

## COURSE PROGRAMME FOR PG (COMMUNITY SCIENCE)

### FOOD SCIENCE AND NUTRITION

#### Course Structure at a Glance - M.Sc. Programme

Course No.	Course Title	Credit Hours
<b>(A)</b>	<b>Major Courses</b>	<b>24</b>
<b>(i)</b>	<b>Core Courses</b>	<b>12</b>
FSN 511	Advanced Food Science	3(2+1)
FSN 512	Advanced Nutrition	3(3+0)
FSN 521	Advances in Community Nutrition	3(1+2)
FSN 531	Food Analysis	4(1+3)
<b>(ii)</b>	<b>Optional Courses</b>	<b>12</b>
FSN 513	Advanced Human Physiology	3(2+1)
FSN 514	Food Processing Technology	3(3+0)
FSN 515	Nutrition & Immunity	2(2+0)
FSN 522	Clinical Nutrition	4(2+2)
FSN 523	Advanced Diet therapy	3(2+1)
FSN 524	Food Toxicology	2(2+0)
<b>FSN 525*</b>	Nutrition During Life Cycle	3(3+0)
FSN 533	Nutrition and Physical Fitness	3(2+1)
FSN 534	Food Service Management	3(1+2)
FSN 535	Advances in Food Product Development	2(1+1)
<b>(B)</b>	<b>Minor/ Supporting Courses</b>	<b>12</b>
HSC-500	Research Methods in Home Science	3(3+0)
STAT-500	Statistical Methods	3(2+1)
	<b>Other Departments</b>	<b>6</b>
<b>(C)FSN-591</b>	<b>Seminar</b>	<b>1</b>
<b>(D)FSN-599</b>	<b>Research</b>	<b>20</b>

\*The Course FSN 525 ( earlier FSN 532 ) has been shifted from Sem.III to Sem.II& renumbered.

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**FSN 511 (CORE)**

**ADVANCED FOOD SCIENCE**

**2+1**

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**Objective**

To make the students aware about common food processing techniques and understand the physico-chemical properties of foods.

## **Theory**

### UNIT I

Colloidal chemistry as related to foods; evaluation of food by subjective and Objective methods. Carbohydrates in foods sources and characteristics of sugar, starch, cellulose, pectin and gums characteristics in foods; effect of cooking and processing techniques.

### UNIT II

Protein in foods: Plant and animal foods; chemical and physical properties related to foods; effect of cooking and processing techniques. Properties, uses, processing techniques, changes during heating and other processing and storage of fats and oils.

### UNIT III

Classification, importance, composition of fruits and vegetables and effect of cooking and other processing on their nutritive value.

### UNIT IV

Classification and importance of beverages; food pigments; browning reaction. Definition, classification, uses and legal aspects of food additives; classification, nature and uses of leavening units.

## **Practical**

Microscopic structure of different starch granules; evaluation of food by subjective and Objective methods ; changes in colour , texture and flavour of foods due to processing; effect of cooking on protein , fat and carbohydrates ; product preparation using leavening agents; project work related to text .

## **Suggested Readings**

- Borgstrom G.1968. *Principles of Food Science*. Vols.I, II. Macmillan.
- Desrosier NW &Desrosier JN. 1997. *The Technology of Food Preservation*. AVI Publ.
- Griswold RM. 1962.*The Experimental Study of Foods*.Houghton Mifflin.
- Khader V. 1999 *Text Book on Food Storage and Preservation*.Kalyani.
- Krishna Swami K. 2000 *Nutrition Research – Current Scenario*. Oxford and IBH Publishers, New Delhi.
- Lowe B. 1955 *Experimental Cookery*.John Wiley & Sons.
- Manay NS &Shadaksharaswamy M. 1997.*Foods, Facts and Principles*.New Age International.
- McWilliams M. 1993. *Foods, Experimental Perspectives*. Macmillan.
- Meyer LH. 1976 *Food Chemistry*. AVI Publ.

Potter NN & Hotchkiss HJ. 1996.*Food Science*.CBS.

Subbulakshmi G & Udipi, S.A. 2006.*Food Processing and Preservation*. New Age International, New Delhi.

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<b>FSN 512 (CORE)</b>	<b>ADVANCED NUTRITION</b>	<b>3+0</b>
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### **Objective**

To enable the students to understand the current trends in nutrition, functions, deficiencies and toxicity of different nutrients and acquaint about nutritional requirement in special conditions.

### **Theory**

#### UNIT I

Functions, sources, requirements, digestion and absorption of carbohydrates; definition, composition, classification, functions and role of dietary fibre in various physiological disorders.

#### UNIT II

Basis of requirement, functions, sources, digestion and absorption of protein; Methods of assessing protein quality .Basis of requirement, functions, sources, digestion, absorption and deficiency disorders of lipids; essential fatty acids and eicosanoids.

#### UNIT III

Requirements, functions, sources, deficiencies and toxicities of fat and water soluble vitamins.

#### UNIT IV

Requirement, functions, sources, deficiency, toxicity and factors affecting absorption and utilization of macro and micro minerals .Water balance; acid and base balance.

### **Suggested Readings**

Anderson L, Dibble, Turkki PR, Mitchell HS & Rynbergen HJ. 1982. *Nutrition in Health and Disease*. JB Lippincott.

Bamji MS, Rao NP & Reddy V. 1999.*Text Book of Human Nutrition*.Oxford & IBH.

FAO/WHO/UNU 1985.*Energy and Protein Requirement*. Tech. Report 7824, WHO.

Guthrie HA. 1989. *Introductory Nutrition*. Times Mirror/Mosby College Publ.

ICMR. 1990. *Nutrient Requirement and Recommended Dietary Allowance for Indians*. A Report of Expert Group of the ICMR, NIN, Hyderabad.

- James WPT & Schofield EC. 1990. *Human Energy Requirements - A Manual for Planners and Nutritionists*. Oxford University Press.
- Jelliffe DB. 1966. *The Assessment of the Nutrition Status of the Community*. WHO.
- Jolliffe N. 1962. *Clinical Nutrition*. Hoeber Medical Division.
- Khader V, Sumathi S & Manorama R. 1998. Course Manual of the Short Course on "*Recent Advances in Vitaminology*", Center for Advanced Studies, Department of Foods and Nutrition, Post Graduate and Research Centre ANGRAU, Hyderabad.
- Packer L & Funchs J. 1997. *Vitamin C in Health and Disease*, Marcel Dekker.
- Passmore R & Eastwood MA. 1986. *Human Nutrition and Dietetics*. Elbs Churchill.
- Pike RL & Brown ML. 1988 *Nutrition - An Integrated Approach*. John Wiley & Sons.
- Proceedings of the Nutrition Society of India*, NIN, Hyderabad.
- Robinson CH & Lawler MR. 1986. *Normal and Therapeutic Nutrition*. Macmillan.
- Shills ME, Olson JA, Shike M & Ross AC. 1999 *Modern Nutrition in Health and Disease*. Williams & Wilkins.
- Swaminathan MS. 1985. *Advanced Text Book on Food and Nutrition Vols. I, II*. The Bangalore Printing & Publ. Co.

<b>FSN 521 (Core)</b>	<b>ADVANCES IN COMMUNITY NUTRITION</b>	<b>1+2</b>
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**Objective**

To enable the students to understand the nutritional problems of the community and gain skills in planning, executing and evaluating nutrition projects of the community.

**Theory**

UNIT I

Assessment of the nutritional status at individual, household and institutional level: direct and indirect methods.

UNIT II

Ecological, socio-cultural, economic and demographic correlations of malnutrition; prevalence, etiology, biochemical and metabolic changes in vitamin A deficiency, PEM, iron deficiency anemia, IDD.

UNIT III

Major nutritional problems of the state, nation and world. Nutrition intervention- Definition, importance, methods of nutrition intervention and their impact evaluation.

UNIT IV

National nutritional programmes and policies; nutritional surveillance. National programmes and policies regarding food production and distribution .

### **Practical**

Market survey for food availability and their cost; development of low cost nutritious recipes suitable for various vulnerable groups; visit to the ongoing public health nutrition programme and report writing; Techniques of assessment of nutritional status.

**Project Work:-**Studying existing diet and nutrition practices, planning and conducting survey, analyzing data and writing report; development, implementation and evaluation of community nutrition and health programmes .

### **Suggested Readings**

- Gopaldas T &Seshadari S. 1987.*Nutrition Monitoring and Assessment*.Oxford University Press.
- Jeannette BEndres. 1990 *Community Nutrition Challenges and Opportunities*. Merrill.
- Jelliffe DB. 1966. *The Assessment of the Nutritional Status of the Community*. WHO.
- Jolliffe N.1962. *Clinical Nutrition*.Hoeber Medical Division.
- McLaren DS.1977. *Nutrition in the Community*.John Wiley & Sons.
- Nutrition Foundation of India Bulletin*.New Delhi.
- Nutrition News*. NIN, Hyderabad .
- Park JE& Park K. 2000. *Text Book of Preventive and Social Medicine*.BanarsidasBhanot Publ.
- Rao BSN, Deosthale YG & Pant KC.1998 (Revised and updated).*Nutritive Value of Indian Foods* by GopalanC, Ramashastrri BV &Balasubramanium SC. NIN, Hyderabad.
- Shukla PK. 1982. *Nutritional Problems of India*.Prentice Hall of India.

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<b>FSN 531 (Core)</b>	<b>FOOD ANALYSIS</b>	<b>1+3</b>
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#### **Objective**

To acquaint the students with principles, techniques and application of different methods of analysis for various nutrients. .

#### **Theory**

##### UNIT I

Familiarization to terms and calculations used in preparation of various standard solutions.Sample and sampling techniques.

##### UNIT II

Principles, techniques and applications of colorimetric, spectrophotometer and atomic absorption spectrophotometer.

##### UNIT III

Principles techniques and applicatiens spectrophotometer fluorimetry, flame photometry and electrophoresis.

#### UNIT IV

Principles techniques and application of chromatography (paper chromatography, TLC, GLC, HPLC). Introduction to animal assay.

#### **Practical**

Handling of equipment and instruments ; preparation of samples, solutions and buffers; quantitative estimation of proximate principles, minerals and vitamins by use of colorimetry, flame photometry, UV spectrophotometer; chromatography, atomic absorption spectrophotometer and photofluorometry, analysis of antinutritional factors; estimation of protein and starch digestibility; fractionation of protein; food adulteration.

#### **Suggested Readings**

AOAC 1995. *Association of Official Analytical Chemists*. Washington, DC.

Gruenwedels DW & Whitakor JR 1984. *Food Analysis: Principles and Techniques*. Vols. I-VIII. Marcel Dekker.

Joslyn MA. 1970. *Methods in Food Analysis: Physical, Chemical and Instrumental Methods of Analysis*. Academic Press.

Pomeranz Y & Molean CE. 1977. *Food Analysis Theory and Practice*. AVI Publ.

Sawhney SK & Singh R. 2000. *Introductory Practical Biochemistry*. Narosa.

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**FSN 513**

**ADVANCED HUMAN PHYSIOLOGY**

**2+1**

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#### **Objective**

To enable the students to understand the anatomy and functions of human body and techniques/methods of blood and urine analysis.

#### **Theory**

##### UNIT I

Reticulo- endothelial system: functions, classification. Lymphatic system: functions, circulation. Circulatory System: blood - composition blood cells - development and function of blood cells, blood clotting, blood grouping and hemoglobin, Heart: anatomy, cardiac cycle, blood pressure and factors affecting blood pressure.

##### UNIT II

Respiratory system: anatomy, physiology and mechanism of respiration, regulation of respiration. Digestive system: anatomy of gastrointestinal tract and accessory organs. Digestion and absorption of food, regulation of appetite.

##### UNIT III

Excretory system: anatomy and functions of kidney, formation, composition and excretion of urine. Endocrine glands, mode of action of hormones.

#### UNIT IV

Reproductive system: structure and functions of male and female reproductive organs.

Nervous system: anatomy and functions, Musculo skeletal system: anatomy and functions.

#### **Practical**

Estimation of hemoglobin. Identification of blood groups. Preparation of blood slide, identification and counting of blood cells. Haematocrit and sedimentation rate. Measurement of blood pressure. Examination of abnormal constituents of urine. Estimation of glucose and cholesterol in blood.

#### **Suggested Readings**

Best CH & Taylor NB. 1989. *The Human Body*. ASI Publ. House. (Source: National Book Depot, Bombay).

Chatterjee CC. 1992. *Human Physiology*. Vols. I, II. Medical Allied Agency.

Guyton AC. 1991. *Text Book of Medical Physiology*. WB Saunders.

Mukherjee KL. 1994. *Medical Laboratory Technology*. Vol I. Tata McGraw Hill.

Wilson KJW and Ross J.S. 1987. *Ross and Wilson Anatomy and Physiology in Health and Illness*. VI Edition. Churchill Livingstone.

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**FSN 514**

**FOOD PROCESSING TECHNOLOGY**

**3+0**

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#### **Objective**

To know processing technology of various food stuffs, physical and chemical principles in food processing and ways of quality control, waste disposal and sanitation in food industries.

#### **Theory**

##### UNIT I

Principles underlying food processing operations including thermal, radiation, refrigeration, freezing and dehydration. Effect of processing on physicochemical characteristics.

##### UNIT II

Processing technology for preservation and production of variety food products, losses during storage, handling and processing of cereals and legumes, oil seeds, fruits and vegetables.

##### UNIT III

Processing technology for milk and milk products, egg, meat, poultry and fish, convenience foods, processed foods. Technologies underlying in mutual supplementation, enrichment

and fortification, fermentation, malting, germination. Food additives commonly used in food industries for color, flavor, and as preservatives.

#### UNIT IV

Quality control in food industry: raw material, finished products. Waste management and sanitation in food industries. Packaging of foods. Storage and marketing of processed foods.

#### **Suggested Readings**

- Desrosier NW & Desrosier JN. 1977. *The Technology of Food Preservation*. AVI Publ.
- Frank AP. 1987. *Modern Processing, Packaging and Distribution System for Foods*. AVI Vannostand Reinhold Co.
- Frazier WC. 1988. *Food Microbiology*. Tata McGraw Hill.
- McWilliams M. 1993. *Foods - Experimental Perspectives*. Macmillan.
- Potty VH & Mulky MJ. 1993. *Food Processing*. Oxford & IBH.
- Srilakshmi B. 2001. *Food Science*. New Age International.
- Swaminathan MS. 1993. *Food Science and Experimental Foods*. Ganesh & Co.

