – definitions, principles, components, comprehensive health care, levels of prevention, concept of reproductive health – ICPD declaration.

2. **Health and Development Indices**
   - Health indices and related indices in community health, fertility indicators, vital statistics, mortality, morbidity indicators, demographic indicators – sex ratio, indicators for social and mental health, Human Development Index, Disability Adjusted Life Years (DALY), Reproductive Health Index.
3. **Community Health Needs and Problems**
   - Health needs and Problem related to sanitation and environment, protected water, personal hygiene and pollution control.
   - Ecology and environment, global warming – causes, effects and prevention, natural and man made disaster management.
   - Health needs of special groups – women, infants, children. Health of adolescents, geriatric health needs problem, tribal health, refugees.
4. **Health Care Services**
   - Health administrative set up, peripheral, state, national – urban, rural, role of NGOs. National Health programmes, child survival and safe motherhood, reproductive and child health programme.
   - Inter- sectoral co-ordination in health and development.
   - National and International Health agencies.
   - Health information, education, communication.

5. **Management Information System in Health**
    - Basic epidemiology, surveillance, health screening, health regulations and acts, health legislations, international health regulations.
    - Census, sample registration system, national family health surveys.
    - Evaluation of health services, health system research.

6. **Ecology and Environment**
    - Causes effects and prevention of global warming, natural and man made disasters.

7. **Health needs of special groups**
    - infants, young children and adolescents
    - Women
    - Elderly
    - Tribal populations
    - Migrant and refuge populations
    - Urban and rural poor

8. **Major Health problems in India**
    - Communicable and non-communicable diseases, population problem and its impact, problems of malnutrition, reproductive health problems.

References:

1. Dutt, P.R. (1993); Primary Health Care.Vol.1-3. Gandhi gram Institute of Rural Health and Family Welfare Trust Ambathurai.
2. Manelkar, R.K.(1197); A Textbook of community Health for Nurses, Vora Medical Publication: Mumbai.
3. Park, K. (2000); Essentials of Community Health Nursing. M/S Banarsidas Bhanot; Jabalpur.
4. Park, K. (2000); Textbook of Preventive and Social Medicine. M/S Banarsidas Bhanot; Jabalpur.

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FOOD SCIENCE & CHEMISTRY

Code : Fn 2.3
Credits : 4
Periods/ week : 6
Marks : (80+20 = 100)

Objectives: The Course is designed to:

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

Content:

1. **Water and Food dispersions**

   - Sorption phenomena, types of water, solutions and colligative properties

   - Free and bound water,Water activity and Food spoilage

   - Freezing and Ice structure

   - Colloidal salts, stabilization of colloidal systems, Rheology of food dispersions

   - Gels: Structure, formation, stability, surfactants and emulsifiers

   - Foams: Structure, formation and stabilization.

2. **Polysaccharides, Sugars and Sweeteners**

   - Starch: Structure, gelatinization-Effects,Characteristics of various starches.Modified food starches.

   - Non-starch Polysaccharides: Cellulose, hemicelluloses, pectins, gums, animal polysaccharides.

   - Sugars and Sweeteners: Sugars, syrups, sugar alcohols, potent sweeteners, sugar products, solubility and crystallization, hygroscopicity, colligative properties, textural contributions, fermentation, non-enzymatic browning.

3. **Cereals and Cereals Products**
   - Cereals grains: Structure and Composition
   - Cereal products:
   - Flours and flour quality
   - Extruded foods, breakfast cereals, wheat, bulgur, puffed and flaked cereals.

4. **Fats, Oils and Related products**

   - Sources, composition, effects of composition on fat properties. Functional properties of fat and uses in food preparations. Fat substitutes. Fat deterioration and antioxidants. Radiolysis. Inter – esterification of fats.

5. **Animal products:**

   -Milk and Milk Products**:** Composition**.** Physical and functional properties. Denaturation, Effects of processing and storage.

   - 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. Tenderizers. Meat Products.

- Eggs: Structure and Composition. Changes during storage. Functional properties of eggs, use in cookery. Egg processing. Low cholesterol egg substitutes.

- Fish and Sea Food: Types and Composition, Storage and changes during storage, Changes during processing. By-products and newer products.

6. **Plant products :**

   - Pulses and Legumes**:** Structure, composition, processing, Toxic constituents.

   - Nuts and Oilseeds**:** Composition, Oil extraction and by-products.

   - Protein: Concentrates, hydrolysates and textured vegetable proteins, milk substitutes

   - Fruits and Vegetables: Plant anatomy, gross composition, structural features and activities of living systems. Enzymes in fruits and vegetables. Flavor constituents. Plant phenolics, Pigments. Post harvest changes. Texture of fruits and vegetables. Effects of storage, processing and preservation.

   -Spices and Condiments**:** Composition, flavoring extracts – natural and synthetic.

7. **Processed Foods:**

   - Jams, Jellies, Squashes, Pickles.

   - Beverages: Synthetic and natural, alcoholic and non-alcoholic, carbonated and non-carbonated, coffee, tea, cocoa, Malted drinks.

   - Confectioneries and chocolate products, bakery products, dehydrated products.

   -Traditional Processed Products: Fermented Foods-based on cereals, pulses, fruits / vegetables , vinegar, pickles.

8. **Leavened Products:** Leavening agents, Biologically and chemically leavened products, Batters and dough, Salt and substitutes.

FOOD SCIENCE & CHEMISTRY PRACTICAL

Code : Fn 2.35
Credits : 2
Periods/ week : 4
Marks : (30+20 = 50)

Content:

1. Effect of solutes on boiling point and freezing point of water. Effect of types of water on characteristics of cooked vegetables, pulses and cereals.
2. **Sugar and Jaggery Cookery:** Relative sweetness, solubility and sizes of sugars, stages of sugar cookery, caramelization, crystallization, factors affecting crystal formation.

   Starches, vegetable Gums and cereals: Dextrinization, gelatinization, retrogradation, thickening power. Factors affecting gels. Gluten formation and factors affecting gluten formation
3. **Jams and Jellies:** Pectin content of fruits, role of acid, pectin and sugar in jam and jelly formation. Use of gums as emulsifiers/stabilizers.
4. **Fat and Oils:** Flash point, melting point and smoking point. Role of fats and oils in cookery as: shortening agent, frying medium. Factors affecting fat absorption. Fat crystals. Plasticity of fats. Permanent and semi-permanent emulsions.
5. **Milk and Milk Products:** Scalding, Denaturation. Effect of acid, salt, alkali, sugar, heat, enzymes, polyphenols on milk. Khoa, curd, paneer, cheese (ripened and unripened)
6. **Meat and Poultry:** Methods affecting tenderness of meat, effect of various methods of cooking and ingredients on colour, volume, texture, flavour, aroma and water holding capacity.
7. **Leavened Products:** Fermentation – Use of micro organisms (lactic acid, yeast), steam as an agent, egg as an agent, chemical agents
8. **Beverages:** Factors affecting quality of beverages.

   Frozen Desserts: Factors affecting ice crystal formation. Quality characteristics of frozen desserts.

References:

1. Belitz, H.D. and Grosch, W. (1999) Food Chemistry, Spinger – Verlag, Berlin Heidelberg
2. Damodaran, S. and Parot, A (editors). (1997) Food Proteins and their Application. Marcel Dekker Inc
3. Davis, M.B. Austin, J. and Partidge, D.A. (1991) Vitamin C: Its Chemistry and Biochemistry. The Royal Society of Chemistry T.G. House, Science Park, Cambridge CB 4 4 WF
4. Diehl. J.F. (1995) Safety Irradiated Food Marcel Dekker Inc, New York
5. Friberg, S.E. and Larsson, K.(editors) (1997) Food Emulsions. Marcel dekker, New York
6. Goldberg, I. (ed) (1994) Functional Foods Chapman and Hall, Inc
7. Gunasekaran, s.(ed) (2001) Nondestructive Food Evaluation Marcel Dekker Inc, New York
8. Tombs, M.P. (1991) Biotechnolgoy in the Food Industry PRentics-Hall Inc, India
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17. FAO Food and Nutrition Paper: Manual of Food Quality Control - Parts 14/1 (1979) to 14/8 (1986), FAO of the united Nations Rome.

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FOOD MICROBIOLOGY

Code : Fn 2.4
Credits : 4
Periods/ week : 6
Marks : (80+20=100)

Objectives: The Course will enable the student to:

- Gain deeper knowledge of role of micro-organisms in humans and environment.
- Understand the importance of micro-organisms in food spoilage and to learn advanced techniques used in food preservation.
- Understand the latest procedures adopted in various food operations to prevent food-borne. Disorders and legal aspects involved in these areas.