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**FSN 515**

**NUTRITION AND IMMUNITY**

**2+0**

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#### **Objective**

To make the students understand the importance of various nutrients in maintaining and improving the immunity of individuals.

#### **Theory**

##### UNIT I

Immunity: definition and history. Classification, immunological responses, cell types involved. Mechanism of phagocytosis and antigen-antibody reactions. Regulation of immunity. Mucosal defence system- effect of nutrients.

##### UNIT II

Effect of malnutrition on immunity. Carbohydrates and immune system. Fat and immune system- factors affecting acquired immunity. Protein and immune functions- effect of arginine, glutamine and sulphur amino acids. Glutathione and immune system.

##### UNIT III

Role of vitamins in immune functions- effect of deficiency. Role of minerals- effect of deficiency and excess on immune cell functions.

##### UNIT IV

Probiotics and antioxidants – their effect on immune function. Immunity against infection – role of immunization.

#### **Suggested Readings**



Huffer, T., Kanapa, T. & Stevenson, G.W. 1986, *Introduction to Human Immunology*. Jones & Bartlett.

David, A., Darlington, G. & Bendich, A. 2004. *Diet and Human Immune Function*. Humana Press.

Wise DJ & Carter GR. 2004. *Immunology - A Comprehensive Review*. Iowa State University Press, Blackwell Science Co.

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**FSN 522**

**CLINICAL NUTRITION**

**2+2**

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**Objective**

To familiarize students about estimation of RDA, deficiency of nutrients, estimation of different nutrients and metabolites in normal and diseased conditions.

**Theory**

UNIT I

Methods for estimating requirements and recommended allowances of energy, protein, minerals and vitamins for different age groups and physiological states.

UNIT II

Nutrient interrelationship ; historical background, epidemiology, preventive and therapeutic measures of protein energy malnutrition ,

UNIT III

Interrelationship, etiology and preventive measures of vitamin and mineral deficiencies toxicities.

UNIT IV

Principles and interpretation of clinical laboratory methods with particular emphasis on their interpretation relative to nutritional status and disease; interaction between nutrients, infections and drugs.

**Practical**

Biochemical analysis of blood under normal and diseased conditions for glucose, calcium, iron, creatinine, urea, uric acid, creatine, albumin, globulin, cholesterol, phosphate, glutamate oxaloacetate transaminase, glutamate pyruvate transaminase; phospholipids; analysis of urine for specific metabolites under normal and diseased conditions .

**Suggested Readings**

Anderson L, Dibble MV, Turkki PR, Mitchel HS & Rynbergen H. 1982. *Nutrition in Health and Disease*. JB Lippincott Co.

ICMR 1998. *Recommended Dietary Allowance for Indians*. ICMR.

Khanna K, Gupta S, Seth R & Puri S. 1997. *Text Book of Nutrition and Dietetics*. Phoenix Publ.

- Oser H. 1969. *Physiological Chemistry*. Tata McGraw Hill.
- Raghuramalu N, Nair KM & Kali Sundram S. 1983. *A Manual of Laboratory Techniques*. NIN Hyderabad.
- Srilakshmi B. 2002. *Nutrition Science*. New Age International.
- Swaminathan M. 1988. *Principles of Nutrition and Dietetics*. BAPPCO.

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<b>FSN 523</b>	<b>ADVANCED DIET THERAPY</b>	<b>2+1</b>
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**Objective**

To familiarize the students with newer concepts in dietary management of various disorders and diseases.

**Theory**

UNIT I

Role of dietician in a health care team in hospital and community. Newer concepts in dietary management of various nutritional disorders and disease conditions: fevers, infections.

UNIT II

Dietary management during burns, allergy, gastrointestinal & liver diseases

UNIT III

Dietary management of cardiovascular diseases, renal disorders and obesity,

UNIT IV

Dietary management of diabetes, cancer and HIV. Nutrition in critical care.

**Practical**

Formulation of food exchanges. Therapeutic modifications of diet in terms of nutrients, consistency and composition for various disorders and diseases. Preparation of SOAP notes and case studies. Visits to hospitals.

**Suggested Readings**

- Robinson, Lawler, Chenoweth & Garwick, 1987. *Normal & Therapeutic Nutrition*. 17<sup>th</sup> Ed. Macmillan Publishing Co.
- Shills ME & Young VR. *Modern Nutrition in Health & Disease* 7<sup>th</sup> Ed. Lea & Febiger.
- Stanfield, P.S., Hui, Y.H. and American Dietetics Association 1992. *Nutrition & Diet Therapy*, 2<sup>nd</sup> Ed. Jones and Bartlett Publishers.

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<b>FSN 524</b>	<b>FOOD TOXICOLOGY</b>	<b>2+0</b>
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**Objective**

To enable the students to understand the toxic substances present in the foods and processing techniques for removal of toxins from foods.

## Theory

### UNIT I

Introduction and significance of food toxicology. Food poisoning: types, causative factors, preventive symptoms, natural food toxins, antinutritional factors, other food toxins, harmful effects, methods of removal.

### UNIT II

Microbial toxins and food intoxications. Source of contamination Effect on health, preventive measures, methods of inactivation/destruction.

### UNIT III

Chemical toxins: Pesticides, insecticides metallic and others, residual effects, preventive measures, methods of removal.

### UNIT IV

Food packaging material, potential contaminants from food packaging material. Food laws and standards: FPO, ISI, Ag Mark, Codex Alimentarius, ISO, mark for vegetarian and non vegetarian foods, ecofriendly products and others in operation.

## Suggested Readings

Ayres JC. 1968. *The Safety of Foods*. AVI Publ.

Hayes WJ. 1975. *Toxicology of Pesticide*. The Willams & Wilkins Co.

Jacob T. 1976. *Food Adulteration*. SibWasani Macmillan Co.

Swaminathan MS. 1985. *Advanced Text Book on Food and Nutrition*. Vol II. The Bangalore Printing & Publ. Co.

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**FSN 525**

**NUTRITION DURING LIFE CYCLE**

**3+0**

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### **Objective**

To enable the students to know physiological changes and nutritional requirements during various stages of life cycle.

### **Theory**

#### UNIT I

Adulthood: sex, occupation, income. Pregnancy: physiological changes in pregnancy, weight gain during pregnancy, food and nutrient requirements, storage of nutrients during pregnancy and impact of good nutrition on the outcome of pregnancy, complications of pregnancy and their nutritional management. Lactation: Physiology of lactation, impact of nutrition on efficiency and milk production, food and nutrient requirements during lactation.

## UNIT II

Infancy: role of nutrition on physical and mental development, rate of growth - weight as an indicator, assessment of growth, nutrient requirement during infancy, feeding of infants – value of breast feeding, breast milk composition, breast feeding Vs artificial feeding, types of milk and their use in infant feeding, methods of formula preparation, weaning and supplementary foods, weaning practices in the community, special nutritional concern in infant feeding, feeding the premature and low birth weight infants. Nutritional disorders and common ailments in infancy, feeding the sick child, immunization schedule and growth charts.

## UNIT III

Preschool age: growth and development – Physical and mental, prevalence of malnutrition in preschool years and food habits, nutritional requirements during preschool year and supplementary foods. School age: growth and development, nutritional requirements of school age children, specific problems in feeding school children.

## UNIT IV

Adolescence: physical and physiological changes, nutritional requirements of adolescents, Food preferences and nutritional problems. Elderly: physical and physiological changes, nutritional requirement, problems of old age, nutrients influencing aging process.

### **Suggested Readings**

- Anderson L, Dibble MV, Turkki PR, Mitchell HS & Rynbergen HJ. 1982. *Nutrition in Health and Disease*. JB Lippincott Co.
- Beal VA. 1980. *Nutrition in the Life Span*. John Wiley & Sons.
- Falkner F & Tanner JM. 1978. *Human Growth*. Vols. I-III. Plenum Press.
- FAO/WHO/UNU. 1985. *Energy and Protein Requirement*. Tech. Report 724. WHO.
- Ghosh S. 1988. *The Feeding and Care of Infant and Young Children*. Voluntary Health Association of India, New Delhi.
- Guthrie HA. 1989. *Introductory Nutrition*. Times Mirror/Mosby College Publ.
- ICMR. 1990. *Nutrient Requirement and Recommended Dietary Allowance for Indians*. A Report of Expert Group of the ICMR, NIN, Hyderabad.
- Khetarpaul N, KatyalSudhaK & GroverI. 2001 *Infant Health and Nutrition*. Agro Tech. Publ. Academy.
- Krause MV & Mahan LK. 1990. *Food, Nutrition and Diet Therapy*. WB Saunders.
- Robinson CH & Lawler MR. 1986. *Normal and Therapeutic Nutrition*, McMillan.
- Williams SR, Worthington RS, Sneholinka ED, Pipes P, Ress JM & Mahal KL. 1988. *Introduction Nutrition throughout the Life Cycle*. Times Mirroe/Mosby College Publ.

**Objective**

To enable the students to know the recent techniques of body composition and energy metabolism for the assessment of nutritional status.

**Theory**UNIT I

Overview of nutritional management vis-a-vis physical fitness, body composition and physical fitness,

UNIT II

Methods of measuring body composition: direct and indirect. Body composition in different physiological conditions and factors affecting it.

UNIT III

Energy metabolism and physical fitness: concept, importance, influencing factors.

UNIT IV

Techniques to measure energy expenditure and energy intake. Techniques to assess physical fitness. Aging theories, physiology, mechanism and role of nutrients in arresting aging process.

**Practical**

Project relevant to text: selection of topic, planning of project, development and standardization of tool, collection of data, analysis of data, report writing.

**Suggested Readings**

Falkner F & Tanner JM. 1978. *Human Growth - Principles and Prenatal Growth*. Vol. I. Bailliere Tindall.

Falkner F & Tanner JM. 1980. *Human Growth Methodology. Ecological, Genetic, and Nutritional Effects on Growth*. Vol. III. Plenum Press.

Passmore R & Eastwood MA. 1986. *Human Nutrition and Dietetics*. ELBS Churchill Livingstone.

Pike RL & Brown ML. 1988. *Nutrition - An Integrated Approach*. John Wiley & Sons.

**Objective**

To enable the students to understand the process of planning, organizing and controlling the management of food and other resources in institutions.

**Theory**UNIT I

Types of food services. Organization: Definition, types. Management: tools of management.

#### UNIT II

Personnel management. Books, records and record keeping. Cost control in food services. Menu planning.

#### UNIT III

Meal services management: types of services. Quantity food production: Principles involved in development of recipes in large scale cooking, Standardization of recipes, Utilization of left over foods.

#### UNIT IV

Planning of layout and equipment for foods services. Sanitation and hygiene in handling foods. Personnel hygiene and its importance.

#### **Practical**

Standardization of recipes: planning and preparation , modification in basic recipe, preparation of standard recipe. Use of left over foods. Visit to different types of food service institutions and study the following: Organization, physical plan and layout, food service equipment, sanitation and hygiene. Practical experience in organization and management of a college cafeteria/ hotels.

#### **Suggested Readings**

Fuller J. 1966. *Chefs Manual and a Kitchen Management*. B.T. Badtsford Ltd.

Kazarian EA. 1975. *Food Service Facilities - Planning*, AVI Publ.

Kotschevar LH. 1961. *Food Service, Layout and Equipment Planning*. John Wiley & Sons.

Sethi M & Malhan S. 1997. *Catering Management - An Integral Approach*. New Age International.

Treat N & Richards 1997. *Quantity Cookery*. Little Brown & Co.

West BB, Wood L, Harger VF & Shugart GS. 1977. *Food Service in Institutions*, John Wiley & Sons.

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**FSN 535**

**ADVANCES IN FOOD PRODUCT DEVELOPMENT**

**1+1**

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#### **Objective**

To enable the students to understand the concept of product development, their sensory evaluation and quality control.

#### **Theory**

##### UNIT I

Basic principles of food product development. Sensory properties of food and their role in product development. Formulation and evaluation of recipes at laboratory level. Bulk food preparation for food institutions and enterprises: servings, nutritive value and costing.

#### UNIT II

Evaluation of food- Objective and subjective methods, selection and training of judges, development of score cards and analysis of data.

#### UNIT III

Consumer evaluation-development of schedule and data analysis. Packaging material, types for different products. Food labeling.

#### UNIT IV

Food safety issues in product development, food quality regulations and standards, quality control and HACCP. Product formulation and development for general and therapeutic use.

#### **Practical**

Sensory evaluation, methods, training of judges, score card preparation. Selection and modification of food product to be developed. Formulation and standardization of products. Objective and subjective evaluation of the products. Evaluation of consumer acceptability. Packaging and sale of products. Preparation of video film for media.

#### **Suggested Readings**

Altschul & Aaron M. 1993. *Low Calorie Foods*. Marcel Dekker

Goldberg I. 1994. *Functional Foods: Designer Foods, Pharma Foods, Nutraceuticals*. Springer, New York

Matz SA. 2004. *Formulating & Processing Dietetic Foods*. CHIPS Publ.

#### **Course Structure at a Glance – Ph.D. Programme**

<b>Course No.</b>	<b>Course Title</b>	<b>Credit Hours</b>
<b>A.</b>	<b>Major Courses</b>	<b>18</b>
<b>(i)</b>	<b>*Core Courses</b>	<b>9</b>
FSN 611	**Advances in Carbohydrates, Proteins and Lipids	4(3+1)
FSN 612	***Advances in Vitamins and Hormones	2(2+0)
FSN 621	Minerals in Human Nutrition	3(2+1)
<b>(ii)</b>	<b>Optional Courses</b>	<b>9</b>
FSN 613	Advances in Food Sciences and Technology	3(2+1)
FSN614	Advances in Energy Metabolism	2(2+0)
FSN 615	Application of Biotechnology in Food Science and Nutrition	2(2+0)
FSN 622	Nutrition in Emergencies	2(2+0)

FSN 623	Nutrition and Agricultural Interface	3(3+0)
FSN 624	Maternal and Child Nutrition	3(2+1)
FSN 625	Global Nutritional Problems	2(2+0)
<b>(B)</b>	<b>Minor/ Supporting Courses</b>	<b>9</b>
HSC-600	Research Project Management	3(2+1)
STAT-600	Data Processing	2(1+1)
	<b>Other Departments</b>	<b>4</b>
<b>(C)</b> FSN-691	<b>Seminar I</b>	<b>1</b>
<b>(D)</b> FSN-692	<b>Seminar II</b>	<b>1</b>
<b>(E)</b> FSN-699	<b>Research</b>	<b>45</b>

\* These two courses were approved as core courses in academic council held on 5<sup>th</sup> May 2014.