Content:

1. **Introduction to historical developments** in food preservation, spoilage, infections and legislation.
2. **Micro-organisms of Importance in food:** Their primary sources in foods, morphology, cultural characteristics and biochemical activities.
3. **Factors affecting the growth of microorganisms in food.** Intrinsic and Extrinsic parameters that affect microbial growth.
4. **Methods of Isolation and detection of microorganisms or their products in food**.
   - Conventional methods.
   - Rapid methods (Newer techniques)
   - Immunological methods: Fluorescent, antibody, Radio immunoassay, ELISA etc.
   - Chemical methods: Thermostable nuclear, ATP measurement and PCR (Polymers chain reactions) – only principles in brief.
5. **Spoilage of different groups of foods :** Cereal an dcereal products, vegetables & fruits, meat & meat products, eggs and poultry, fish and other sea foods, milk and milk products, canned food.
6. **Food Preservation:**
   -Physical methods – Drying, freeze drying, Cold storage, heat treatments, Irradiation, High pressure processing.
   -Chemical preservatives and Natural antimicrobial compounds.
   -Biologically based preservation systems and probiotic bacteria.
7. **Food borne diseases:** Bacterial, and viral foods-borne disorders, Food-borne important animal parasites, Mycotoxins.
8. **Indicators of food safety and quality:** Microbiology criteria of foods and their significance. The HACCP system and food safety used in controlling microbiological hazards. Role of microbes in fermented foods and genetically modified foods.

FOOD MICROBIOLOGY PRACTICAL

Code : Fn 2.45
Credits : 2
Periods/ week : 4
Marks : (30+20=50)

Content:

1. **Preparation of common laboratory media and special media** for cultivation of bacteria, yeast & molds.
2. **Staining of Bacteria:** Gram's staining, acid-fast, spore, capsule and flagellar staining , Motility of bacteria, staining of yeast and molds.
3. **Cultivation and Identification of important molds and yeast.** (slides and mold culture) **Isolation of microorganisms:** Different methods and maintenance of cultures of microorganisms
4. **Study of Environment around us as sources of transmission of microorganisms in foods.** Assessment of surface of food preparation units' swab and rinse techniques.
5. **Bacteriological analysis of Foods:** Both processed and unprocessed like vegetables and fruits, cereals, spices and canned foods, using conventional methods, yeast and mold count in foods.
6. **Bacteriological analysis of water and milk,** Total count, MPN Coli form (count) and MBRT, IMVIC etc., To perform various biochemical tests used in identification of commonly found bacteria in foods.
7. **Demonstration of available rapid methods and diagnostic kits used in identification of microorganisms or their products.**
8. **Visits to food processing units.**

References:

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2. Akas, M. Ronald (1995) Principles of Microbiology, I Edn, Mosby-year Book, Inc, Missouri, U.S.A.
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5. Frazier, W.C. (1988) Food Microbiology, Mc Graw Hill Inc. IV Edn.
6. Jay, James, M. (2000) Modern Food Microbiology, VI Edn., Aspen publishers, Inc., Maryland.
7. Banwart, G. (1989) Basic Food Microbiology, II Edn.. CBS Publisher.
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10. Adams, M.R. and M.G. Moss (1995): Food Microbiology, I Edn., New Age intenational (P) Ltd.

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12. Roday, S. (1999) Food Hygiene and sanitation , I Edn.. Tata McGraw Hiolo new Delhi.

13. Venderzat, C. and D.F, Splitts Toesser (1992): Compendium of methods for the Microbiological Examination of Foods III Edn.. American Public health Association, Washington D.C.

Journals

14. Journal of Fooed Science Published by the Institution of Food Technologists, Chicago Lu, U.S.A.

15. Journal of Food Science and Technology published by Association of Food Scientists and Technologists (India) CFTRI-MYSORE

16. Food Technolgoy published by the Institute of Food Technologists, Chicago, U.S.A.

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SENSORY EVALUATION

Code : Fn 3.1
Credits : 4
Periods/ week : 6
Marks : (80+20=100)

Objectives: This course aims to:

- Provide adequate theoretical background and understanding about sensory evaluation of food.
- Enable students to use various sensory methods for evaluating variety of foods.
- Enable students to analyse and interpret sensory evaluation data.

Content:

1. Introduction to sensory analysis and uses of sensory tests.
2. Neural networks in sensory perception.
3. General testing conditions.
4. Selection of test subjects and training of panel.
5. Types of tests:
   - Discrimination/difference test: Paired test, triangle test and duo-trio test; tests for multiple samples, difference from control/ reference.
   - Quantitative Difference Tests: Ranking, Numerical scoring test, magnitude estimation.
   - Descriptive Tests: Rating for sensory profile, consensus profiling, conventional profiling, free choice profiling.
   - Threshold tests
   - Acceptance test: Monadic, paired and sequential monadic.
6. Descriptive analysis, concept alignment and selection of terms.
7. Designing of questionnaire and /or evaluation scoreboard.
8. Experimental design and data analysis. Statistical applications and interpretations.

   Consumer acceptability using sensory evaluation.

SENSORY EVALUATION PRACTICAL

Code : Fn 3.15
Credits : 2
Periods/ week : 4
Marks : (30+20=50)

Content:

1. Establishing sensory panels: Selecting and recruiting panelists, orienting, screening for trained panels, training panelists, monitoring performance. Recognition tests for 4 basic tastes, odour and aroma. Tests with other senses. Threshold tests.
2. Analytical tests: (i) Difference, (ii) Ranking, (iii) Descriptive, (iv) Scoping and (v) Rating
3. Planning a Sensory Experiment: (i) Designing the questionnaire and score card, (ii) Identifying descriptors.
4. Designing Sensory Testing Facilities: Permanent and Temporary
5. Conducting the test
    - Preparing samples
    - Presenting samples
    - Using reference samples
    - Reducing panel response error
    - Consumer oriented tests
    - Product oriented tests
    - Shelf life studies
    - Product matching
    - Product mapping
    - Taint Investigation and Prevention
6. Collecting and analyzing sensory data, statistical analysis, interpretations
7. Report Writing

References

1. Lyon, D.H.: Francombe, M.A., Hasdell, T.A,Lawson, K,(eds) (1992); Guidelines for Sensory Analysis in Food Product Development and Quality control, Capman and Hall, London
2. Amerine, M.A., Pangborn, R.M: Roessler, E.B.(1965): Principles of Sensory Evaluation. Academic Press, New York.
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5. Moskowitz,H.R.(eds) (1987): Food Texture: Instrumental and Sensory Measurement. Marcel Dekker Inc. New York.
6. Lawless, H.T. and Klein, B.P. (1991): Sensory Science Theory and Applications in Foods. Marcel Dekker Inc.
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8. Piggott, J.R. (et) (1988): Sensory Analysis of Foods. Elsevier Applied Science, London.
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10. Moskowitz, H.R. (1983): Product testing and Sensory Evaluation of Foods: Marketing and R & D approaches. Food and Nutrition Press, Connecticut.

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NUTRITIONAL BIOCHEMISTRY

Code : Fn 3.2
Credits : 4
Periods/Week : 6
Marks : (80+20= 100)

Objectives: The course will enable the students to:

- Understand the mechanisms adopted by the human body for regulation of metabolic pathways
- Get an insight into interrelationships between various metabolic pathways
- Become proficient for specialization in nutrition
- Understand integration of cellular level metabolic events to nutritional disorders and imbalances.

Content:

1. **Carbohydrates**: a. Definition, classification, structure and properties of glycoproteins and proteoglycans. **b.** glycolysis, gluconeogenesis, citric acid cycle, hexose monophosphate pathway.
2. **Proteins** – Nature, properties, functions, Structure.
3. **Lipids**- Beta-oxidation, de novo synthesis of fatty acids, synthesis and breakdown of unsaturated fatty acids, cholesterol, phospholipids and triacylglycerol.
4. **Purines and pyrimidines** – Synthesis and breakdown.
5. **Nucleic acids** – DNA replication and transcription, DNA repair systems, DNA recombinant Genetic mutation, regulation of gene expression and protein biosynthesis.
6. **Hormones** – Mechanism of action of hormones.
7. **Minerals** – Biological role of trace elements.
8. **Major alterations in carbohydrates, protein and fat metabolism in chronic nutrition** – related degenerative diseases.

NUTRITIONAL BIOCHEMISTRY PRACTICAL

Code : Fn 3.25
Credits : 2
Periods/Week : 4
Marks : (30+20= 50)

Objectives

This course will enable the students to :

- Understand the principles of biochemical methods used for analysis of food and biological samples.
- Perform biochemical analysis with accuracy and reproducibility.