\*\* Title of the course FSN 611 reframed & one credit reduced

\*\*\* One credit shifted from FSN 611 to FSN 612 to give equal weightage to credit hours of the both the core courses by adding one credit to “ **Advances in Vitamins & hormones FSN 612**”.

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**FSN 611(Core)                    ADVANCES IN CARBOHYDRATES, PROTEINS   2+1**  
**AND LIPIDS**

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### **Objective**

To acquaint the students with recent developments in the role of carbohydrates, proteins and lipids in normal and diseased conditions.

### **Theory**

#### UNIT I

Carbohydrates, proteins and lipids-their digestion, absorption, metabolism. Inborn errors of metabolism.

#### UNIT II

Metabolic disorders-diabetes, dental caries, obesity, atherosclerosis, hyperlipidemias and hypertension. Glucose homeostasis determined by insulin/glycogen ratio; carbohydrates free diet and its metabolic consequences; glycolic index; dietary fiber- its definition, composition, classification, functions and role in various physiological disorders.

#### UNIT III

Classification of protein, new discoveries in protein and their functions such as protein in Immune system, as lubricants, biological buffers and carriers, evaluation of protein quality: in vitro and in vivo methods, animal and human bioassays: amino acid pool, protein turnover in man with special reference to body size, age and various nutrition and pathological conditions, regulation of proteins, requirements; novel food sources of protein. Effect of insulin, corticosteroids, thyroids, androgen



and growth hormone on protein metabolism, inheritable disorders of amino acid metabolism of protein; effect of dietary protein on cardiovascular disease and cholesterol metabolism, adaptation of body to low intake of energy and protein.

#### UNIT IV

Estimation of body fat; lipoproteins and hyper lipoproteinemia; hypolipidemic action of PUFA omega-3 fatty acids and oxidation products of cholesterol; lipids and cancer; fish oils in health and disease; oxidation products of cholesterol. Disturbance in lipid metabolism; role of reversal diet in cardiovascular disorders; high blood cholesterol – causes, prevention and treatment; hypolipidemic action of rice bran, oat, barley and legumes.

#### **Practical**

Assessment of protein quality; project work related to metabolic disorders of proximate principles; blood analysis in relation to NCD and estimation of amylase and pepsinase inhibitors in foods.

#### **Suggested Readings**

- Akoh CC & Min DB. 1998. *Food Lipids - Chemistry, Nutrition and Biotechnology*. Marcel Dekker.
- Berdenier CD. 1976. *Carbohydrate Metabolism-Regulation and Physiological Role*. John Wiley.
- Bodwell CE. 1979. *Evaluation of Protein for Human*. AVI Publ.
- Dickens, F. *Carbohydrate Metabolism and its Disorder*. Vol. II. Academic Press.
- FAO. 1998. *Carbohydrates in Human Nutrition*. FAO.
- FAO/WHO. 1985. *Energy and Protein Requirements*. Technical Report Series 724.
- Friedman M. 1975. *Protein Nutritional Quality of Foods and Feeds*. Part II. Marcel Dekker.
- Lehninger AI. 1971. *Bioenergetics*. W.A. Benjamin.
- Munro HN & Attson JB. (Eds.). *Mammalian Protein Metabolism*. Vols. I-IV. Academic Press.
- Waterlow JC, Garlick PJ & Millerand DJ. 1978. *Protein Turnover in Mammalian Tissues and in the Whole Body*. North Holland Publ. Co.

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**FSN 612 (Core)**

**ADVANCES IN VITAMINS AND HORMONES**

**2+1**

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#### **Objective**

To acquaint the students with role and function, metabolism and recent developments in vitamins and hormones.

#### **Theory**

##### UNIT I

General definition and history of vitamins and hormones; cause of vitamin deficiencies in India. Chronology, chemistry, distribution, functions, absorption, transport, metabolism, deficiency manifestations,

#### UNIT II

Nutritional requirements, methods of assay. Interaction with other nutrients, antagonists and analogues of vitamins,

#### UNIT III

Hypervitaminosis of water and fat soluble vitamins; vitamin fortification and supplementation; endocrine and exocrine secretion of hormones- organs of secretion, metabolism, mechanism of action, regulation and sites of action, biological effects and interaction.

#### UNIT IV

Assessments of vitamin status of population; antioxidants and their relationship with aging, cancer and other metabolic disorders.

#### **Suggested Readings**

Basu TK & Dickerson JWT. 1996. *Vitamins in Human Health and Disease*. CABI.

Combs GF. 1992. *The Vitamins, Fundamental Aspects in Nutrition and Health*. Academic Press.

Kutsky RJ. 1981. *Handbook of Vitamins and Minerals and Hormones*. NRC.

Machlin LJ. 1991. *Handbook of Vitamins*. Marcel Dekker.

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**FSN 621 (Core)**

**MINERALS IN HUMAN NUTRITION**

**2+1**

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#### **Objective**

To acquaint the students with role and functions, metabolism and recent developments in minerals.

#### **Theory**

##### UNIT I

General definition and history of minerals; causes of macro and micro mineral deficiencies in India. Chronology, chemistry, distribution, functions, absorption, transport, metabolism, deficiency manifestations.

##### UNIT II

Nutritional requirements, methods of assay of all the minerals. Interactions of minerals with other nutrients, antagonists and analogues of minerals.

##### UNIT III

Assessment of mineral status of population, mineral fortification and supplementation; major mineral pollutants- their harmful effect to health; mutagenicity, carcinogenicity, teratogenicity, heavy metal toxicity. Use of mineral isotopes/ tracers in nutritional studies.

#### UNIT IV

Metalonzymes; antioxidants and their relationship with aging, cancer and other metabolic disorders. Heavy metal toxicity; trace minerals, their chronology, chemistry, distribution, functions, absorption, metabolism, requirements, deficiency manifestation and interaction.

#### **Practical**

Assessment of antioxidants in foods; Project to combat micro nutrient deficiencies- Vulnerable sections, Groups with special needs.

#### **Suggested Readings**

- Basu TK & Dickerson JWT. 1996. *Vitamins in Human Health and Disease* CABI.  
Causing 2005. *Annual Review of Nutrition*. Vol. 25.  
Comb GF. 1992. *The Vitamins, Fundamental Aspects in Nutritional and Health*. Academic Press.  
Boyd, LO' Dell & Sunde, R.A. 1997. *Handbook of Nutritionally Essential Mineral Elements*. CRC Press.  
Kutsky RJ. 1981. *Handbook of Vitamins of Minerals and Hormones* NRC.  
Machlin LJ. 1991 *Handbook of Vitamins*. Marcel Dekker.  
MonierWillam GW. 2008. *Trace Elements in Foods*. Agribios.  
Taylor SL. 2007 *Advances in Food and Nutrition Research*. Vols. 1-52. Researcho Books & Pvt. Ltd

#### **Objective**

To acquaint the students with latest advances in nutrition and food science and food challenges in next millennium.

#### **Theory**

##### UNIT I

Recent advances in the field of carbohydrates, lipids, proteins, vitamins and minerals in relation to human nutrition;

##### UNIT II

Nutrogenomics, incorporating genetics into dietary guidance. Recent advances in the field of food analysis and food fortification;

##### UNIT III

Foods of future; special nutrients. Food processing and product development; regulating food processing and preservation through TQH and HACCP;

#### UNIT IV

GMI foods and their health implications; functional foods and organic foods, impact of WTO in food regulation.

#### **Practical**

Product development and shelf life of nutritionally fortified foods using advanced technologies, field study of food processing and preservation in relation to TQM and HACCP in an industry.

#### **Suggested Readings**

- Manay NS & Shadaksharaswamy 1997. *Food Facts and Principles*. New Age Publ.  
Potter N & Hotchkiss JH. 1996. *Food Scienc* .5<sup>th</sup> Ed. AVI Book Van.  
Potty VH & Mulky MJ. 1993. *Food Processing*. Oxford & IBH.  
Srilakshmi B. 2002. *Nutrition Science*. New Age Publ..  
Swaminathan MS. 1993. *Food Science and Experimental Foods*. Ganesh & Co.

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**FSN 614**

**ADVANCES IN ENERGY METABOLISM**

**2+0**

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#### **Objective**

To familiarize the students with new developments in the area of energy metabolism and its relation to human health.

#### **Theory**

##### UNIT I

Scope and application of bioenergetics for human nutrition; energy types, energy store in man, its components and measurements.

##### UNIT II

Methods of estimation of energy requirement; factors affecting energy requirements and expenditure;

##### UNIT III

Thermogenesis; interrelationship between metabolic regulation. Mechanism of hunger and its energy cost of macromolecules ,

##### UNIT IV

Weight control and obesity-role of adipose tissues. Effect of hormones on energy metabolism.

#### **Suggested Readings**

- Lehninger AL & Benjamin WA. 1971 *Bioenergetic*. Meulo Park.

Causing 2005.*Annual Review of Nutrition*.Vol. 25.

Taylor SL.2007.*Advances in Food and Nutrition Research*.Vol- 1-52.Researcho Books.

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<b>FSN 615</b>	<b>APPLICATION OF BIOTECHNOLOGY IN FOODS AND NUTRITION</b>	<b>2+0</b>
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**Objective**

To acquaint the students with recent advances in role and application of biotechnology in Foods and Nutrition.

**Theory**

UNIT I

History, processes and products of biotechnology; application of biotechnology in production of nutritious foods.

UNIT II

Role of biotechnology in enzymology and product development, fermentation process, fruit juice extraction, genetic improvement of food grade microorganisms.

UNIT III

Nutritional significance of food products developed by biotechnological techniques.

UNIT IV

Scientific, technological and resource constraints on biotechnology; important factors affecting development in biotechnology.

**Suggested Readings**

Nestle M. 2003.*Safe Food: Bacteria, Biotechnology and Bioterrorism*.University of California Press.

Rogers PL & Fleet GH. 1989. *Biotechnology and Food Industry*.University of Minnesota.

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<b>FSN 622</b>	<b>NUTRITION IN EMERGENCIES</b>	<b>2+0</b>
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**Objective**

To acquaint the students with latest advances in management of food and nutrition in emergent situations.

**Theory**

UNIT I

Starvation in emergencies arising out of drought, floods, earth quakes, locust, war, wrong policies and poverty; historical perspectives.

UNIT II

Effect of inanition, short, medium and long term emergencies on food and nutrients intake, precautions against food shortage. Food needs at national level during normal emergencies,

#### UNIT III

Major nutritional deficiency diseases in emergencies; mobilization of local resources; general fund distribution; mass and supplementary feeding; therapeutic feeding; social funds.

#### UNIT IV

Control of communicable diseases; public health and hygiene problems during emergencies.

### **Suggested Readings**

Messer E, Mark J, Cohen C & Jashinta D. 1998. *Food from Peace: Breaking the Links between Conflicts and Hunger*. IFPRI, Washington.

Spark A. 2007. *Nutrition in Public Health: Principles, Policies and Practice*. CRC Press.

*The management of Nutrition in Major Emergencies*. 2000, WHO.

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**FSN 623**

**NUTRITION AND AGRICULTURE INTERFACE 3+0**

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### **Objective**

To acquaint the students with food production and consumption trends, food balance sheet and interrelationship between nutrition and agriculture development.

### **Theory**

#### UNIT I

Food situation in India and in the world, food production and consumption trends; food balance sheets. Role of nutrition in agricultural planning and national development ;

#### UNIT II

Linkages between agricultural practices; food production , food distribution and nutritional status ; food crop failure and malnutrition ; poverty and vicious cycle of low food production ; consumption indicators , nutritional status indicators and their role in agricultural planning .

#### UNIT III

Agricultural development and its effect on food availability; effect of food production and economic policies on food availability ; impact of physical resources, farming systems , cropping system , inputs and manipulation , agricultural marketing system , post harvest processing of foods on food and nutrition situation ; food distribution systems .

#### UNIT IV

Food and nutrition security at national and household level; nutrition policy implementation; nutritional impact of agricultural programmes, food price control and consumer subsidy; contribution of national and international organization for agricultural development.

### **Suggested Readings**

Bhatia MS. 1991. *Agricultural Statistics at a Glance*. Ministry of Agriculture, Govt. of India, New Delhi.

Census 1981, 1991, 2001.

India 2001. A Reference Annual. Publication Division, Ministry of Information about Broadcasting, Govt. of India.

UNICEF 1999. *The State of World's Children*. Oxford University Press.

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<b>FSN 624</b>	<b>MATERNAL AND CHILD NUTRITION</b>	<b>2+1</b>
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### **Objective**

To enable the students to understand the role of nutrition during pregnancy, lactation and infancy.

### **Theory**

#### UNIT I

Current scenario of maternal and child nutrition; Nutritional aspect of embryogenesis; Factors affecting outcome of pregnancy; Physiological changes in body composition and mental development in relation to prenatal and postnatal nutrition .

#### UNIT II

Effect of nutritional status of mother on quantity and quality of breast milk; recent guidelines in infant feeding and complementary feeding . Feeding of premature babies; HIV and breast feeding ; drug abuse and breast feeding .

#### UNIT III

Nutritional problems and requirements of preschool and school going children; growth and development of children; growth monitoring using growth charts.

#### UNIT IV

Strategies to improve maternal and child health in India ; role of BPNI in promotion of breast feeding in India ; importance of world breast feeding week.

### **Practical**

Preparation of a database on prevailing supplementary and weaning practices- planning, collecting data, analyzing data, writing report; preparation of low cost complementary foods. Analysis of weaning/complementary foods for its nutrient content.

### **Suggested Readings**

- Bamji MS, Rao NP & Reddy V. 1999. *Text Book of Human Nutrition*. Oxford & IBH.
- Falkner F & Tanner JM. 1978. *Human Growth - Postnatal Growth and Neurobiology*. Vol. II. Plenum Press.
- Falkner F & Tanner JM. 1986. *Human Growth - A Comprehensive Treatise*. Development Biology Press.
- Falkner F & Tanner JM. 1986. *Human Growth – Methodology, Ecological, Genetic and Nutritional Effects on Growth*. Vol. III. Plenum Press.
- Francis DEM. 1986. *Nutrition in the Life Span*. John Wiley & Sons.
- NNMB Reports
- Sachdeva HPS & Choudhary P. 1994. *Nutrition in Children*. Cambridge Press.
- Williams SR, Worthington RS, Sneholinka ED, Pipes P, Riss JM & Mahal KL. 1988. *Nutrition Throughout the Life Cycle*. Times Mirror/Mosby College Publ.
- Ziegler EE & Filer LJ. 1996. *Present Knowledge in Nutrition*. International Life Science Institute, Washington, D.C.

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**FSN 625**

**GLOBAL NUTRITIONAL PROBLEMS**

**2+0**

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**Objective**

To enable the students to know the global nutritional problems and intervention programmes.

**Theory**

UNIT I

Food consumption pattern of developed and developing countries.

UNIT II

An overview of world nutrition situation and assessment of problems of developing countries in light of prevalence, etiology, Indicators and preventive measures.

UNIT III

An overview of world nutrition situation and assessment problems of developed countries in light of Prevalence, etiology, indicators and preventive measures.

UNIT IV

Nutrition and health programmes to alleviate malnutrition ; role of national and international organizations.

**Suggested Readings**

- Anderson L, Dibble MV, Turkki PR, Mitchell HE & Pynbergen HJ. 1982. *Nutrition in Health and Disease*. JBLippincott Co.
- Jelliffe BD. 1966. *The Assessment of the Nutritional Status of the Community*. WHO.
- Jolliffe N. 1962. *Clinical Nutrition*. Hoeber Medical Division.



Mclaren DS. 1983. *Nutrition in the Community*. John Wiley & Sons.

Park JE & Park K. 2000. *Text Book of Preventive and Social Medicine*. Barnasidas Bhanot Publ.

SCN News, United Nations. *System Forum on Nutrition*. WHO.

Shukla PK. 1982. *Nutritional Problems of India*. Prentice Hall of India.

## **DEPARTMENT OF EXTENSION EDUCATION AND COMMUNICATION MANAGEMENT**

### **M.Sc. Programme- Course Structure at a glance**

<b>Course No.</b>	<b>Course Title</b>	<b>Credit Hours</b>
<b>(A)</b>	<b>Major Courses</b>	<b>24</b>
<b>(i)</b>	<b>Core Courses</b>	<b>12</b>
EECM 511	Global Extension Systems	3(3+0)
EECM 512	Communication for Development	3(1+2)
EECM 521	Training and Human Resource Development	3(1+2)
EECM 522	Media Production and Management	3(1+2)
<b>(ii)</b>	<b>Optional Courses</b>	<b>12</b>
EECM 513	Participatory Programme Management	3(1+2)
EECM 523	Extension Management	2(2+0)
EECM 524	Scientific Writing and Reporting for Media	3(1+2)
EECM 525	Advances in Information and Communication Technology	2(0+2)
EECM 531	Corporate Communication and Event Management	3(1+2)
<b>(B)</b>	<b>Minor/ Supporting Courses</b>	<b>12</b>
HSC 500	Research Methods in Home Science	3(3+0)
STAT 500	Statistical Methods	3(2+1)
	<b>Other Department</b>	6
<b>(C)</b>		
EECM 591	<b>Seminar</b>	<b>1(0+1)</b>
<b>(D)</b>		
EECM 599	<b>Research</b>	<b>20</b>

**DEPARTMENT OF EXTENSION EDUCATION AND COMMUNICATION**  
**MANAGEMENT**  
**Course Contents**

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<b>EECM 511</b>	<b>GLOBAL EXTENSION SYSTEMS</b>	<b>3+0</b>
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**Objective**

To appraise students about historical perspectives of extension education in India and comparative extension system of selected countries.

**Theory**

UNIT I

Extension systems in India; Extension efforts after independence -Community Development Programme - Genesis and critical appraisal; Panchayati Raj Institutions; Area and target oriented programme - IAAP, T&V; Special programmes for poor, women and children - IRDP, TRYSEM, DWCRA, JRY, IAY, SGSY, MGNREGA

UNIT II

Extension Approaches to rural development; Adult literacy programme -Need, Importance and Objective, National Literacy mission, Post literacy activities; Support structures and their functions - DRDA, Central Social Welfare Board, State Social Welfare Board, NABARD; National Level Voluntary Agencies - CAPART and KVIC; ICAR research and extension systems- KVK, NATP, IVLP, ATIC, NAIP, AICRP.

UNIT III

Role of SAUs in rural development; role of international organizations in rural development; Review of five year plans in India; privatization of extension services-scope and limitations.

UNIT IV

Critical analysis of extension system in selected countries- USA, Israel, Japan, Brazil with brief history, approaches, organisational structure,

linkage with research and extension systems; its comparative analysis with Indian extension system.

### **Suggested Readings**

- Axinn George H & Thorat SS. 1972. *Modernizing Agricultural World Wide*. Oxford & IBH.
- Cernea MM, Russel JFA & Coulter JK. (Eds.). 1983. *Agricultural Extension by Training and Visit- The Asian Experience*. The World Bank Washington D.C.
- Dantwala ML & Barmeda JN. 1990. *Rural Development Approaches and Issues, Indian Ag. Dev. Since Independence*. Oxford & IBH.
- Dhama OP & Bhatnagar OP. 1991. *Communication for Development*. Oxford & IBH.
- Mondal S & Ray GL. 2007 *A Text Book of Rural Development*. Kalyani.
- Ray GL. 2006. *Extension Communication and Management*. Kalyani.
- Rivera WH. 1987. *Agricultural Extension World Wide Issues, Practices and Emerging Pririties*. Croom Helm.
- Singh H. 1985. *Rural Development in India*. Print Well Publ.
- Singh RP, Mathur PN & Kumar GAK. 1999. *Extension Education - A Handbook for Extension Personnel*. IFWA, IARI, New Delhi.
- Swanson BE, Bants RP & Sofrenko AJ. 1984. *Improving Agriculture Extension - A Reference Manual*. FAO.
- Vanden Ban AW & Hawkins HS. 1988. *Agriculture Extension*. Longman Scientific Technicals.

### **Objective**

To acquaint students about communication process, recent advances in communication and diffusion and help students acquire necessary communication skills.

### **Theory**

#### UNIT I

Communication- concept, meaning, importance, models, theories and types; communication approaches- individual, group and mass, factors affecting their

selection and use; communication fidelity, credibility, empathy, feedback and factors affecting communication process; barriers in communication.

## UNIT II

Communication skills; Role of ICT in communication, soft skills; effective oral communication, public speaking; non-verbal communication, writing skills; soft skills; role of ICT in communication.

## UNIT III

Participatory communication - meaning, importance, process and determinants; development communication- concept, nature and significance; recent advances in communication-print and electronic, internet, e-mail, fax, mobile, interactive video and teleconferencing, computer and computer networking (PAN, LAN, CAN, MAN, WAN); AGRINET, e-Governance.

## UNIT IV

Concept and elements of diffusion; concept and stages of Innovation -decision process, attributes and consequences of Innovations; adopter categories and innovativeness.

## **Practical**

Practical exercises on oral and written communication; planning and use of different communication approaches; Practical hands on experience in recent advances in print and electronic media.

## **Suggested Readings**

- Bhagat R. & Mathur PN. 1989. *Mass Media and Farm Women*. Intellectual Publ. House.
- Chopra K, Kaukodi GK & Murthy MN. 1990. *Participatory Development*. Sage Publ.
- Deep & Deep Publ. Hage Jerald 1977. *Communication and Organizational Control*. Wiley Interscience.
- Melkote SR. 1991. *Communication for Development in the Third World: Theory and Practices*. Sage Publ. Mody B. 1991. *Designing Message for Development Communication*. Sage Publ.
- Punam Linda L & Pacanowsky Micheal E. 1983. *Communication and Organizations: An Interpretive Approach*. Sage Publ.
- Ratnaswamy P. 1995. *Communication Management - Theory and Practice*.
- Ray GL. 1991. *Extension and Communication and Management*. Naya Prakashan.
- White Shirley A, Nair KS & Ascroft J. 1994. *Participatory Communication*. Sage Publ.

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**EECM 513**

**PARTICIPATORY PROGRAMME MANAGEMENT 1+2**

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## **Objective**

To develop understanding regarding the principles, procedure and approaches of extension programme planning, implementation, evaluation of extension programme and participatory management techniques.

## **Theory**

### UNIT I

Conceptual framework of extension programme planning - key concepts and importance in planned change.

## UNIT II

Participatory planning - concept, importance, process; techniques of participatory planning- RRA, PRA and PLA and their application in extension; approaches of participatory planning - cooperative , democratic, bottom up and down.

## UNIT III

Project management techniques - PERT, CPM, SWOT analysis; obtaining technical and monetary support from GOs and NGOs ; importance and ways of people's participation in programme planning, concept and formation of women SHGs.

## UNIT IV

Implementation and evaluation - concept, importance and techniques.

### **Practical**

Application of PRA methods; critical review of evaluation studies related with women and rural development programmes; critical analysis of monitoring and evaluation of developmental programmes; preparation and implementation of home improvement work plans; critical evaluation of work plan with specific evaluation techniques; organize and evaluate programmes related to women and children at village level.

### **Suggested Readings**

Adhikary MM. 2006. *Participatory Planning & Project Management in Extension Sciences*. Agrotech Publ. Academy.

Basu. D. 2006. *Participatory Monitoring & Evaluation of Development programmes: Prationer's Guide*. Agrotech Publ. Academy.

Dhama OP & Bhatnagar OP. 1991. *Communication for Development*. Oxford & IBH.

Dhama OP. 1986 *Extension and Rural Welfare*. Ram Prasad & Sons. Mukherjee

N. 1994. *Participatory Rural Appraisal - Methodology and Application*. Concept Publ. Co.

Ray GL. 1991. *Extension Communication and Management*. Naya Prokash.

Sandhu AS. 1994. *Extension Programme Planning*. Oxford & IBH.

Singh R. 1987. *A Text Book of Extension Education*. Sahitya Kala Prakashan.

**Objective**

To acquire knowledge and skill on various aspects of trainings, human resource development and develop expertise as training professionals.

**Theory**

UNIT I

Training - concept and importance in Human Resource Development (HRD) and rural development; types of training- Institutional training, Noninstitutional training, Induction/Orientation training, Job training, Refresher training: Participatory and Conventional training; Models of training process- Simple, Elaborated and Spiral.

UNIT II

Participatory training methods - lecturette , interactive demonstration, brain storming, case studies, simulation exercises, role -play, group discussion, small group tasks, games, in-basket exercise, T-group and fish bowl exercise.

UNIT III

Designing, management and delivery of training programme ; monitoring, evaluation and impact assessment. Experiential Learning Cycle (ELC)- concept and steps.

UNIT IV

Human resource - concepts and importance; HRD- concept, dimensions and importance in rural development; techniques of HRD, Strategic interventions; HRD policies of Government and ICAR; facilitators of HRD- motivations, stress management; techniques of HRD

**Practical**

Visiting and studying the nature and functioning of training institute/KVK/GO/NGO; practice of selected training methods, planning, organizing and evaluation of training programmes for different clientele.

**Suggested Readings**

Lynton R. & Pareek U. 1991. *Training Development*. Vistat.

Singh RP. 2000 *Management of Training Programmes*. Anmol Publ.

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EECM 522

MEDIA PRODUCTION AND MANAGEMENT 1+2

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### **Objective**

To develop competency in production and management of different media.

### **Theory**

#### UNIT I

Production technology- Concept and importance: Conceptualization of media, multi media and evolution of multi media; Role of multi media in changing communication scenario.

#### UNIT II

Process of producing newspaper, magazine and other printed literature (leaflets, brochures, newsletters, bulletins, booklets, posters etc.)

Process of producing radio, television and multi media programme

Skills required for multi media production. Use of radio, television and multimedia in extension Different programme formats for radio and television; Hardware and Gadgetry requirements. Softwares for multimedia production-basics of Photoshop, Pagemaker, Coral draw, Quarkxpress

#### UNIT III

Planning of media production unit (Print & Electronic)-

Registration, Ownership pattern, Economics of media organizations,

Organizational structures, Different departments, Marketing planning, Liaison with government departments; Understanding regulatory mechanisms in media organisation-coordination, motivation, decision making and controlling

#### UNIT IV

Paper requirement for printing of various publications; Colour theory for print and multi media.



## Practical

Visit to media industries and marketing agencies; Planning and production of selected media products - print and electronic; Study of one multimedia enterprise in detail; Preparing a project proposal for submitting to a funding agency.

## Suggested Readings

Akhauri MMP. 1990 *Entrepreneurship for Women in India*. NIESBUD, New Dehli.

Gupta CB & Srinivasan NP. 2000. *Entrepreneurship Development in India*. Sultan Chand & Sons Educational Publishers, New Dehli.

Hisrich RD & Brush CG. 1986. *The Women Entrepreneurs*. D.C. Health &Co.

Meredith GG. 1982. *Practice of Entrepreneurship*. ILO.

Singh N. 2003 *Effective Entrepreneurship Management*. Anmol Publications Pvt. Ltd.,New Delhi

Verma S. 2004. *Entrepreneurship and Effective Marketing*. Aavishkar Publisher.Jaipur

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**EECM 523**

**EXTENSION MANAGEMENT**

**2+0**

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## Objective

To familiarize students with basic concept, importance, elements, functions and principles of extension management and to sensitize them about problems and issues of extension management and appraisal of management of various extension organizations.

## Theory

### UNIT I

Administration and Management- Concept and Principals, Schools of management thoughts; Meaning, nature and scope of extension management; Scientific management movement.

### UNIT II

Process of management; Planning, organising, staffing, directing, communicating, coordination, controlling, reporting and budgeting.

### UNIT III

Organizational climate, behaviour, development; Management by

Objective (MBO).

#### UNIT IV

Qualities and functions of extension personnel; problems and issues of extension management in India; critical appraisal of management of various extension organizations, community conflicts and its resolution.

#### **Suggested Readings**

Ahuja KK. 1983. *Personnel Management*. Kalyani.

Dhama.OP & Bhatnagar OP. 1991. *Education and Communication for Development*. Oxford & IBH.

Grover I. 2002. *Extension Management*. Agrotech Publ.

Ray GL. 2006. *Extension Communication and Management*. Kalyani.

Tripathi PC & Reddy RN. 1983. *Principles of Management*. Tata McGraw Publ.

Rao,M. Gangadhar and Rao, Surya, P. 1995. *Management Theory-Concept, Principals and Practices*. Kanishka Publishers Distributors, New Delhi.

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**EECM 524      SCIENTIFIC WRITING AND REPORTING FOR MEDIA      1+2**

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#### **Objective**

To acquaint and develop writing and reporting skills among students about science and Technology in various formats for different clientele to media.