1. **Calcium** : Estimation of calcium in foods and serum.
2. **Ascorbic acid**: Estimation of ascorbic acid in foods.
3. **Proteins** : a. Estimation of protein in food stuffs.
   b. Estimation of albumin, globulin and albumin/globulin ratio in serum and urine.
   c. Estimation of hemoglobin
4. **Glucose** : Estimation of glucose in blood and urine.
5. **Cholesterol** : Estimation of cholesterol in blood.
6. **Enzyme assay**: Estimation of activity of serum alkaline phosphatase and transaminase
7. **Urea and Creatinine**: Estimation of urea and creatinine in serum and urine.
8. **Study of pathological laboratories**:To obtain information about the methods used for blood/serum analysis

References:

1. Murray, R.K., Granner, D.K.Mayes, P.A. and Rodwell, V.W.(2000): XXV Edn. Harpers Biochemistry. Macmillan Worth Publishers.
2. Nelson, D.L. and Cox, M.M.(2000): III Edn.Lehninger's Principles of Biochemistry, Macmillan Worth Publishers.
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7. Oser, B.L. (1965), Hawk's Physiological Chemistry, XIV Edn. Tata McGraw-Hill Publishing Co. Ltd.
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14. Winton, A.L. and Winton, K.B. (1999), Techniques of Food Analysis. Allied Scientific Publishers: New Delhi.

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MATERNAL AND CHILD NUTRITION

Code : Fn 3.3
Credits : 4
Periods/Week : 6
Marks : (80+20=100)

Objectives: This course is designed to enable the students to:

- Understand physiological changes in pregnancy and lactation.
- Get acquainted with growth and development changes from conception till adolescence.
- Understand the inter-relationship between nutrition and growth and development during life cycle.

Content:

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 gestational 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, lactational amenorrhea, effect of breast feeding on maternal health
   - Human milk composition and factors affecting breastfeeding and fertility
   - Management of lactation – Prenatal breastfeeding skill education. Rooming in, problems – sore nipples, engorged breast, inverted nipples etc.
   - Exclusive breastfeeding
   - Baby friendly hospitals initiative
   - Breast feeding in the age of AIDS
5. Infant physiology and the preterm and LBW infants: Implications for feeding and management. Growth and development during infancy, childhood and adolescence. Feeding of infants and children and dietary management
6. Malnutrition in mothers and children: etiology and management (in brief)
7. Concept of small family, methods of family – planning, merits and demerits.
8. Policies and programmes for promoting maternal and child nutrition and health.

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MATERNAL AND CHILD NUTRITION PRACTICAL

Code : Fn 3.35
Credits : 2
Periods/Week : 4
Marks : (30+20=50)

CONTENTS:

1. Planning and preparation of diets for pregnant women belonging to different income groups.
2. Planning and preparation of diets for lactating women belonging to different income groups.
3. Choosing a formula – Sterilizing the bottle and nipples – preparation of formula – Powdered and liquid.
4. Study and critical analysis of food & nutrition related practices related to pregnancy and lactation in the local area.
5. Study of the existing breast feeding and complementary feeding practices
6. Planning and preparation of foods for weaning children. Cost and nutrient analysis of homemade and commercial weaning foods.
7. Study of commercial feeding foods available in local market. .
8. Assessment of Growth – use of anthropometric measurements. Use of growth chart to measure growth chart.

Reference:

1. International Food Policy Research Institute (1997). Care and Nutrition: Concepts and Measurement. International Food Policy Research Institute Washington D.C., USA.
2. International Child Health: A Digest of Current Information.
3. Barker, D.J.P. (1998). Mothers, Babies and Health in Later Life. Edinburgh, Churchill Livingstone.
4. Ward R.H.T; Smith, S.K.; Donnai, D. (Eds) (1994) Early Fetal Growth and Development. London, RCOG Press.
5. Sachdev, H.P.S. and Choudhary, P. (1995). Nutrition in Children – Developing Country Concerns. Cambridge Press. New Delhi.
6. King, F.S. (1992). Helping Mothers to Breastfeed. Association for Consumers Action on Safety and Health, Mumbai.
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DIETETICS

Code : Fn 3.4
Credits : 4
Hours/Week: 6
Marks : (80+20 = 100)

Objectives: The Course will enable the students to:

- Understand the Biochemical and Physiological impairments in diseases
- Understand the role of Nutrition for good health
- Obtain knowledge of dietary factors and dietary management of various diseases
- Develop capacity and attitude for taking up dietetics as a profession

Content:

1. Principles of clinical nutrition and nutritional assessment

- Introduction, nutrient requirements
- Assessment of nutritional status in clinical situations – clinical, anthropometric, biochemical indices, and immunological assessment
- Development of nutrition care plan
- Role of clinical dietician in the hospital
- Factors to be considered for counseling – Nutritional and health conditions including body care – skin, hair, face, hands, feet etc. Aging, gender related and other problems
- Nutrition counseling components – planning, implementation and evaluation

2. The heart and the blood vessels – Reviews. Path physiology, etiology, symptoms, dietary factors and dietary Management of

- Atherosclerosis
- Dietary lipids and coronary heart disease
- Blood lipid profile and CHD
- CHD
- Hypertension
- Congestive heart failure
- Cardiac cachexia

3. Metabolic disorder - Etiology, patho-physiology, symptoms and medical nutrition management

a. Metabolic syndrome (Syndrome X)
b. Diabetes mellitus- Types, diagnostic tests, treatment and complications.
- NIDDM – diagnostic tests and oral hypoglycaemic drugs
- IDDM – types of insulin and insulin therapy
c. Gout
d. Dislipidemia
e. Inborn errors of metabolism
- Lactose intolerance ,PhenylKetonuria(PKV), Maple syrup urine disease , Galactosemia

4. Renal diseases

   Clinical significance of Protein concentration in blood. Changes in blood and urine composition in renal disorders. Renal function tests.Laboratory tests
   Diagnosis of renal disorders. Etiology, pathophysiology and medical nutrition therapy in renal disorders.

   - Progressive nature of renal disease, end stage renal disease
   - Glomerulonephritis
   - Nephrosis
   - Artificial Kidney- Principles of dialysis, types of dialysis
   - Renal Calculi

5. Diseases of Liver, Gall Bladder and Pancreas
   Functional capacity of liver in normal and diseased conditions – Liver function Tests. Bilirubin and liver function, clinical significance of altered Bilirubin levels, ammonia and liver. Etiology, pathophysiology, symptoms and medical nutrition therapy of

   - Acute viral hepatitis
   - Chronic hepatitis
   - Alcoholic liver disease
   - Non alcoholic fatty liver disease
   - Inherited disorders-Wilson's disease, hemochromatosis
   - Liver cirrhosis

6. Disorders of Gall Bladder and Pancreas – Etilogy, pathophysiology, symptoms Pancreas function tests and medical nutrition therapy of

   - Gall bladder: Cholecystitis, cholengitis and cholestasis
   - Pancreas – pancreatitis

7. Nutrient drug interaction - Food nutrient - drug interaction effect of food intake on absorption, metabolism, excretion of drug and effect of drug on absorption, metabolism and excretion of nutrients.

8. Etiopathophysiology, Metabolic & Clinical aberrations, complications, prevention and nutrition management of

   - Cancer
   - Neurological disorders
   - Infection & AIDS
   - Musculo - skeletal disorders

DIETETICS PRACTICAL

Code : Fn 3.45
Credits : 4
Hours/Week: 2
Marks : (30+20 = 80)

Content:

1. Assessment of nutritional status including Body Composition
2. Physiological parameters like heart rate and blood pressure
3. Assessment of coronary risk profile-RISKO factor
4. Assessment of bone health
5. Planning diets and formulating dietary guidelines for:
    - Fitness and health
    - Prevention of chronic degenerative disorders
    - Obesity management
    - Management of diabetes mellitus and CVD
6. Review of existing alternative diet related systems for physical fitness and health.
7. Case studies
8. Nutritional Management in critical care.

References:

1. Krause. M.V. And Mahan, L.K. Food, Nutrition And Diet Therapy, VI Edn: W.B. Saunders company, Philadelphia, 2004.
2. Sri Lakshmi. V. Dietetics New Age International Private Ltd., New Delhi, 2007
3. David A, Bender .Introduction to Nutrition and Metabolism, Fourth Edition,
4. Michael J. Gibney, lan A. Macdonald and Helen M. Roche. Nutrition and Metabolism,
5. Shills, M.E., Olson, J.A., Shike, M, and Ross, A.C. (1999): Modern Nutrition in Health and Disease, IX Edn, Williams and Wilkins.
6. Williams, S.R.(1993): Nutrition and Diet Therapy, VII Edn Times Mirror/Mosby College Publishing.
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13. Walker , W.A. and Watkins ,J.B. (Ed) (1985) : Nutrition in Pediatrics , Boson , Little , Brown & Co
14. Guyton , A.C. (1990) : Boyd's Textbook of Pathology, IX Edn, Lea and Febiger, Philadelphia.
15. Fauci, S.A. et al (1998) : Harrison's principles of internal Medicine, XIV Edn,McGraw Hill Publishers: New York.