#### **Theory**

##### UNIT I

Concept and various formats of scientific communication, need and importance of scientific communication in changing communication scenario.

##### UNIT II

Concept of reporting, types of reporting, reporting skills; Reporting -Field reporting, coverage of Science and Technology events (conference /speeches / seminars and conventions / exhibitions / natural phenomena etc.); Role & responsibilities of a reporter, classification and qualities of a reporter; techniques of reporting.

### UNIT III

Writing for special target groups like - children, women, farmers and rural folks.  
Writing in various format for newspaper, science columns, magazines and books

### UNIT IV

Editing: Its principles and process, proof reading, editing of articles, stories and newspaper etc.

#### **Practical**

Field reporting, coverage of Science and Technology events -conference, speeches, seminars, conventions, exhibitions, natural phenomena, Writing for different clientele, editing.

#### **Suggested Readings**

D'Souza YK. 2000. *Encyclopedia of Advanced Journalism*. Vols. I-III. Anmol Publ.

Ravindran RK. 1999. *Hand Book of Reporting and Editing*. Anmol Publ.

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<b>EECM 525</b>	<b>ADVANCES IN INFORMATION AND COMMUNICATION TECHNOLOGY</b>	<b>0+2</b>
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#### **Objective**

To familiarize students with the ICT and new media technologies and provide hands on training.

#### **Practical**

Multi media and emerging technologies. Video-on demand, internet radio and web television, impact of new media on traditional media. Writing for general interest sites, online and net newspapers and editions, blogs, search engines, video logs, unique features of web language, web pages, home pages, design and layout. Writing on specialized area on the web. Evaluation of e-journals- advantages and disadvantages. Web site designing concepts- HTML, web animation, animated graphics, designing interactive elements, sound addition, web visual editor, creation and editing.

#### **Suggested Readings**

Robert Reinhard & Snow Dowd 2004. *Macromedia Flash Mx 2004 Bible*.  
Wiley.

Tay Vaghan 2002. *Multimedia- Making it Work*. 5<sup>th</sup> Ed. Tata McGraw-Hill.

**Objective**

To develop understanding about concept, goals and strategies of corporate communication, public relation and event management and also develop skill in planning and managing an event.

**Theory**UNIT I

Corporate communication - concept & importance with special reference to Indian Electronic Media context; Identification and understanding corporate goals; corporate policy, strategy and corporate niche, branding; corporate planning, implementation and evaluation.

UNIT II

Corporate public relations-community, customer, investors, media relations; communication campaigns, managing corporate crises, change management conflict and communication, communication audit, managing diversity, issue management; new media and corporate communication.

UNIT III

Strategic communication support during mergers/acquisitions, litigations; corporate social responsibility, monitoring blogs for PR activity, environmental analysis; rural public relations; social marketing.

UNIT IV

Event management - concept, objective, need and types of events; process of organizing an event; effective use of resources in context to vision, mission and roles; effective goal planning strategies; planning events- press meets/conferences/exhibitions, organizing media tours; evaluating public opinion.

**Practical**

Visit to different corporate organizations related to media, organizing discussion with corporate personnel; planning and organizing an event for effective communication with corporate sector.

**Suggested Readings**

Chopra K, Kaukodi GK & Murthy MN. 1990. *Participatory Development*.

- Sage Publ.
- Dwivedi RS.1982. *Management of Human Resources: A Behavioural Approach to Personnel*. Oxford & IBH.
- Hage Jerald 1977. *Communication and Organizational Control*. Wiley Interscience.
- Hellriegel Don, Slocum John W & Woodman, Richard W. 1992. *Organizational Behavior*. 6<sup>th</sup> Ed. West Publ. Co.
- Melkote SR. 1991. *Communication for Development in the Third World: Theory and Practices*. Sage Publ.
- Mody B. 1991. *Designing Message for Development Communication*. Sage Publ.
- Pareek U & Rao T Venkateswara 1981. *Designing and Managing Human Resource System*. Oxford & IBH.
- Punam Linda L & Pacanowsky Micheal E. 1983. *Communication and Organizations: An Interpretive Approach*. Sage Publ.
- Ratnaswamy P. 1995. *Communication Management - Theory and Practice*. Deep & Deep Publ.
- Wertger William B & Keith Davis 1982. *Personnal Management and Human Resources*. McGraw Hill.
- White Shirley A, Nair KS & Ascroft J. 1994. *Participatory Communication*. Sage Publ.

**DEPARTMENT OF EXTENSION EDUCATION AND  
COMMUNICATION MANAGEMENT**

**Ph.D. Programme- Course Structure at a glance**

<b>Course No.</b>	<b>Course Title</b>	<b>Credit Hours</b>
<b>(A)</b>	<b>Major Courses</b>	<b>18</b>
<b>(i)</b>	<b>Core Courses</b>	<b>6</b>
EECM 611	Recent Trends in Extension & Communication	3(3+0)
EECM 612	Managerial Skills for Extension Professional	3(3+0)
<b>(ii)</b>	<b>Optional Courses</b>	<b>12</b>
EECM 621	Advanced Media Management	3(2+1)
EECM 622	Sustainable Livelihood Systems	2(2+0)
EECM 623	Monitoring, Evaluation and Impact Assessment	3(3+0)
EECM 624	Dynamics of Group Behaviour	2(2+0)
EECM 625	Advertising and Marketing Communication	2(1+1)
EECM 613	Project Management	2(1+1)
<b>(B)</b>	<b>Minor/ Supporting Courses</b>	<b>9</b>
HSC 600	Research Project Management	3(2+1)
STAT 600	Data Processing	2(1+1)
	Courses from other Department	4
EECM 691	Seminar I	<b>1</b>
EECM 692	Seminar II	<b>1</b>
EECM 681	Preliminary	<b>Satisfactory/ Unsatisfactory</b>
EECM 699	Doctoral Research	<b>45</b>

**Objective**

To develop understanding about concept, approaches, models and theories of extension and recent advances in communication.

**Theory**UNIT I

Changing concepts and emerging issues in extension – Rational and realities; recent Extension strategies for rural upliftment; future scenario of extension

UNIT II

Recent trends in technology transfer –Need of Identification and documentation of appropriate homestead technologies, Assessment and refinement of technologies; Importance and relevance of indigenous technical knowledge system, Integration of ITK with formal research.

UNIT III

Emerging issues in communication- understanding communication in global perspective; Role of Mass Media for rural audience with special emphasis on women.

UNIT IV

New communication technologies ;computer Assisted Instruction; Latest in print technology; Enhancing learning through communication intervention; Visual communication – A psychological perspective; Distance learning; Cyber extension- Definition , scope, advantage, limitations, application in Home Science

**Suggested Readings**

Grover I, Sethi N & Grover D. 2004. *Handbook of Communication and Media*. Agro-tech Publ. Academy.

**Objective**

To develop expertise on management problems of extension organizations and learn techniques of management in extension organizations.

**Theory**UNIT I

Conceptualization of management process and its major functions; Management problems in extension organizations; Managerial skill - Nature and importance for extension professionals; Skills in effective management of extension and rural development organizations.

UNIT II

Strategic planning: importance, steps and techniques involved; Management by Objective as applicable to extension organizations; Techniques of Transactional Analysis for improving interpersonal communication.

UNIT III

Creative problem solving techniques; Stress management practices; Total Quality Management (TQM) ; Concept of learning organization to improve extension services at various levels; Time management practices; Development of Management Information System for extension organization at various levels.

UNIT IV

Work motivation Organizational climate; Resource management: concept and methods; Team building: process and strategies at organizational and village levels. Mobilization and empowerment



skills: concept and strategies in mobilization, concretisation and empowerment of rural people.

### **Suggested Readings**

- Jan Servaes, Thomas L Lacobson 1996. Shirley A White (Ed.).  
*Participatory Communication for Social Change*. Sage Publ.
- Leon C Megginson, Donald C Hosely & Paul H Pietri Jr. 1989.  
*Management Concepts and Applications*. 3<sup>rd</sup> Ed. Harper & Row.
- Michel Le Boeuf (Ed.). 2001. *Essence of time Management*. Jaico Publ. House.
- Narayan B. 1999. *Project Management*. APH Publ.
- Srinivasan R & Chunawalla SA. 1995. *Management Principles & Practice*. 4<sup>th</sup> Ed. Himalaya Publ. House.
- Stemphen P Robbins 1989. *Training in Inter Personal Skills: Tips for Managing People at Work*. Prentice Hall.
- Tripathi PC & Reddy PN. 1995. *Principles of Management*. 2<sup>nd</sup> Ed. Tata McGraw Hill.

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**EECM 621    ADVANCED MEDIA MANAGEMENT**

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**2+1**

### **Objective**

To strengthen the capabilities in media planning and production.

### **Theory**

#### UNIT I

Principles of management; managing the media organization; managerial functions in the media organization; introduction to media organization.

#### UNIT II

Editorial and circulation management- Need and importance; marketing- concept and circulation, affecting factors, circulation manager, function of circulation department, difficulties in circulation, promoting circulation.

#### UNIT III

Need and concept of personnel management; role of personnel management; integration of interests, functions, human resource planning; Advertising management; Financial management-Importance of finance, financial problems, production and printing management.

#### UNIT IV

Significant issues in the management of broadcast media; organisational structure of radio and television in public and private sectors; Functions of various departments and personnel-production, marketing, financial, managing the station/ channel.

#### **Practical**

Visit to print, electronic and new media organisations to understand the designing, media development, organisational management, functions, problems etc.

#### **Suggested Readings**

- Bhagat R & Mathur PN. 1989. *Mass Media and Farm Women*. Intellectual Publ. House.
- Kemp JE. 1975. *Planning and Producing Audio Visual Material*. 3<sup>rd</sup> Ed. Thomas Y. Growell.
- Melkote SR. 1991. *Communication for Development in the Third World: Theory and Practices*. Sage Publ.
- Mody B. 1991. *Designing Message for Development Communication*. Sage Publ.
- Ray GL. 1991. *Extension and Communication and Management*. Naya Prakashan.

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<b>EECM 622</b>	<b>SUSTAINABLE LIVELIHOOD SYSTEMS</b>	<b>2+0</b>
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#### **Objective**

To develop understanding about resources and livelihood systems, dimensions of sustainable development for livelihood security of rural people.

#### **Theory**

#### UNIT I

Holistic and multidisciplinary exposure to the understanding of concepts, processes and relationships among agro-climatic and natural resources, production systems and livelihoods of rural/urban people; resources – land, soil, climate, water and forests;

#### UNIT II

The production systems – agriculture, horticulture, sericulture, forestry, animal husbandry and dairying fisheries, non-farm activities, their linkage with the livelihoods of rural people; food security, livelihood security.

#### UNIT III

Sustainable development concept and challenges; ecological , social and economic dimensions of sustainable development; peoples participation and sustainability, indicators of environmental sustainability; sustainable livelihoods; quality of life.

### **Suggested Readings**

Chandela Man Chand. 2004. *Environmental Protection & Development*. Aavishkar Publisher and Distributors, Jaipur.

Dayananadan, R. 2005. *Sustainable Development Opportunities and Challenges*. Serials Publications, New Delhi.

Vyas PR & Somani LL. (Eds.). 1996. *Ecological Crises and Environmental Protection (With Special Reference to Agriculture)*. Agrotech Publishing Academy, Jaipur.

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**EECM 623**

**MONITORING EVALUATION AND IMPACT  
ASSESSMENT**

**3+0**

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### **Objective**

To help students to acquire knowledge, skill, appreciation in monitoring, evaluation and impact assessment.

### **Theory**

#### UNIT I

Monitoring: meaning and theoretical concepts; components of project monitoring; performance appraisal standards and sustainability; approaches to

participatory impact monitoring; implementation of monitoring; usefulness of monitoring-projects/reports.

## UNIT II

Evaluation: meaning and theoretical concepts; criteria, steps and standards of evaluation; models of evaluation; planning evaluation process; design of evaluation studies; methods of data collection.

## UNIT III

Designing evaluation instruments; analysis and interpretation of evaluation data; managing evaluation projects and writing evaluation reports; reporting and meta- evaluation (evaluation of evaluation); utilization of evaluation results, other issues, trends and course evaluation.

## UNIT IV

Impact assessment: concepts and process; domains of impact; levels of impact assessment; approaches in development programme; types, criteria and; indicators of impact; methods and designs; impact assessment perception of partners; techniques of analysis of impact assessment; policy implication of impact assessment.

### **Suggested Readings**

- Andrews Cochin Mac & Sien, Chia Un (Ed.). 1986. *Too Rapid Rural Development: Perceptions and Perspectives from South East Asia*. Ohio Univ. Press.
- Bahattacharya Sid Nath 1983. *Rural Development in India and Other Developing Countries*. Parashar Printers.
- Chaturvedi HR & Mitra SK 1986. *Citizen Participation in Rural Development*. Oxford & IBH.
- Desai DK. 1983. *Management in Rural Development*. Oxford & IBH.
- Jain SC. 1985. *Rural Development Institutions and Strategies*. Rawat Publ.
- Long N. 1976. *Introduction to the Sociology of Rural Development*. ELBS & Javistock Publ.
- Mathew T. 1984. *Rural Development in India*. Agri-Sole Publ. Academy.

- Mehra Rekha & Saradmoni K. 1983. *Women and Rural Transformation*. Concept Publ.
- Mehta SR. 1972. *Emerging Pattern of Rural Development*. Wiley Eastern. Panchanadikar KC & Panchandaikar Z. 1985. *Rural Modernisation in India (A Study in Developmental Infrastructure)*. Popular Prakashan.
- Papola TS. 1982. *Rural Industrialisation (Approaches and potential)*. Himalaya Publ. House.
- Quarashi MA. 1985. *Indian Agriculture and Rural Development*. BR. Publ. Corp.
- Seetharamu AS. 1980. *Education and Rural Development*. Ashish Publ. House.
- Shabbir Cheema C. 1985. *Rural Development in Asia*. Sterling Publ.
- Shah SA. 1977. *Rural Development Planning and Reforms*. Abhish Publ.
- Swaminathan MS. 1982. *Science and Integrated Rural Development*. Concept Publ.
- Tiwari J. 1984. *Rural Development Administration: Perspectives and Prospects*. Chugh Publ.
- Vivakananda M. 1980. *Planning Unit Areas for Integrated Rural*. Ashish Publ. House.

### **Objective**

To develop understanding about group behavior and dynamics for effective communication and group management

### **Theory**

#### UNIT I

Meaning, characteristics, types and functions of groups; Stages and process of group formation; group norms and structure.

#### UNIT II

Understanding individual, interpersonal and human behaviour and its different dimensions; recognising points of view; feeling, perception and assumptions that intervene in inter-personal interactions.

### UNIT III

Group dynamics: cooperation, competition, communication , group pressure, group cohesiveness, leadership etc.

### UNIT IV

Managing group: team building, conflict management, stress management, active listening and feedback, achieving cooperative group structure.

### **Suggested Readings**

- Gbosh A. 2006. *Communication Technology and Human Development*. Sage Publ.
- Hellriegel Don, Slocum John W & Woodmqn Richard W. 1992. *Organizational Behavior*. 6<sup>th</sup> Ed. West Publ.. Co.
- Melkote SR. 1991. *Communication for Development in the Third World: Theory and Practices*. Sage Publ.
- Ratnaswamy P. 1995. *Communication Management - Theory and Practice*. Deep & Deep Publ.
- Roy GL. 1991. *Extension and Communication and Management*. Naya Prokash.

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<b>EECM 625</b>	<b>ADVERTISING AND MARKETING COMMUNICATION</b>	<b>1+1</b>
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### **Objective**

To help the students to know the concept, evaluation, history, classification, various media for advertising, socio-economic effects of advertising, trends in advertising and marketing, govt. policy on advertising and marketing and to develop competency in creating advertisements for mass communication.

### **Theory**

#### UNIT I

Evaluation and history of advertising, relevance of advertising in marketing, an overview of the advertising scene in India,

#### UNIT II

Classification of advertising; various media for advertising, advertising writing process; law and ethics in advertising, socio-economic effects of advertising.

### UNIT III

Advertising agency, operations/management , an understanding of key issues, strategies in advertising, govt. policy on advertising and management, apex bodies in advertising.

### UNIT IV

Advertising as a tool of marketing and Advertising campaigns and their role in marketing; Marketing communication - concept and functions, consumer behaviour and its various factors; recent trends in advertising and marketing.

### **Practical**

Visit to Advertising agencies, Advertising layout techniques for newspaper, radio, posters, TV, hoardings, wall paintings, case studies on institutional advertisement, advertisement Campaign.

### **References**

- Chunawala SA 2003. *Advertising an Introductory Text*. Himalaya Publ. House.
- Derek Townsend 1993. *Advertising and Public Relations*. Alvin Rednam.
- Ganesh, S. 2005. *Introduction to Advertising*. Radha Publications, New Delhi.
- Thomas CO Grim, Allen CT & Richard J Semenik 2003. *Advertising and Integrated Brand Promotion*. Vikas Publ.
- Verma, S.. 2004. *Entrepreneurship and Effective Marketing*, Aavishkar Publishers and Distributors, Jaipur

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### **Objective**

To understand concept importance and strategies of project management and develop skill in planning a project proposal for funding agencies.

## **Theory**

### UNIT I

Project management – Concept, process and types; functions of project manager; project life cycle; project appraisal, feasibility analysis, techno-economic analysis, project design and network analysis, input analysis, financial analysis, social cost benefit analysis

### UNIT II

Project planning – criteria for selecting project, planning proposal, project review techniques, project estimation, managerial and other problems related to projects;

### UNIT III

Data management, factors influencing efficiency of a project; monitoring and control of a project. evaluation and reporting results;

### UNIT IV

Thrust areas of Home Science research; sources and priorities of funding agencies for Home Science research; National and International funding agencies for project, research application of Home Science in industry.

## **Practical**

Identifying researchable issues in H.Sc. its analysis and presentation; developing a need based research project, identifying different funding institutions (minimum 4) for project submission; submission of prepared research proposal for funding.

## **Suggested Readings**

- Bajpai SR.1969. *Methods of Social Survey and Research*. Kitab Ghar.
- Best W. 1983. *Research in Education*. 4<sup>th</sup> Ed. Prentice Hall of India.
- Carter Good V. 1966. *Essential of Educational Research*. Appleton Century Profits, Educational Division, Mereelith Corporation, New Delhi.
- Kaul Lokesh 1984. *Methodology of Educational Research*. Vikas Publ.
- Kerlinger F. 1973. *Foundations of Behavioural Research*. Rinehart Winetons.



## HUMAN DEVELOPMENT AND FAMILY STUDIES

### Course Structure at a Glance - M.Sc. Programme

Course No.	Course Title	Credit Hours
<b>(A)</b>	<b>Major Courses</b>	<b>20</b>
<b>(i)</b>	<b>Core Courses</b>	<b>12</b>
HDFS 511	Theories of Human Development & Behaviour	3(3+0)
HDFS 521	Advances in Life Span Development	3(2+1)
HDFS 522	Children with Developmental Challenges	3(2+1)
HDFS 531	Gender Issues in Human Development and Family Relations	3(2+1)
<b>(ii)</b>	<b>Optional Courses</b>	<b>12</b>
HDFS 512	Methods and Techniques of Assessment in Human Development	3(2+1)
HDFS 513	Innovative Programmes in Early Childhood Care and Education	3(2+1)
HDFS 514	Guidance and Counseling	3(1+2)
HDFS 515	Parent and Community Education	3(1+2)
HDFS 516	Appraisal of Child and Family Welfare Institutions	2(1+1)
HDFS 517	Development of Learning Material and Children's Literature	3(1+2)
HDFS 523	Adolescent Development and Challenges	3(2+1)
HDFS 532	Gerontology	3(2+1)
HDFS 533	Family Therapy	3(2+1)
<b>(B)</b>	<b>Minor/ Supporting Courses</b>	<b>12</b>
HSC-500	Research Methods in Home Science	3(3+0)
STAT-500	Statistical Methods	3(2+1)
	<b>Other Departments</b>	<b>6</b>
<b>(C)</b> HDFS-591	<b>Seminar</b>	<b>1</b>
<b>(D)</b> HDFS-599	<b>Research</b>	<b>20</b>

### Course Structure at a Glance - Ph.D. Programme

Course No.	Course Title	Credit Hours
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<b>(A)</b>	<b>Major Courses</b>	<b>18</b>
<b>(i)</b>	<b>Core Courses</b>	<b>9</b>
HDFS 611	Adulthood Dynamics	3(2+1)
HDFS 612	Advances in Family Studies	3(2+1)
HDFS 621	Programme Development for Vulnerable Families	3(2+1)
<b>(ii)</b>	<b>Optional Courses</b>	<b>9</b>
HDFS 613	Principles and Strategies in Developmental Intervention	3(2+1)
HDFS 614	Trends and Issues in Human Development	3(3+0)
HDFS 615	Qualitative Research Methods	3(2+1)
HDFS 616	Women Studies	2(1+1)
HDFS 622	Ecology and Human Development	3(3+0)
HDFS 623	Cross-cultural Perspectives in Family Studies	2(2+0)
<b>(B)</b>	<b>Minor/ Supporting Courses</b>	<b>9</b>
HSC-600	Research Project Management	3(2+1)
STAT-600	Data Processing	2(1+1)
	<b>Other Departments</b>	<b>4</b>
<b>(C)</b> HDFS-691	<b>Seminar I</b>	<b>1</b>
<b>(D)</b> HDFS-692	<b>Seminar II</b>	<b>1</b>
<b>(E)</b> HDFS-699	<b>Research</b>	<b>45</b>

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**Objective**

To equip the students with the concepts and theoretical frame work of different theories of Human Development and appraise them with a comparative analysis of theories and their educational implications

**Theory**

UNIT I

Meaning, types and functions of theory, theoretical perspectives- biological, environmental, interactional, cultural context, concepts and implications of psychoanalytic theory of Sigmund Freud and Neo-Freudians.

UNIT II

Psychosocial theory of Erikson, Field theory of Kurt Lewin, Stimulus – Response theory and Social learning theories, Cognitive theory of Jean Piaget.

UNIT III

Moral development theory of Kohlberg, Attachment theory of Bowlby, Language theory of Chomsky, Need theory of Abraham Maslow, Ecological theory of Bronfrenbrenner.

UNIT IV

Cultural historical theory of development of Vygotsky, Self Theories - Comparative analysis of theories and their application, Integrated approach to theory building.

**Suggested Readings**

- Baldwin AL. 1980. *Theories of Child development*. John Wiley.
- Craig. 1985. *Human Development, Theories of Human Development*. 2<sup>nd</sup> Ed. John Wiley & Sons.
- Grain WC. 1980. *Theories of Development: Concepts and Application*. Englewood Cliffs.
- Hall CS. 1998. *Theories of Personality*. 4<sup>th</sup> Ed. John Wiley.
- Sailkind NJ. 2004. *An Introduction to Theories of Human Development*. Sage Publ.

**Objective**

To impart knowledge to students regarding current trends, issues of development and comparative analysis of theories and their educational implications.

**Theory**UNIT I

Life span development; Physical development, psycho-motor development; role of heredity and environment, recent trends in assessing pre-natal and neo-natal status.

UNIT II

Genetic research and its influence on child's development, current trends in physical, motor, intellectual, socio-emotional, moral development of children from birth to adolescence, socialization practices and influencing factors and impact of social-emotional deprivation on different stages of development.

UNIT III

Culture and its impact. Emotional maturity, stability and catharsis. Personality changes in self perceptions and gender role development through different developmental stages, influence of cultural factors.

UNIT IV

Integrated view of development from a life span perspective- recent research trends in human development issues.

**Practical**

Study of physical, motor, social, emotional, intellectual, language, moral and personality development at different ages, using standard measurement tools/instruments, writing interpretative reports for parents, teachers and referral services.

**Suggested Readings**

- Dattan N Resse. HW. (Eds.). 1974. *Life Span Developmental Psychology*. Academic Press.
- Kail, R.V. & Cavanaugh, J.C. 2004. *Human Development – A Life Span View*. Thompson Learning Inc., London.
- Santrock, J.W. 2006. *Life Span Development*. Mc Graw Hill, New York.

**Objective**

To orient the students regarding the gender issues in human development and family relationships to impart experiences regarding gender issues, family practices and biases prevalent in Indian Society.

**Theory**UNIT I

Concept of gender- its biological and socio-cultural connotations. Importance of gender differences in human development. Gender theories- gender orientation theory of Sandra Bem, gender schema theory, theory of ego development and gender.

UNIT II

Demographic challenges to family ecology, gender issues in family involvement and cohesiveness (socialization, family roles, responsibilities and family adjustment) impact of gender roles, responsibilities and socialization practices.

UNIT III

Working towards family solidarity and social well being (values and ethics in the promotion of happy family life).

UNIT IV

Changing trends in gender role orientation, its socio- economic and cultural impact on the family and society.

**Practical**

Gender analysis of mass media content, books, television and films. Interviewing children and parents to study gender socialization practices. Administering gender role orientation scale to adolescents /women interpreting the results. Case study of three generation families to identify the differences in the gender orientation roles and responsibilities. Case studies for gender role performance.

**Suggested Readings**

Channa K. 1988. *Perspective in Indian Development: Socialization, Education and Women: Exploration in Gender Identity*. Orient Longman.

Coltrance S. 1997. *Gender and Families*. Fine Forge Press.

Gherardi S. 1995. *Gender Symbolism and Organizational Structures*.  
Sage Publ.

Narsimhan S. 1999. *Empowering Women An Alternative Strategy for Rural  
India*. Sage Publ

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<b>HDFS 522 (Core)</b>	<b>CHILDREN WITH DEVELOPMENTAL CHALLENGES</b>	<b>2+1</b>
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### **Objective**

To orient the students to the etiology and developmental characters of children with developmental challenges and develop in them the sensitivity for working with developmentally challenged children.

### **Theory**

#### UNIT I

Classification of developmentally challenged children, current statistics, its implications on the quality of life. Multi disciplinary view of children with special needs.

#### UNIT II

Remedial programmes for different types of special needs- mental deficiency, sensory disabilities, neurological disorders, physically challenged.

#### UNIT III

Special programmes for the gifted. Characteristics, assessment, educational and vocational interventions.

#### UNIT IV

Policies, Government provisions, Concessions, Facilities and Legislations for challenged children.

### **Practical**

Study of etiology, characteristics, diagnosis of children with different disabilities, conducting individual home based intervention by collaborating with other professionals and also with institutions for center-based intervention- schools, clinics, also with pediatric wards, special schools. Collaborative work with professionals in development of intervention packages for children with special needs.

### **Suggested Readings**

Cruickshank WH & Johnson GU. 1970. *Education of Exceptional Children*.  
Prentice Hall.

Kar C. 1996. *Exceptional Children - Their Psychology and Education*.  
Sterling Publ.

Kirk SA. 1970. *Educating Exceptional Children*. Oxford & IBH.

**Objective**

To orient the students towards the need and scope of innovative programmes in ECCE and develop ability to plan and execute innovative ECCE programme for intellectual, social, emotional and motor growth of young children.

**Theory**UNIT I

Need and scope for innovative programmes in early childhood. Innovative programmes for child care and education development.

UNIT II

Support services networking. Innovative programmes for intellectual and motor development.

UNIT III

Support services for communication, social and emotional development of young children.

UNIT IV

Programmes for foundations for life long learning. Preventing and arresting developmental delays / disabilities.

**Practical**

Planning, execution and evaluation of innovative programmes for intellectual, social, emotional and motor growth of young children.

**Suggested Readings**

Christine M. 2004. *Movement and Learning in the Early Years*. Sage Publ.

Kaul V. 1997. *Early Childhood Education Programme*. NCERT.

Mishra, R.C., 2005. *Early Childhood Care and Education*. A.P.H. Publishing Corporation, New Delhi.

Murlidharan R. 1991. *Guide to Nursery School Teacher*. NCERT.

Saraswathi TS. 1988. *Issues in Child Development- Curriculum and Other Training and Employment*. Spmaiya.

Swaminathan M. (Ed.). 1988. *The First Five Years: A Critical Perspective on Early Childhood Care and Education in India*. Sage Publ.

**Objective**

To appraise the students with different methods and techniques of assessment in human development and expose them to use different assessment techniques throughout life span.

**Theory**UNIT I

Assessment –definition, function, concept of measurement, techniques & their relative efficacy in measuring different aspect of human development.

UNIT II

Trends & challenges in assessment of human behavior, ethical issue in the assessment of human development.

UNIT III

Scientific methods & its criteria -reliability, validity control, item analysis, assessment methods. Use of objective measures & methods.