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CURRENT TRENDS AND ISSUES IN FOODS & NUTRITION

Code : Fn 4.1
Credits : 4
Hours/Week: 6
Marks : (80+20 = 100)

Objectives : -

- To create awareness regarding current trends, issues and regarding current trends, issues and regarding current trends, issues and researches in various aspects of foods and nutrition.
- To debate on various emerging areas of studies and research needs for nutrition.

Contents: -

1. Magnitude and prevalence of Malnutrition
2. Nutrition impact on AIDs affected.
3. Emerging trends in Nutrition and Dietetics
4. Role of nutritionists in Public health nutrition.
5. New initiatives in nutrition research
6. Public health and Nutrition Programmes
7. Online Nutrition initiatives
8. Global Players in Nutrition.

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INTERNSHIP

Code : Fn 4.25
Credits : 4
Periods/ week : 8
Marks : (50+100=150)

The student will be required to undergo an internship/field placement for a total duration of 6 - 8 weeks in their chosen area of interest which will facilitate their pursuing a professional career in the same field. This program could be taken up either as a single block or in two different blocks. It is mandatory that the organization/institutions (public/private) participating in the field placement programme be of good professional standing. The list could include hospitals, state run/NGO administered public nutrition programmes, food industry etc. the students will be required to submit and present a report of the internship/ field placement project after its completion. It is also envisaged that the participating organization/institution will give their performance appraisal of the students work.

This programme is designed with the following objectives:

1. To enable the students to acquire an in-depth understanding of the practical aspects of knowledge and skills acquired during the course work in the relevant subject/Subjects.
2. To gain hands on experience for higher proficiency in their selected area of expertise.
3. To help the students to develop and have their analytical abilities for situation analysis and bringing about improvements.

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M.Sc. Home Science
2018-19
Specialization- Interior Design & Resource Management

St. Joseph's College for Women
Visakhapatnam

Interior Design & Resource Management

INTERIOR DESIGN & RESOURCE MANAGEMENT

Programme Code	Programme Name
Idrm1.1	Research Methodology & Statistics
Idrm1.15	Research Methodology & Statistics Practical
Idrm1.2	Computer applications
Idrm1.25	Computer applications Practical
Idrm1.3	Housing
Idrm1.4	Household Equipment
Idrm2.1	Communication Technology
Idrm2.15	Communication Technology Practical
Idrm2.2	Landscaping
Idrm2.25	Landscaping practical
Idrm2.3	Residential Interior Design
Idrm2.35	Residential Interior Design Practical
drm2.4	Ergonomics
Idrm2.45	Ergonomics Practical
Idrm 3.1	Theory of Managment
Idrm 3.2	Consumer Economics
Idrm 3.25	Internship / Field Placement Project
Idrm 3.3	Commercial Interior Space Design
Idrm 3.35	Commercial Interior Space Design Practical
Idrm 3.4	Computer Aided Design
Idrm 3.45	Computer Aided Design Practical
Idrm 4.1	Current Trends In Interior Design & Resource Management
Idrm 4.15	Internship/ Field Placement Project

RESEARCH METHODOLOGY AND STATISTICS

Code : Idrm 1.1
Credits : 4
Periods / Week : 6
Marks : (80+20=100)

OBJECTIVES: To enable the students to **-**

- understand the significance of statistics and research methodology in Home Science research.
- identify the types, tools and methods of research and develop the ability to construct data gathering instruments appropriate to the research design.
- apply the appropriate statistical technique for the measurement of scale and design.

CONTENTS:

1. Science, scientific methods, scientific approach.
2. Role of statistics and research in Home Science. 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 a Research Problem - 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 stages and multistage sampling, cluster sampling. Non – Probability sampling: purposive, quota and volunteer sampling/snowball sampling
7. Basic principles and Purpose of research design- Fundamental, applied and action exploratory and descriptive experimental, survey and case study, ex – post facto' Longitudinal and cross sectional

   - Qualitative Research Methods: - Theory and design in qualitative research

   Definition and types of qualitative research - Methods and techniques of data collection - Observation, questionnaire, interview, scaling methods, case study, home visits, reliability and validity of measuring instruments
8. Classification & tabulation of data - Measures of central tendency Measures of variation - Testing of Hypothesis - Parametric & Non-parametric tests, chi-square test, correlation ANOVA.

RESEARCH METHODOLOGY AND STATISTICS PRACTICAL

Code : Idrm 1.15
Credits : 2
Periods / Week : 4
Marks : (30+20=50)

CONTENT :

1. Developing Research Design
2. Observation, questionnaire, interview, scaling methods, case study, home visits, reliability and validity of measuring instruments
3. Plotting of Frequency Distribution : line, bar, pie, frequency polygon
4. Plotting Histogram
5. Computation of mean, median and mode for ungrouped and grouped frequency distribution
6. Computation of variance, standard deviation, mean deviation
7. Moments, quartiles, skewness and kurtosis of frequency distribution
8. Parametric & Non- parametric tests, chi-square test, t test, correlation ANOVA. Calculating correlation coefficient from ungrouped and grouped data

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 Sciences, Agri. Cole Publishing academy, New Delhi.
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5. Long; J.S. (Ed) (1988): Common Problems Proper Solutions: Avoiding Errors in Quantitative Research, Beverly Hills, Sage Publications, California.
6. Mukherjee, R. (1989): The Quality of Life: Valuation in Social Research, Sage Publications, New Delhi.
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COMPUTER APPLICATIONS

Code : Idrm 1.2
Credits : 4
Periods/Week: 6
Marks : (80+20=100)

Objectives : To enable the students to –

- Acquire knowledge about computer fundamentals.
- Learn and use the applications of MS office
- Apply the skills learnt to situations in Home Science.

Content:

1. **Review Windows :**
   Desktop settings and creating shortcuts. Start menu, How to launch programs using start menu. Recycle bin, task bar, Windows accessories M.S.WORD 2003: Creating , saving and closing a document . Opening an existing document. Page set up . Spell check. Tables. Selecting in tables. Modifying table structure. Edition text. Text formatting Headers and footers. Bullets and numbering. Borders and shading . Auto correct Auto text. Creating styles. Columns. Printing in 2003.

2. **MS EXCEL 2003 :**
   Starting. Parts of Excel Screen. Quitting Excel. Selecting a cell. Entering data in a cell, Editing, clearing and formatting data in a cell. Inserting and deleting rows and columns, charts, Formulae and simple statistical applications.

3. **MS POWERPOINT 2003 :**
   Starting & Quitting PowerPoint. Creating of Presentation. Use of design templates, slide show. Inserting clip art. Application of special effects setting up a slide show.

4. **Page Maker**
   PageMaker Basics, Working with a publication, The Drawing tools, The text tools, Importing Graphics, Transformations, Utilities, working with large amounts of text, The story editor.

5. **CorelDraw :**
   CorelDraw Concepts, Exploring the work area , drawing & shaping , working with text, using writing tools blending, exporting, distorting, importing, exporting & ole.

6. **ILLUSTRATOR**
   Using the Illustrator tools, using selection tools, Gradients, Brushes . Applying transformations over objects, using layers, applying filters.

7. **Photoshop**
   Tools – Painting, Editing, Selection, Filters, Layers, Working with type – paths

8. HTML

Understanding HTML, Creating a web page, publishing HTML, Pages , Text alignment & lists, text formatting & font control, Creating HTML forms, creating web page graphics, putting graphics on a web page, custom background & color.

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COMPUTER APPLICATIONS PRACTICAL

Code : Idrm 1.25
Credits : 2
Periods/Week: 4
Marks : (30+20=50)

Contents :

Application of each of the following units in Homescience related areas

1. **Creating a Word document on Homescience topic**
2. **MS EXCEL 2003**
3. **MS POWERPOINT 2003 :**
4. **Page Maker**
5. **CorelDraw :**
6. **ILLUSTRATOR**
7. **Photoshop**
8. **HTML -** Creating a web page

References:

1. Peter Norton, Introduction to Computers, Sixth edition, TAta McGraw Hill (2007)
2. Fundamentals of Computers, IV Edn V Rajaraman Prentice – Hall of Indias Limited, New Delhi.()
3. Computer fundamentals by A Lexix Leon and Mathews Leon, Leon – Tech World , New York 1999
4. Ron Mansfield, Workin in Microsoft Office Tata McGraw Hill (2008)
5. Adobe Pagemaker (Training Guide) – By Shashank Jain and satish Jain, BPB Publications, 2001
6. CorelDraw 9 (Training Guide) – By Manohar Lotia & Shailesh Tank, BPB Publications, 2001
7. Adobe Illustrator in 24 hours Mordy Golding (Tech Media)
8. Photoshop 7.0 in easy steps – Robert Shuffle Botham, Dream Tech, 2003

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HOUSING

Code : Idrm 1.3
Credits : 4
Periods/ Week : 6
Max Marks : (80+20=100)

Objectives: To enable the students to **-**

- Recognize the role of Housing for natural development
- Be aware of Housing standards, Legislation and Cost estimation for House construction
- To understand recent developments in Household equipment design and technology

Content:

1. Introduction to Housing
Brief History
Trends in Housing – Present housing conditions in India

2. Factors affecting Housing – Socio demographic and other factors.
Types of Housing

3. Advantages and disadvantages of Material s used in construction of
a). Foundation
b). Ceiling and Walls
c). Flooring
d). Doors and Windows
e). Services: -
- Lighting and Electricals
- Plumbing and Sanitation
- Air conditioner and Accessories

4. Residential architecture designs for various lifestyles, Principles of house planning

5. Analysis of Housing Design

6. Housing Standards and Legislation
- Building Codes
- Floor Space Index
- Role of Civic authorities in Housing (BDA, BWSSB, BESCOM, BBMC etc.)

7. Cost Estimation for House Construction
Estimating and Costing in relation to land price and construction
Factors influencing cost and sources of Financial assistance

8. Housing Research – Agencies for research & design methods & technologies.

References:

1. Ambedkar V.N. and Modak N.V. (1971): Town & Country Planning and Housing. Orient Longman.
2. Deshpande R.S. (1974): Modern Ideal Homes for India. United Book Corporation
3. Faulkner S. (1979): Planning a House. Holt, Richard & Winson
4. George D. (1981): How to be your own Electrician. Saence Stalll Book, Harper and Row
5. Graham L. (1981): Lighting your Home. Wills and Boons Ltd.
6. Rangawala S. (1971): Town Planning. Charotar Book Stall, Anand
7. Publications of Housing Boards, NBO, ISI, HUCPO, etc.
8. Chudley R. (1985): Construction Technology, Vol 1to 5.
9. Chaira J.D and Calendar J.H. (1980): Time Saver Standard for Building Types. Mc. Graw Hill, New York.
10. Anderson E. & Andels P. (1976): Home Appliances Servicing. Taraporewala Sons and CO. Ltd., Bombay.
11. Varghese M.A. et al (1985): Household Equipment Manual. S.N. D.T. Women's University, Mumbai.

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Household Equipment

Code : Idrm 1.4
Credits : 4
Periods/week : 6
Marks : (80+20 =100)

Objectives – To enable to students to

- understand the recent developments in household equipment design and technology
- study the construction and finishes in various appliances
- understand the installation, operating, servicing and replacement of parts of various equipments.
- recognise the importance of standards and its benefits.
- acquire the proficiency in testing of various equipment (electrical and non - electrical)

Content:

Unit – I: **a. Basics of electricity**

- Power source, voltage, resistance, current
- Series/parallel circuits
- AC/Dc sources

b. Electrical materials

- conductors
- semi conductors
- insulators

Unit – II **Factors Affecting Choice & Purchase of equipment**

Selection, design, operational features, care and storage of

commonly used equipment.

a) Kitchen utensils and gadgets – mixers, kettles, toasters, food processor, wet grinder and refrigerator
b) Water heaters, vacuum cleaner and filters.
c) Hay box, *Smokeless Chula*, *Janata* fridge, Solar Cooker
d) Stoves – different types of fuels, measures n energy management.

Unit – III: **Basic components in an Appliance**

- mains cord
- switches – power/mode/speed selection
- plugs and sockets
- controls – thermostats

- interlock
- light. bulbs
- indicators – incandescent/neon/LCD
- heating elements
- solenoids – resistors/capacitor/diodes.
- small electronic components
- Motors – universal/induction/DC/timing.
- Fans and blowers – bladed/centrifugal
- Bearing & Bushings
- Mechanical controllers – Time motors/cam switches
- Batteries – Alkaline/lithium/lead acid etc.

Unit – IV: Product testing for quality.

a. Need for testing

   Institutions offering test facilities –

   BIS,IDEMI, RTC, ERTL, PTH, NTH Etc.

b. Types of test – safety test, environmentl/ test physical test/Electrical endurance and performance test.

c. Equipments required for testing of electrical appliances.

Unit – V: Safety of household appliances

a. Definition of safety - "safety technology"

   Classification of safety – Inherent technical safety, Operational safety/ Actual safety.

b. Electrical shock and its prevention

   - What is an electric shock
   - Potential sources of electrical shock
   - Causes of electrical shock
   - Factors determining the severity of electric shock.
   - Protection against electric shock.

Unit: VI Laws and regulations governing appliances

a. Household electrical appliance (Quality Control Order) 1981.

   The electrical wires; cables appliances and accessories (Quality control) Order 1993. Essential commodities act of 1955.

   Consumer protection act.

   Indian Electricity Act-

b. CE and BIS marking

   Meaning of CE marking and its importance.

Certificate Board scheme – its meaning and importance.

Standards on electrical appliances.

BIS marking scheme.

c. Errors in measurement:

Gross error, systematic error, random error.

d. Calibration and its need

Unit: VII **Recent development and new technology in household equipment**.

Unit VIII **Evaluation of electrical and motor appliances** in terms of speed, control, performance, time and energy saving features, noise produced etc.

References:

1. Avery, M.(1955): Household Physics, MacMillan Co, New York
2. Allison, A.(1966): Running your Home and Equipment: Design for Living, Series No. 6, Mills and Boon Ltd., London.
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4. Ehrencram and Inman, (1966): Equipment in the House, Geriatric Specialist, Harps Row Publishers, New York.
5. Johnson B.J. (1970): Equipment for Modern Living MacMillan Co, New York.
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7. Peet, L.J., and Yong, H.(1958): Home Makers Equipment Guide, lowa State University Press, Ames.
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9. Wileland, L.H.L: At work in the Kitchen, II Edn, D. Van Nostrand Co. Inc., New York
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11. Adams, J.T.(1981): How to Buy and Maintain Home Systems and appliances, Arco Publishers Inc., New York.
12. Anderson, E., Andels, P.(1976): Home Appliances Servicing, Taraporewala Sons & Co. Ltd., Bombay.
13. NCERT(1987): Exemplor Instructional Material for Pre vocational course under work experiences on repair and maintenance of household electrical appliances – Instructional Cum Practical Manual classes IX & X, NCERT, New Delhi.
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COMMUNICATION TECHNOLOGY

Code : Idrm 2.1
Credits : 4
Periods/week : 6
Marks : (80+20=100)

Objectives – To enable to students to

- understand the vital aspects of communication and various Audio and visual media and their use
- identify the new communication technologies and their use.
- Develop skills in developing and using different communication technologies for various presentations.

Contents:

1. **Communication Systems**
   - Types of Communication systems – concept, functions and significance.
   - Elements, characteristics and scope of mass communications.
2. **Communication Types**
   - Mass communication – models and theories; role of gatekeepers and opinion leaders.
   - Visual communication–elements of visual design– colour, line, form,texture and space;
   - Principles of visual design – rhythm, harmony, proportion, balance and emphasis.
   - Visual composition and editing.
3. **Media Systems: Trends and Techniques**
   - Concept, scope and relevance of media in society.
   - Functions reach and influence of media.
   - Media scence in India, issues in reaching out to target groups.
   - Contemporary issues in media – women and media, human rights and media, consumerism and media
   - Historical background: nature, characteristics, advantages and limitations and future prospects of media.
4. **Media types:**
   - Traditional media: role on enhancing cultural heritage, co-existence with modern media systems and applicability in education and entertainment – puppetry, folk songs, folk theatre, fairs.
   - Print media: books, newspapers, magazines leaflets and pamphlets.
   - Electronic media – radio, television, video, computer based technologies.
   - Outdoor media; exhibition, fairs and kiosks.
   - Media planning and scheduling, selection of media on the basis of suitability, reach, impact, frequency and cost.

- Introduction to ethics in mass media, freedom of speech, expression and social responsibility.

5. Advertising

- Definition, concept and role of advertising in modern making system and national economy.
- Inter-relation of advertising and mass media system.
- Types of advertisements-commercial, primary demand, selective demand, classified and display advertising, comparative and co-operative advertising.
- Techniques of preparation of effective advertisements for various media.
- Ethics in advertising.

6. Computer Graphic Designing

- Introduction to Basics of Computers.
- Concepts of multimedia
- Multimedia Applications.
- Advantages of Digital Multimedia.
- Multimedia System.

7. Animation and Graphics -I

- Animation and Graphic using 3D Studio or such other packages, Introduction to Graphic Drawing objects, shaping, transforming, stretching, mirror and scaling, making curves, lines rectangles, circles and ellipses. Creating special effects, adding perspective to an object, editing it, extruding an object and using blends.

Introduction to Scanning.Scanning and developing Color Ways-Basic

8. Animation and Graphics -II

Introduction to Animation using 3D Studio, Key framing and motion control.
Basic of 3D modelling, transition from 2D space to 3D space.
3D shaping and rendering.
International media – email, internet, teleconferencing, video conferencing,
Video displayer, CD ROM writer, Microphone, LCD Projector,
Video disc technology, virtual reality.