UNIT IV

Development of test /scale & standardization procedure types of scales – nominal ordinal, interval & ratio scale

**Practical**

Screening & diagnostic assessment for various development through different tools & techniques, physical – anthropometric measurement, psychomotor and mental development (Bayley's scale etc.), Cognitive & language - Wechsler's scale of intelligence. Achievement interest & Aptitude scale, Personality & behavior - Emotional maturity and temperament, parent child relations, child -rearing practices, parenting styles achievement and aptitude. Interpretation of assessment and report to parent and teachers.

**Suggested Readings**

Gulati R & Gugnani A.1994 *Child Development - A practical Manual*.  
Phoenix Publ.

Kothari CR.1999, *Research Methodology - Methods and Techniques*.  
Wishwa Prakashan.

Sharma RA. 1999. *Essentials of Measurement in Education and Psychology*.  
Raj Printers.

Sidhu.KS.1999. *Methodology of Research in Education*. Sterling Publ.



**Objective**

To acquaint the students about the concept and needs of guidance and counseling, qualities of guidance worker and counselor and different techniques of guidance and counseling.

**Theory**UNIT I

Introduction to guidance and counseling, concept, aims, need, nature and scope of guidance and counseling -Basic principles of guidance and counseling.

UNIT II

Types of guidance and counseling services - educational, vocational, personal, marriage and family, leisure time. Research trends in guidance and counseling in India and abroad.

UNIT III

Competencies and role of a guidance and counseling professionals. Modes and methods of counselling. Essential of conducting guidance and counselling session. Understanding the process of guidance and counseling.

UNIT IV

Knowledge and skills to handle assessment tools. Effective communication and documentation skills. Networking with allied professionals and institutions.

**Practical**

Compile research reviews on various aspect of guidance and counseling. Prepare a observation checklist to analyze guidance and counseling centers - organizational structure, Objective, types of services provided, facilities available etc. Competencies of the personnel, feed back of the clients towards the services, financial management /budget, support of other professionals /agencies to centre etc. Successful case studies of the centre. Simulation exercises of guidance and counseling children and parents. Reports of films/ Video shows related to the course

**Suggested Readings**

Alam, S., 2008. *Basics of Guidance & Counselling*. Global Vision Publishing House, New Delhi.

- Barki BC & Mukhopadhaya B. 1989. *Guidance and Counseling, A Manual*. Sterling.
- Cooper, S., 2005. *Counselling, Inception, Implementation & Evaluation*. Infinity Books. New Delhi.
- Dryden W. 1987. *Counseling Individual- the Rational Emptive Approach*. Taylor & Francis.
- Gunner J. 1984. *Counseling and Therapy for Children*. The Free Press.
- Ivey AE, Ivey MB & Downing LS. 1987. *Counseling and Psychotherapy - Interpreting, Skills Theory and Practice*. Prentice Hall.
- Kenedy E.1977. *On Becoming a Counselor. A Basic Guide for Non-professional Counselor*. Gill and Macillan.
- Skinner, C. 2006. *Educational Psychology*. Prentice Hall of India Pvt. Ltd., New Delhi.

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**HDFS 532**

**GERONTOLOGY**

**2+1**

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**Objective**

To orient the students regarding the theoretical perspectives and current issues of aging and inculcate in them knowledge regarding the methods and techniques in conducting researches in gerontology.

**Theory**

UNIT I

Definition - socio demographic profile of the aged in Indian context. Theoretical perspective on aging. Impact of aging on physical, psychological, socio-emotional aspects, abuse.

UNIT II

Aging and health. Aging and financial status. Stress among the aged and coping strategies.

UNIT III

The aged in the family context- problems and prospects, support systems. Contemporary socio-cultural changes and their effects on the aged-international scenario.

UNIT IV

Research trends in gerontology and methodological issues. Welfare of the aged –policies and programmes.

**Practical**

Review of study methods in gerontology, Identification of focus areas on aging. Developing a tool on selected topics on aging, field testing and

appraisal. Visit to Institutions for aged and critical evaluation. Project proposal for developmental programmes for aged.

### **Suggested Readings**

Dandekar K. 1996. *The Elderly in India*. Sage Publ.

Hayslip B & Panek P. 1989 *Adult Development and Aging*. Harper & Row.

Richardson B & Barusch A. 2005. *Gerontological Practice for the 21<sup>st</sup> Century*. Columbia University Press.

Sheets D, Bradley D & Hendricks J. 2005. *Enduring Questions in Gerontology*. Springer.

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**HDFS 523**

**ADOLESCENT DEVELOPMENT AND CHALLENGES 2+1**

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### **Objective**

To acquaint the students regarding the inherent challenges and contemporary issues in adolescent development.

### **Theory**

#### UNIT I

Adolescence – definition, importance of the stage. Traditional theories of adolescence, Modern theories, biological development, maturation, environmental learning, interactional and cultural context.

Perspectives of adolescent development , interpersonal relationships, socio-cultural attitudes of adolescents.

#### UNIT II

Consequences of puberty changes, sexual development, early and late maturation and psychological implications.

#### UNIT III

Intellectual development- formal operations, complexities of adolescent thoughts. Moral development - integration of self and psycho-sexual resolution and resolving identity crisis- reorganization of social life-relationship with peers and parents, heterosexual relationships.

#### UNIT IV

Vocational preferences, training and work, transition to adulthood- conflicts with special reference to contemporary socio – cultural changes.

### **Practical**

Case studies, interviewing early and late adolescents on issues – problems, pubertal changes, friendships, career, aspirations, self and social awareness, political awareness, mass media preferences. Depiction of adolescents in mass media - content analysis of media- films, television, literature.

### **Suggested Readings**

- Berk LE. 1993 *Infants, Children and Adolescents*. Allyn & Bacon.
- Sebald H. 1984. *Adolescence - A Social Psychological Analysis*. Prentice Hall.
- Seifert KL & Hoffnung RJ. 1991. *Child and Adolescent Development*. Houghton Mifflin.

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**HDFS 515**

**PARENT AND COMMUNITY EDUCATION**

**1+2**

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### **Objective**

To acquaint the students with the significance and approaches of parent education and develop skills in using various techniques of parent education.

### **Theory**

#### UNIT I

Concept and history of parent education; with special reference to India; Objective and theoretical approaches to parent education programmes.

#### UNIT II

Basic approaches to communication; group, mini group approach, large group and individual approaches, single and multi- media approach. Distance home education; parent education in school and community; teachers as a parent educator.

#### UNIT III

Communication techniques; written media/ printed matter and visual media. Increasing competency of a parent educator; knowledge of the subject matter, training of personnel. Special projects – open house parent training centres; parent involvement in community programmes.

#### UNIT IV

Special target groups for parent education; parents of young children, economically and socially backward, adopted, divorced, single and other needy parents living in urban, slum and rural areas, developmental problems and disability during childhood and adolescence.

### **Practical**

Conducting parent teacher meetings in urban, rural, slum areas and schools; assessing knowledge of youth and parents regarding various aspects of family and community life and starting short- term action oriented / rehabilitative programmes using various techniques of parent education; preparing educational material for community participation.

### **Suggested Readings**

- Brim H, Orville G & Brjm Jr.1980. *Learning to Parents, Principles, Programmes and Methods*. Sage Publ.
- Fine MJ. (Ed.). 1980. *Handbook on Parent Education*. Academic Press.
- Kulkarni S. 1980. *Parent Education Perspectives and Approaches*. Rawat Publ.
- Ramiya K. 1977. *Minimum Content of Parent Education. A Survey of Expert's Opinion*. Tata Insinuate of Social Sciences, Bombay.

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**HDFS 516**

**APPRAISAL OF CHILD AND FAMILY WELFARE  
INSTITUTIONS**

**1+1**

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### **Objective**

To orient the students regarding various child and family welfare institutions and programmes and enable them to understand and develop skills of planning, implementing and evaluating welfare programmes / institutions.

### **Theory**

#### UNIT I

Concept of monitoring and evaluation- need appraisal – orientation to the supportive and substitutive services related to the welfare and families. Type of evaluation techniques for different types of institutions for children. Impact analysis- type and methods of monitoring. Enhancing functional quality of institutions and evaluation.

#### UNIT II

Family welfare – concept, scope and need, historical perspectives. Roles and responsibilities of family and community. Constitutional provisions- act, amendments related to family. Laws and policies governing mainstreaming of vulnerable children (i.e. street children, child laborers) and families (adoptive families, reorganized families).

### UNIT III

Orientation to welfare institutions and programmes, developmental programmes related to health, nutrition, and education. Provision of basic resources- family care and counseling, agencies.

### UNIT IV

Organizations and programmes for family welfare- local, national and international- aims, Objective and services.

#### **Practical**

Visits to study child welfare institutions and evaluation of strategies for enhancing managerial skills of personnel and generation of resources, implementing developed plan of action and its evaluation, report writing. Observational visits and evaluation of family welfare institutions and organizations. Proposals for developing welfare project for health, nutrition, education and rehabilitation of the disabled families. Implementation strategies of project, to test its efficacy. Monitoring and evaluation of services for family welfare. Criteria and impact assessment.

#### **Suggested Readings**

- Kumar R. 1998. *Child development in India- Health Welfare and Management*. Ashish Publ. House.
- Singh D. 1995. *Child Development: Issues, Policies and Programmes*. Kanishka Publ.
- Sood M, Swaroop N & Batra A. 1992. *Voluntary Organizations Working for Children and Women: Some Profiles*. NIPCCD.

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<b>HDFS 517</b>	<b>DEVELOPMENT OF LEARNING MATERIAL AND CHILDREN'S LITERATURE</b>	<b>1+2</b>
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#### **Objective**

To develop the skills of preparing learning material and literature for children of various age groups.

#### **Theory**

##### UNIT I

Significance of teaching materials for early childhood education programs. Principles of developing materials for children. Concept, importance and characteristics of creativity, promoting creative environments.

##### UNIT II

Planning and developing learning material for – physical, motor, social, language, creativity, mental and personality development. Care and maintenance of materials.

### UNIT III

Literature for Children: Need and scope of children's literature, Children's literature through the ages. Contributors to children's literature. Characteristic features of literature for children: sources, features and significance of folk tales, folk songs, folk arts, mythology, historical events, science concept, biographies, fantasy and fairy tales.

### UNIT IV

Types and importance of poetry, picture book, short stories and fables in educational programmes. Role of puzzles, cartoons, comics, comic strips, skits, role plays, dance in educating children. Creating literary environment in school. Role of children's library.

### **Practical**

Visit to play centers, toy manufacturing units, shops, fairs etc. and observing practical utility of different toys and teaching materials. Preparation of teaching materials for different developmental domains. Field testing and critical analysis of developed materials. Survey of existing children's literature, observational visit to book exhibition, book fair, libraries and mobile vans. Group discussion on elements of writing for children-poem, stories, puppet shows, cartoon strips, picture books. Developing items of literature for different domains using pictures, audio-video materials and computer aided designs.

### **Suggested Readings**

- Brahma D. 1989 *Children's literature and education in India*. Deep & Deep Publ.
- Green MM & Woods EL. 1969 *A Nursery School Handbook for Parents Teachers*. Universal Book Stall.
- Marshall MR. 1982 *An Introduction to the World of Children's Books*. Grower Publ.
- Rudolph M & Cohen DH. 1977 *Kindergarten and Early Schooling*. Prentice Hall.
- Seefeldt C. 1980 *Teaching Young Children*. Prentice Hall.

**Objective**

To orient the students regarding various methods and techniques of family therapy.

**Theory**UNIT I

Theoretical developments in marital and family therapy; Schools for family therapy, structured, strategic, experimental family and integrated family therapy.

UNIT II

Social learning approach: Cotemporary marital therapies, psychoanalytic, behavioural, system theory approaches; areas and scope of marriage and family therapy.

UNIT III

Psychosomatic symptoms, psychiatric disorders, marital distress, alcoholism, drug dependence, juvenile offences, problems of adolescence, conduct problems, work and school phobias.

UNIT IV

Qualities of marriage and family therapist. Advanced techniques of marriage and family therapy; future direction for marriage and family therapy- bridging research, theory and practices, advances in clinical assessment, preventive and enrichment programmes.

**Practical**

Observational visits and screening families in need of therapy. Case studies of different areas of marriage and family therapy. Case studies of different methods and techniques of marriage and family therapy.

**Suggested Readings**

Mark R. 2003, *Family Therapy in Focus*. Sage Publ.

Roger L. 2004. *Family Therapy - A Constructive Framework*. Sage Publ.



**Objective**

To acquaint the student to developmental perspectives in relation to adult life stages, theoretical perspectives of the aging process and give the theoretical and practical experiences about changes and adjustments at various stages of adulthood aging.

**Theory**UNIT I

Adulthood: Theoretical perspectives in adult development, transition to adulthood, stages of adulthood.

UNIT II

Issues and adjustment related to occupation, self and family, supportive services.

UNIT III

Theoretical perspectives on developmental changes, biological health cognitive, changes and adjustment.

UNIT IV

Death, dying and bereavement, attitude towards death, grief and bereavement.

**Practical**

Case studies on roles and family relations, changes during adulthood, menopausal changes. Development of case studies on adults with special focus on different ecological settings, intergenerational perspectives. Visit to recreational centers, health clubs and other institutes working for adults. Critical evaluation of portrayal of adulthood in media. Film shows / panel discussion / appraisal of community on issues and policies related to adulthood. Presentation of reports on case studies.

**Suggested Readings**

Dandekar K. 1996. *The Elderly in India*. Sage Publ.

Hayslip B & Panek P. 1989 *Adult Development and Aging*. Harper & Row.

Leme BH. 1995. *Development in Adulthood*. Allyn & Bacon.

**Objective**

To develop an understanding in students regarding various approaches and frameworks for understanding the family and expose them to the current issues in Indian families and orient them regarding methods and techniques of family therapy.

**Theory**UNIT I

Definition and changing patterns of Indian family, different approaches to family studies: Nature and importance of conceptual framework, Institutional framework, Structural functional framework, Developmental framework, Interactional framework.

UNIT II

Sociological viewpoint of family by Parsons. Research methodology-inter disciplinary approaches to family measurement. Psychological approaches to assessment in family. The Psychiatric approach, Interactive approach-measurement of marital roles and relationship, Ethnographic approach, Demographic approach.

UNIT III

Ethics in family research, Current issues for research in Indian family, Fatherhood: Concept. Changing role of parents in parenting, Disorganized and reorganized families, marital distress, psychiatric disorder and family therapy. Alternate family patterns -single parent families, female headed households, dual career families, sibling families etc. Adoptive families. National policies and programmes for family welfare.

UNIT IV

Theoretical developments in marital and family therapy, schools for family therapy, structured, strategic, experiential family and integrated family therapy.