COMMUNICATION TECHNOLOGY PRACTICAL

Code : Idrm 2.15
Credits : 2
Periods/Week: 4
Marks : (30+20=50)

Content:

1. Designing a visual composition-book cover, or Folder with the help of computers.
2. Evaluation of advertising, a newspaper story, a radio programme and a television broadcast.
3. Planning, development and evaluation of Communication strategies and techniques for selected traditional, print electronic and outdoor media systems.
4. Preparing effective advertisements keeping in Consideration headlines, illustration, slogan, logo, seal of approval and colour effectiveness with the help of computer.
5. Individual Project on 3D Studio max. (animation).

References:

1. Curran,J.et al(1997): Mass communication and Society, London.
2. Banerjee(Eds) (1985) Culture and Communication, Paroit Publishers, Delhi.
3. Ruloof, M.E. and Miller, G.R.(Eds) (1987): Interpersonal Process; New Directions in Communication Research, Sage, USA.
4. Chatterjee, P.C.(1988): Broadcasting in India, New Delhi, Sage Publication.
5. Berger, C.R. and Chafee, S.(Eds)(1987): Handbook of Communication Science, Sage Publications, New Delhi.
6. Brown, J., Lewis, R. and Harcleroad, F. (1985): All Instruction: Technology Media and Methods, McGraw Hill; New Delhi.
7. Ellington, H.(1985): A Handbook of Educational Technology, Kogan Page, London.
8. Nair, R. (1993): Perspective in Development Communication, Sage Publications, New Delhi.
9. Nair, K.S. and White, Shirley (1993): Perspective on development Communication, Sage Publications, New Delhi.
10. Narula, U.(1994): Development Communication, Haran & Publications.
11. Sandllio, K. Problems of Communication in Developing Countries - Vision Books.

LANDSCAPING

Code : Idrm 2.2
Credits : 4
Periods / Week : 6
Marks : (80+20= 100)

OBJECTIVES: To enable the students to

- Understand the Landscape designing and its appropriate application.
- Become familiar with the various materials related to landscaping.

CONTENTS:

Unit I Introduction of Landscaping from Interior Space Design. Point of View. Historical references of Landscape.

Unit II Location & Orientation. Land Profile. Soil types. Climatic Condition. Availability of Water Sources.

Unit III Drainage

a. Storm Water drains
b. Troughs Potted Plants
c. Rain Water from terrace
d. Waterproofing & Checking the strength of terrace Salab for terrace garden

Unit IV Understanding of various materials for paving, walk etc (Stone masonry, Brick masonry) Fencing, to entrance gate and other gates.

Unit V Tree guards Sit-outs. Garden Furniture.

- Open frame Sheds for semi- Shady plants.
- Green House.
- Gazebo.
- Pedestals, monuments, statues, accessories etc.
- Pergolas in various materials.

Unit VI Study of Indoor & Outdoor Plant Species. (Natural/ Artificial).

Unit VII Variety of Shrubs, Creepers, grass etc. (Naturall/ artifical).

Unit VIII Water Bodies – Natural & Artificial

REFERENCES

1. Cedric Crocker – All about Landscaping – Ortho Books.
2. Conran Terence (1994) The House Book (II Edn) Mitchell Beasley.
3. Taschen – Garden architecture in Europe – ISBN.
4. Lemer J.M.- The complete Home Landscape Designer.
5. Paul Authory – Garden Design, Coilins , Llinois

6. Cox J. and Cox, M. (1985) – The Perennial Garden: Colour Harmonies through the Seasons, Main Street, Emmans, Rodale, Pr.Inc.
7. Conran Terence (1995): Eco-interions, John Wiley and Sons, New Yark
8. Basin Germaine (1999): Paradises – The Art of Garden, Artillery House, London
9. Sunset Books (19*2) How to Build Walks, Walls and Patio Floors, Lane Publishing Co, California.
10. Sunset Books (1982) Garden and Patio Building Book, Lane Publishing Co, California.
11. Sunset Books (1982) Garden and Patio Building Book Lane Publishing Co, California
12. Siraskar, K.A. (1972): Acoustics in Building Design, Orient Longman Ltd, New Delhi.
13. Ching F.D.K.(1943): Interior Design – Van Nostrand Reinhold :New York.

LANDSCAPING PRACTICAL

Code : Idrm 2.25
Credits : 2
Periods / Week : 4
Marks : (30+20= 100)

1. Study of different types of gardens.
2. Study of plants suitable for indoor potting.
3. Study of plants suitable for outdoor potting.
4. Study of garden furniture.
5. Study of garden house design.
6. Study of garden accessories.
7. Designing a landscape layout for a public building.
8. Designing a landscape layout for a children's park.
9. Designing a landscape layout for a residential building.

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RESIDENTIAL INTERIOR DESIGN

Code : Idrm 2.3
Credits : 4
Periods/week : 6
Marks : (80+20 =100)

OBJECTIVES – To enable the students to

- Understand and apply the principles of design and color in interiors
- Identify & arrange furniture needed for various living area of a home
- Identify & average furnishings for various living area

CONTENT:

Unit I: Introduction to Interior Design – Interior design and decoration in India – Importance and goals, History; contemporary trends in interior design and decoration.

Unit II: Design in everyday life – Classification, Structural and Decorative, requirements, Design modification – application to different design requirements (textile, interior, furniture)

Unit III: Elements of Design - Line, Shape, Size, Texture, Direction, Color and Value – Use and Application in design.

Unit IV: Principles of Design – Harmony, Balance, proportion, Rhythm and Emphasis – Concept and methods of achieving.
Application of Principles of Design in Interior Design, Exterior Design and Flower Arrangement.

Unit V
a) Color – in various disciplines; properties of color – hue, value and intensity. Color theories – Prang and Munsell.
b) Color Harmonies – Related and Complementary; Application in Interior and Exterior Design and Decoration.

Unit VI Home Furniture – Styles – traditional, modern and contemporary; Factors influencing selection of furniture; classification and use in interior and exterior decoration.

Unit VII Furnishings – Classification, importance, Floor Coverings – classification, Factors influencing selection of furnishings. Window Treatment – Types of windows, window treatments – hard and soft, Types of curtains and draperies, fixtures, fabrics for window treatments.

Unit VIII Accessories – Types, selection and arrangement
Flower Arrangements – Importance and objectives; classification – styles, types, shapes; materials for flower arrangement, care of cut flowers

RESIDENTIAL INTERIOR DESIGN PRACTICAL

Code : Idrm 2.35
Credits : 2
Periods/week : 4
Marks : (30+20 =50)

CONTENT:

Unit I Sketching Interiors & Exteriors to understand and apply various principles of design.

Unit II Colours

i. Color – Primary, Binary, Tertiary, Quaternary, Neutral.
ii. Color – Value and Intensity Scales.
iii. Color harmonies – Related – mono, analogous.
iv. Color Harmonies – Complementary – simple, double, split, triad.

Unit III Furniture Arrangements – Sketching and real life – drawing, dining, living, bed, kitchen

Unit IV Furnishings – Preparation of sample/mood boards to show selection of furnishing for drawing dining, living, bed & kitchen

Unit V Window Treatment – with sheer/ voile material – curtains and/ or draperies and/or valances.

Unit VI Market Survey – Availability of furniture and furnishings in local market.

Unit VII Planning for furniture and furnishing budget for and independent house/ apartment.

Unit VIII Field Visits to different types of interiors – at least 3.

REFERENCES

1. Alexander, N.J., Mercoust Brace (1972): Designing Interior Environment. Havanovich Inc.
2. Bali, Victoria K 1655 (1980): The Art of Interior Design. Mc Millan & Co. New York.
3. Bhatt. P.D., Goenka S. (1990): Foundation of Arts Design, Lakhari Book Depot. Bombay
4. Butler Mrgaret G.E. Greaks Benyl S. (1980): Fabric Furnishing, E.T. Badsford Ltd., London.
5. Chudley, R. (1978): Construction Technology Vol.1-2 I-IBS Long Man Ltd., New York.
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7. Gustafsan Karen and Yes Robert (1983): Corporate Design, Thomas and Hudson, London
8. Grandjean Ettiens(1978): Erogonomics of the Home, Taylors and Fracis Ltd., London
9. Grandjean Ettiens (1979): Human Dimensions and Interior Space Whitney, New York
10. Laoch, Sid Del Har, Techniques of Interior Design, Rendering and Presentation, McGraw Hill, New York.
11. Leinbac (1986): Visualisation Techniques, McMillan (Prentice Hall), New Jersey.
12. Encyclopaedia of Interior Design.

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ERGONOMICS

CODE : Idrm 2.4
Credits : 4
Periods/week : 6
Marks : (80+20=100)

OBJECTIVES : To enable the students to -

- Develop skills of time, energy and effort management
- become aware of the role of ergonomics in improving work effectiveness and efficiency
- Understand the environmental factors contributing to productivity, safety, control and well-being of individual performing the work.

CONTENTS

Unit I Ergonomics

- Scope of ergonomics in home and other occupations.
- Nature of work in household and other occupations.

Unit II Interdisciplinary and applied nature of ergonomics as a field of study. Man-Machine – Environment system.

Unit III Physiological Aspects of work. Structure and Function of the muscles. Biochemistry of muscle work. Physiological factors involved in muscular work. Static and dynamic muscular effort. Energy requirement for muscular work and efficiency. Energy expenditure for different activities.

Dynamometer. Skill. Maximal work.Speed. Factors affecting physiological doing work. Workload and Posture

Unit IV Fatigue - physiological & Psychological ;how to avoid fatigue Management of time, energy & effect.

Unit V Anthropometry and Biomechanics

- ✓ Definition, scope
- ✓ Human body as a system of levers
- ✓ Identification and analysis of postures
- ✓ Effect of wrong postures on cardio-vascular and muscular system .
- ✓ Correct techniques of lifting and carrying weights
- ✓ Principles of motion economy
- ✓ Design application of Anthropometry
- ✓ Work centers
- ✓ Equipments and Tools
- ✓ Other items of concern/protective use.

Unit VI Environment

- ✓ Physical
  - ➢ Heat
    - . Thermal regulation of the body at rest and during work
    - . Thermal balance
    - . Factors responsible for exchange of heat between body and Surrounding environment.
    - . Heat stress
    - . Thermal comfort
  - ➢ Noise-Music
    Effect of noise, music on productivity and well-being
    Vibrations and its effect on body parts during work with vibrating tools
  - ➢ Lighting and Colour
- ✓ Atmospheric Pollution
- ✓ Psycho-social Environment

Unit VII Engineering Psychology

- ▪ Man-Machine system
- ▪ Behavioural and Motivational Factors

Unit VIII Ergonomic consideration for the physically challenged

ERGONOMICS PRACTICAL

Code : Idrm 2.45
Credits : 2
Periods/ week : 4
Marks : (30+20 = 50)

CONTENTS

I. Use of instruments employed in ergonomics research

- Treadmill, step-stool
- Heart rate monitor, Oxylog, ECG, Lung function test.
- Noise level meter, thermal, environment kit, illuminometer..
- Skin thermometer
- Midget impinger
- Sphygmomanometer
- Height & weight measuring instruments
- Heart rate and oxygen consumption
- Stop watch

II. Determination of workload using heart rate and oxygen consumption

- Treadmill
- Bicycle ergometer
- Step stool

III. Determination of workload of some selected household activities by using

- Pulse rate techniques
- Time and motion study
- Physiological cost
- Energy cost
- Cardiac cost
- Temporal cost

IV. Postures- Identifying the types of postures assumed by women during work, analysis & interpretation to risks.

V. **Determination of job** stress and work by survey of a few selected families.

VI. **Assessment of heat stress** & interpretation of results.

VII. **Determination of some selected body dimensions** using anthropometry kit, statistical analysis of the data and interpretation of findings.

VIII. Determining the relationships of anthropometric dimensions of workers with space requirements for some selected activities. eg., cooking, chopping, grinding on platform.

REFERENCES:

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22. Jordan, P.W. (2001): Pleasure with Products: Taylor & Francis, London.
23. Norris, B. and Wilson, J.R.(2001): designing Safety into Products: Taylor & Francis, London.
24. Wilson, J.R. and Covlett,N. (2001): Evaluation of Human work. A Practical Ergonomics Methodology: Taylor & Francis, London.
25. Pheasant Stephan (2001): Body space, Anthropometry, Ergonomics and the Design of work: Taylor & Francis, London.
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THEORY OF MANAGMENT

Code : Idrm 3.1
Credits : 4
Periods/ week : 6
Marks : (80+20 = 100)

Objectives :

- To understand the significance of management in the micro and macro level organizations.
- To know the conceptual, human and scientific aspects of management function.
- To develop the ability to evaluate the management efficiency and effectiveness in the family and other organizations.
- To enhance the understanding of the similarities among all areas of management education and research, and dissemination of the professional knowledge, skills and attitude.

Content:

1. Management as a System

- Definition
- Elements
- Types
- Advantages and Limitations of systems approach
- Application in Family Resource Management

2. Management Abilities
   - Conceptual
   - Human
   - Technical
3. Decision-making
   - Meaning
   - Types of decisions
   - Modes of decision making
   - Techniques and tools for decision making: Decision tree
   - Conflict Resolution
4. Management Functions and Processes

- Planning – Objectives, Principles

- Organising – Purpose, principles, Processes – delegation of authority, responsibility & accountability

- Staffing, Purpose, principle, recruitment, appraisal.

- Guiding, directing, leadership, motivation, communication

- Controlling, tools for management control, feedback

- Appraisal/evaluation – Tools and techniques

5. Human Behaviour in Organisations

- Personality, attitudes, motivating factors

- Group bahaviour and dynamics

- Team management

- Stress and Conflict Management

6. Ends Sought through Management

- Goals – Factors affecting, types

- Values – sources of value pattern, status, security

- Standards – Quality control; Total Quality Management

References:

1. Kapur, S.K. (1996): Professional Management, S.K. Publi8shers, New Delhi.
2. Deacon, R.E. and Fire Baugh, F.M. (1975): Home Management Context and Concept, Houghtor, Miffen, Boston.
3. Deacon, R.E. and Firebaugh, F.M. (1981): Resource Management Principles and Applications, Allyn and Bacon and Bacon, Boston.
4. Sherman, A.W. et. Al. (1988): Managing for Persormance, Business
5. Managing for Perfomance, Business Publications INC, Texas.
6. Dwivedi, R.S. (1984): Dynamics of Human Behaviour of Work, Oxford and 9BH, New delhi.
7. Saiyadain, M.S. (1988): Human Resource Management, Tata McGraw Hill, New delhi.
8. Dayal, R. (1996): Dynamics of Human Resource Development, Mittal Publications, New Delhi.

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CONSUMER ECONOMICS

Code : Idrm 3.2
Credits : 4
Periods/ week : 6
Marks : (80+20 = 100)

Objectives

- To familiarize the students with the changing economic environment and the rising consumerism.
- To develop and understanding of the marketing system and marketing strategies keeping in view the consumers.
- To know the techniques of consumer decision making and the aids for wise decision making.

Contents

1. Consumer and the Indian economic environment

- Definition of a consumer
- Characteristics of consumers
- Role of consumers in the economy

2. Economic system

- Purpose
- Types of economic system
- Indian economy-Characteristics

3. Markets & Marketing

- Basic concept of Markets and Marketing
- Classifications and functions of markets
- Types of markets- wholesale, retails, specialty, local, residential and tele markets, national, global etc.
- Changing nature of the business world ie., e-business and e commerce.
- Marketing environment, marketing theories, models
- Marketing strategies-concept and types based on product, seller, demand, media mix, price, promotion and policy.

4. Theories of Consumer Behaviour

- Utility solution
- Indifference curves

5. Consumer buying habits and buying motives

- Convenience goods, shopping goods and specialty goods
- Buying motives-Primary, selective, rational, emotional patronage.

6. Business cycle

- Monetary theories of business cycle
- Non Monetary theories of business cycle

- Implications for consumption

7. Markets and Prices
   - Definition and types of markets, Prices
   - Pricing under perfect and imperfect competition and monopoly.
8. Consumer credit.
   - Definitions and types of credit
   - Factors affecting consumer credit decisions
   - Sources of consumer credit
9. Channels of Distribution
   - Meaning and types of channels of distribution
   - Advantages and disadvantages of types of channels
   - Factors considered in the selection of the channels
10. Consumer decision making process
    - Types of consume decisions-habitual, limited and extended, short and long term. Process of decision making, factors determining and influencing consume behavior.
    - External cultural, demographic, environmental, product positioning.
    - Guides for wise buying practices.
11. Consumer and Institutional Finance
    - Consumer credit-needs, usage and sources
    - Savings and investments
    - Credit rating agencies
    - Personal finance management

References

1. Fred D. Reynolds and Coilliean D. Wells (1977): Consumer Behaviour, McGraw – Hill Series in Marketing, New York.
2. London, D.L. & Bitta, A.J.D. (1986): Copnsumer Behaviour, MCgRAw Hill Book Company, New York.
3. Engel, J.F. and Black Well R.D. (1990): Consumer Behaviour. 4th Edition, Holt Sanders International Editions.
4. East Robert (1990): Changing Consumer Behaviour, Cassel Educational Limited, Artillery House, Artillery Row, London.
5. Margery K. Schiller (1989): A Guidebook for Teaching Consumer Credit, Inc, Boston Allyn and Bacon.
6. Garman and Thomas et al (19784): The Consumer's World Buying, Money Management and issues, McGraw Hill Book co., New York.
7. Seetharaman, P. and Sethi, M. (2001): Consumerism: Strategies and Tactics, CBS Publishers and Distributors, New Delhi.

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INTERNSHIP/FIELD PLACEMENT PROJECT

Code : Idrm 3.25
Credits : 2
Periods/ week : 4
Marks : (30+20=50)

The student will be required to undergo an internship/field placement for a total duration of 6 - 8 weeks in their chosen area of interest which will facilitate their pursuing a professional career in the same field. This program could be taken up either as a single block or in two different blocks. It is mandatory that the organization/institutions (public/private) participating in the field placement programme be of good professional standing. The list could include architecture firms, interior design firms, state run/NGO administered public consumer education programs, furniture/furnishing design/manufacturing industry etc. the students will be required to submit and present a report of the internship/ field placement project after its completion. It is also envisaged that the participating organization/institution will give their performance appraisal of the students work.

This programme is designed with the following objectives:

1. To enable the students to acquire an in-depth understanding of the practical aspects of knowledge and skills acquired during the course work in the relevant subject/Subjects.
2. To gain hands on experience for higher proficiency in their selected area of expertise.
3. To help the students to develop and have their analytical abilities for situation analysis and bringing about improvements.

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COMMERCIAL INTERIOR SPACE DESIGN

Code : Idrm 3.3
Credits : 4
Periods/Wk : 6
Marks : (80+20=100)

OBJECTIVES - To enable the student to

- Develop the skill of visualizing and designing spaces of commercial interiors considering the principles of design, anthropometric data and ergonomic criteria.
- Understand the criteria for selection of appropriate materials for different surfaces taking into consideration of ergonomic factors, aesthetics and cost.

CONTENTS:

I. Study of commercial interior design with the perception of purpose, function and aesthetics.

II. Current trends in commercial interior design, and architecture

III. Planning of interior of commercial spaces with consideration of functions, orientation, grouping/ section of areas, circulation, light, ventilation, privacy services, aesthetics, ergonomical considerations and cost.

IV. Designing of different types of commercial interior spaces within the layouts, sectional elevations and perspectives.

V. Study of furniture and designing of furniture for commercial spaces

VI. Blending of Design – Remodeling, Alteration, with consideration of purpose, thrust, aesthetics and suitability.

VII. Material and finishes:

Wood, Glass, Plastic, Metal, Acoustical Boards, Floor covering, Paneling Materials, False Ceiling Materials, Selection Criteria for Various purposes.

VIII. Responsibilities of the Designer with the client

Commercial Interior Space Design Practicals

Code : Idrm 3.35
Credits : 2
Periods/Wk : 4
Marks : (30+20=50)

CONTENT:

I. Layout of smaller and bigger commercial areas
II. Working drawings – sectional elevation and perspectives
III. Detailing of furniture – constructional details of furniture, paneling, false ceiling mezzanine lofts, partitions
IV. Preparation of Sample Boards for Furnishings
V. Analysis of rates/costing
VI. Rendering Techniques colour – schemes – using different media
VII. Model making for different commercial interiors including flat models
VIII. Field Visit to study commercial Interiors – at least 3.

REFERENCES:

1. Alexander, N.J.,Meroust Brace (1972):Designing Interior Enviournment. Havanovich Inc
2. Ball Victoria K. (1980) The Art of interior design MC Milan & co. New York
3. Bhatt, P.D.,Goenka S.,(1990) foundation of arts design , Bombay, Lakhani Book Depot
4. Butler Margaret G.E, Greaks Benyl S.(1980) Fabric Furnisihing., ET Basaford Ltd.London
5. Chudley, R.(1978) construction Technology Vol.1-2,I-IBS Long Man Ltd., New York
6. Robert ,G.V.(1983) Rendering with Pen+Ink Hudson,Thames, London
7. Gustafsan K. and Yes Robert (1983),Corporate Design., Thomas and Hudsoon, London
8. Gransdijean Ettiens (1978),Ergonomics of the Home, Taylors and Franciis Ltd., London
9. Gransdijean Ettiens (1979) Human Dimensions and Interior space Whitney, New York
10. Laoch, Sid Del Har: Techniques of Interior Design, Rendering and Presentation, McGraw Hill, New York
11. Leinbac (1986) Visualization Techniques, McMillan, New Jersey
12. Rangwala N : Building Materials

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COMPUTER AIDED DESIGN

Code : Idrm 3.4
Credits : 4
Periods / Week : 6
Marks :(80+20=100)

OBJECTIVES : Students will be enabled to -

- Understand the power and precision of computer-aided modeling and drafting;
- Construct accurate 2D geometry as well as complex 3D shaped and surface object;
- Create 2 D representations of 3 D objects as plan view, elevations and sections;
- Assemble these drawings in industry-standard plan form and produce plotted hardcopies.
- Develop skill of drawing, designing and presentation of interior space with computer.
- Develop skill of detailing for execution/drawing

CONTENT:

I. Introduction to CAD and Auto CAD. Precision Drawing & Drawing Aids; Editing Tools; Geometric Shapes; Basic Printing

II. Architectural Views & Drafting Views

III. 3D modeling with Auto CAD with Text & Hatching

IV. Annotating in Auto CAD

V. Layers; Templates & Design Center

VI. Advanced plotting (Layouts, Viewports), Office Standards

VII. Generating auto Dimensions and text.

VIII. Rendering and Hatching – Materials, colour, lighting, backgrounds, fog, landscapes image – creation.

COMPUTER AIDED DESIGN PRACTICAL

Code : Idrm 3.45
Credits : 2
Periods / Week : 4
Marks :(30+20=100)

CONTENTS

I Getting started with AUTOCAD/Understanding the Interface, Drawing screen structure of AUTO CAD, Coordinate system involved in AUTO CAD.

II Draw objects. Straight, Curved, Points, Solid filled, Free hand sketching.

III Entity grips, Corner rounding and chamfering. Opening drawings, Filling AUTOCAD information, units 7 scales. Drawing limits & Sheet sizes.

IV Hatching utilities. Drawing hatch. Associative hatching. Editing of Hatch. Inquiry Commands. Help, Properties, Point information, Area, Data base information.

V Variables controlling dimensions.

VI Productivity Tool: Introduction to customizing. Symbol libraries, Blocks in Auto cad. Defining the blocks. Creating unnamed blocks, Nesting block information. Using color, layer and line type in block, inserting a block. Explosion of an inserted block, Block redefinition.

VII Accessing the Operating System from Autocad, ACAD. PGP files in Auto cad. Access to DOS, Command aliasing.

VIII Slide facilities; Slide Operation, Displaying a slide. Creating a slide library.
Script files: Advantage of scripts in Autocad, Script syntax, Executing a script. Slide show. Error handling in Script.

REFERENCES:

1. Smith,Bud(1196), AutoCAD for dummies: Comedy, computer publishing, New Delhi
2. Omura, George and Callor,B.Robert (1195), Auto CAD Release 12: Instant reference: BPB Publications, New Delhi
3. Omura, George and Richardson Paul (1995), Auto CAD 13 – Instant Reference, New Delhi, BPB Publications
4. Head, George and Jan Doster Head (1996), 1000 Auto CAD Tips and Tricks New Delhi: Galgotia Publication Ltd.
5. Peterson, Michael Todd (1996) 3D studio Max fundamentals Indianapolis: New Rider Publication.

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CURRENT TRENDS IN INTERIOR DESIGN & RESOURCE MANAGEMENT

Code : Idrm 4.1
Credits : 4
Periods / Week : 6
Marks :(80+20=100)

1. Impact of Liberalization, Privatization and Globalization (LPG) on family – organization & resource management.

2. Consumer issues – Recent developments and landmark judgments in family / resource / management / environment issues.

3. Fuel technology – Recent trends in renewable technologies, Govt. initiatives

4. Equipment Design – quality control – to suit different groups.

5. Interior materials – recent developments.

6. Residential interior space design – recent trends.

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INTERNSHIP/FIELD PLACEMENT PROJECT

Code : Idrm 4.25
Credits : 4
Periods/ week : 8
Marks : (50+100=150)

The student will be required to undergo an internship/field placement for a total duration of 6 - 8 weeks in their chosen area of interest which will facilitate their pursuing a professional career in the same field. This program could be taken up either as a single block or in two different blocks. It is mandatory that the organization/institutions (public/private) participating in the field placement programme be of good professional standing. The list could include interior design firms,state run/NGO administered public consumer education programmes, furniture/ furnishing industry etc. The students will be required to submit and present a report of the internship/ field placement project after its completion. It is also envisaged that the participating organization/institution will give their performance appraisal of the students work.

This programme is designed with the following objectives:

1. To enable the students to acquire an in-depth understanding of the practical aspects of knowledge and skills acquired during the course work in the relevant subject/Subjects.
2. To gain hands on experience for higher proficiency in their selected area of expertise.
3. To help the students to develop and have their analytical abilities for situation analysis and bringing about improvements.

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