**Practical**

1. Appraisal of tools in family area (at least ten tools). Critical evaluation of family welfare programmes towards family welfare. Developing research proposal on current issues relating to family. Survey of family patterns in rural, slum and urban areas.
2. Case studies of different areas of marriage and family therapy using different methods and techniques.

### Suggested Readings

- Bharat S. 1996. *Family Measurement in India*. Sage Publ.  
Roger L. 2004. *Family Therapy - A Constructive Framework*. Sage Publ.  
White JM & Klein DM. 2007. *Family Theories*. Sage Publ.

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<b>HDFS 621</b>	<b>PROGRAMME DEVELOPMENT FOR VULNERABLE FAMILIES</b>	<b>2+1</b>
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### Objective

To learn to identify vulnerable population in rural and urban areas and develop an understanding regarding techniques of planning, implementing and evaluating development and research projects

### Theory

#### UNIT I

Concept of developmental programmes, types of projects - Development and Research Projects – polycentric and cyclical approaches to scientific research and development. Holistic and inter disciplinary approach to research project management.

#### UNIT II

Scientific values and professional ethics. Identifying research needs/ thrust areas in human development. Vulnerable population – AIDS, drug addiction. Prostitutes, delinquents, street children, disadvantaged, hospitalized, destitute women and children, abused children, women and senior citizens.

#### UNIT III

Developing Programmes- project proposal - steps/ process involved, principles of project design, , aspects of appraisal, basic considerations- risks and returns.

#### UNIT IV

Donors/ funding agencies and their types – National and International donors; public and private donors, their thrust, expectations and guidelines. Project sustainability: factors, components and action plan.

## Practical

Identifying vulnerable population in rural and urban areas. Develop programmes for their rehabilitation, execution and evaluation of programmes. Learning to use selected PRA techniques – focus group discussions/ interviews, transit walk, social mapping, time line, executing the use of each technique and appraisal. Developing a concept note and a pre-project proposal and appraisal. Developing a project - planning, implementing and proposing monitoring and evaluating strategies using appropriate techniques. Implementing / stimulating management techniques- Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Line of Balance (LOB), and Gantt Chart, SWOT analysis. Dissemination / publishing of success stories, popular article.

## Suggested Readings

- Chandra P. 1995. *Projects-Planning, Analysis, Selection, Implementation and Review*. Tata McGraw.
- Choudhary DP. 1992. *Women Welfare and Development*. NIPCCD.
- Singh PN. 1994. *Training for Management Development*. Suchandra Publ. & Indian Society for Training and Development.

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HDFS 613

PRINCIPLES AND STRATEGIES IN DEVELOPMENTAL 2+1  
INTERVENTION

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## Objective

To make the students aware about significance and strategies of imparting intervention.

## Theory

### UNIT I

Intervention – definition and current orientation towards intervention-vulnerable groups for intervention and their characteristics.

### UNIT II

Need assessment for intervention-contemporary issues and current trends in intervention-multi disciplinary approach to intervention, intervention strategies, approaches and methods.

### UNIT III

Developing network with agencies- generating resources. Role of family and community in implementation of intervention programmes.

### UNIT IV

Evaluation of intervention programmes.

#### **Practical**

Identification of groups for intervention and assessment, Selection of groups and conducting need assessment. Development of intervention package, Evaluation of available intervention packages, Conducting intervention for the selected group with developed intervention packages. Field testing developed intervention packages.

#### **Suggested Readings**

Berk LE. 1996. *Child Development*. Prentice Hall.

Choudhary DP. 1992. *Women Welfare and Development*. NIPCCD.

Hetherington EM & Parke RD. 1993. *Child Psychology: A Contemporary View Point*. Mc Graw Hill.

Saraswathi TS & Kaur P. 1999. *Human development and Family Studies in India*, Sage Publ.

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<b>HDFS 616</b>	<b>WOMEN'S STUDIES</b>	<b>1+1</b>
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#### **Objective**

To impart knowledge regarding scope and perspectives to women studies in cultural context and acquaint them to various important issues regarding women's studies and development.

#### **Theory**

##### UNIT I

Meaning and scope of women studies. Women's perspective and its constituent elements in present socio-economic and cultural context. Women's movement in pre-independent and post independent periods and present trends. Milestones and obstacles in women's movement in India.

##### UNIT II

Feminism, its basic types and their relevance to Indian context Facts and myths of feminism. Importance of women's participation in economics, educational, social and political development. Gender role

and sex role stereotypes. Changes in educational, economic, social and familial status of women.

### UNIT III

Population statistics and sex ratio. Working women and challenges. Problems of women workers in un-organized sector. Gender violence-dowry harassment and deaths, suicides, commercial and religious prostitution, sexual harassment and exploitation, family violence, amniocentesis, foeticide, infanticide, eve teasing.

### UNIT IV

Laws and women-family courts, parivarik mahila lok adalat, a critique of laws for women. Women and mass media-women's health and family planning and health indicators. Child marriage. National Women's Commission and State Commissions for women and their role in women studies and policy issues.

#### **Practical**

Observational visits to women's organizations. Planning and organising awareness campaigns on vital women's issues. Portrayal of women in mass media - news papers, magazines, television, movies. Study of practices in various castes, communities and religions and status of women. Study of attitude towards women's education, employment. Situational analysis of gender equality and equity.

#### **Suggested Readings**

- Desai N & Krishna M. 1988. *Women and Society in India*. Ajanta Publ.  
Krishnaraj M. (Ed.). 1986. *Women Studies in India*. Popular Prakshan.  
Patil AK. 1995. *Women and Development*. Ashish Publ.  
Poonacha V. 1999. *Understanding Women Studies*. SNDT Women's University. Mumbai.

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<b>HDFS 614</b>	<b>TRENDS AND ISSUES IN HUMAN DEVELOPMENT</b>	<b>3+0</b>
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#### **Objective**

To impart knowledge to students regarding theoretical foundations, current trends and issues in human development.

#### **Theory**

### UNIT I

Classical and contemporary theoretical orientation to Human development: regulation of development – Developmental psychology to Developmental Science from deficit to diversity in development.

#### UNIT II

Consistency of concepts, phenomena and methods of study – foundations of developmental thinking, multilevel nature of developmental processes ; constructing general model for development – developmental behaviour genetics - Cognitive and emotional development – dynamic structure in cognitive and emotional development – growth cycle, brain activity.

#### UNIT III

dynamics of stability and variability in development – role of experience in development – optimal experience theory – human action perspective to development developmental diversity and regularity- intentional personal development – personal control over development.

#### UNIT IV

Life span theory in development five levels of analysis – life cause theory basic concepts life transitions and historical change – future directions for life course and behaviour genetics – religious and spiritual development through life span – positive and negative correlates.

#### **Suggested Readings**

- Berk Laura E. 1989. *Child Development*. Allyn & Bacon.
- David Ausubel & Ednaund V Sullivan 1970. *Theory and Problems of Child Development*. Grune & Stratton.
- Dolly Singh 1995. *Child Development – Issues, Policies and Programme*. Kanishka Publ.
- Handbooks of Child Psychology*. 1998 & 2006. Vol. IV. John Wiley & Sons.
- Saraswathi TS & Kaur B. 1993. *Human Development and Family Studies in India*. Sage Publ.

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**HDFS 615**

**QUALITATIVE RESEARCH METHODS**

**2+1**

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#### **Objective**

To orient the students regarding the need and scope of qualitative research and impart them knowledge regarding the methods and techniques of qualitative research.

#### **Theory**

#### UNIT I

Need and scope of qualitative research methods. Types and overview of qualitative research methods.

#### UNIT II

Case studies, naturalistic design, historical methods, content analysis, ethnography, single cases experimental design.

#### UNIT III

Trends, challenges, limitations and constraints of qualitative research methods.

#### UNIT IV

Ethical issues in conduct of research.

### **Practical**

Critiquing research papers using qualitative methods. Extensive review of the empirical research work using qualitative method, identifying researchable issues that can be researched for qualitative methods, conducting in-depth interviews, focused group interviews. Analysis of data interpretation and reporting.

### **Suggested Readings**

Barbour R. 2008. *Introducing Qualitative Research*. Sage Publ.

Corbin J & Strauss A. 2008. *Basics of Qualitative Research*. Sage Publ.

Denzin N & Lincoln Y. 2008. *Collecting and Interpreting Qualitative Materials*. Sage Publ.

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**HDFS 622**

**ECOLOGY AND HUMAN DEVELOPMENT**

**3+0**

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### **Objective**

To acquaint students regarding the theories and issues pertaining to ecological impact on human development.

### **Theory**

#### UNIT I

Ecological theories of human development – Bio ecological model and developmental assessment.

#### UNIT II

Socio-cultural and sub-cultural differences in child's environment and its effect on child-rearing practices and development. Terrain, climate and demographic and economic factors and their effects on human development.

#### UNIT III



Socio-political, legal systems and policies, religion and caste systems, minority and deprived states and their effects on human development. Community support and its value for human development.

#### UNIT IV

Environmental aspects – over crowding, pollution, socio cultural imbalances impacts on development- time factor's impact on development - contemporary child rearing practices and their implications for human development.

#### **Suggested Readings**

Bronfenbrenner U. 1979 *Ecology of Human Development; Experiments by Nature and Design*. Harward Universsity, Cambridge.

Bronfenbrenner U. 1989 *Ecological System Theory*. In: R. Vasta (Ed.). *Annals of Child Development*. Vol. VI. CT Jai Press, Greenwich.

Gerrig, R.J. & Zimbardo, P.G.. 2006. *Psychology and Life*. Dorling Kindersley Pvt. Ltd., Delhi.

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**HDFS 623**

**CROSS-CULTURAL PERSPECTIVES IN FAMILY STUDIES**

**2+0**

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#### **Objective**

To sensitize the students regarding the theories and issues pertaining to cultural difference in family studies.

#### **Theory**

##### UNIT I

Definition of culture-components of cultures, characteristics of culture.

##### UNIT II

Cultural factors and impact on families; functions, roles and responsibilities, socialization practices, family cohesion, interpersonal communication patterns, conflict resolution, family crisis and adaptations.

##### UNIT III

Legal provisions – emerging cultural trends. Cross-cultural variations and their impact on families.

##### UNIT IV

Research trends in cross-cultural family studies, methodological issues.

#### **Suggested Readings**

Brislin, R.W.. 1990. *Applied Cross Cultural Psychology*, Sage Publications, New Delhi.

Giles, B. 2005. *Social Psychology*, Grange Books Co., Kent.

Saraswathi TS. 2003 *Cross-cultural Perspectives in Human Development*. Sage Publications. New Delhi.

**Department of Textiles and Apparel Designing**  
**College of Community and Applied Sciences, MPUAT, Udaipur**

**SEMESTER WISE COURSE DISTRIBUTION – M.Sc. Programme**

<i>Semester – I</i>		
<b>TAD-511</b>	Fibre Chemistry	3(2+1)
<b>TAD-512</b>	Textile Quality Analysis	3(2+1)
<b>H.Sc. 500</b>	Research Method	3(3+0)
<b>TAD-513</b>	Advance fashion Accessories	2(1+1)
<b>Minor I</b>	From other department	3
<b>PGS-501</b>	Library &Information services	0+1
<b>Total</b>		<b>15</b>

<i>Semester – III*</i>		
<b>TAD-531</b>	Textile Industry & Trade	2(2+0)
<b>TAD-532</b>	CAD Textile & Apparel Designing	3(1+2)
<b>Stat.-500</b>	Statistical Methods	3(2+1)
<b>TAD-591</b>	Master's Seminar	1
<b>TAD-599</b>	Master's Research	5
<b>Total</b>	<b>14</b>	

<i>Semester – II</i>		
<b>TAD-521</b>	Advanced Textile Design	3(1+2)
<b>TAD-522</b>	Advanced Pattern Making	3(1+2)
<b>TAD-523</b>	Fashion Draping and Custom Clothing	3(0+3)
<b>Minor II</b>	From other department	3
<b>TAD-524</b>	Home Textiles	3(1+2)
<b>PGS-502</b>	Technical writing & communication skills	0+1
<b>Total</b>	<b>16</b>	

<i>Semester – IV</i>		
<b>TAD-599</b>	Master's Research	15
<b>TAD-592</b>	Comprehensive (written and oral)	-
<b>Total</b>	<b>15</b>	

**DEPARTMENT OF TEXTILE AND APPAREL DESIGNING**

**MSc.-TEXTILE AND APPAREL DESIGNING**

<b>COURSE NO.</b>	<b>COURSE TITLE</b>	<b>CREDIT HRS.</b>
<b>Major-compulsory-</b>		<b>12 credit</b>
TAD 511	FIBRE CHEMISTRY	3(2+1)
TAD 512	TEXTILE QUALITY ANALYSIS	3(2+1)
TAD 521	ADVANCED TEXTILE DESIGN	3(1+2)
TAD 522	ADVANCED PATTERN MAKING	3(1+2)
<b>Any 3/4 from following-</b>		<b>12 credits</b>
TAD 513*	ADVANCED FASHION ACCESSORIES	2(1+1)
TAD 514	KNITTING TECHNOLOGY	2(1+1)
TAD 523	FASHION DRAPING AND CUSTOM CLOTHING	3(0+3)
TAD 524*	HOME TEXTILES	3(1+2)
TAD 525*	HISTORIC TEXTILES AND COSTUMES	3(2+1)
TAD 526	ADVANCED DYEING & PRINTING	2(1+1)
TAD 531*	TEXTILE INDUSTRY & TRADE	2(1+1)
TAD 532	COMPUTER AIDED TEXTILE & APPAREL DESIGNING	3(1+2)
TAD 533	APPAREL QUALITY ANALYSIS	2(1+1)
TAD 534	CONSUMER BEHAVIOUR- TEXTILES & APPAREL	2(1+1)
TAD 535	TEXTILE FINISHES	2(1+1)
TAD 536	SOCIO-PSYCHOLOGICAL ASPECTS OF CLOTHING	2(2+0)
<b>Supporting-</b>		<b>6 credits</b>
H.Sc. 500	RESEARCH METHOD	3(3+0)
Stat.-500	STATISTICAL METHODS	3(2+1)

TAD 591	MASTER'S SEMINAR	1
TAD 599	MASTER'S RESEARCH	20

The courses marked with \* will be offered as minor courses for students of other department

**Non-Credit Compulsory Courses: (Any two)**

<b>COURSE NO.</b>	<b>COURSE TITLE</b>	<b>CREDITS</b>
PGS 501	LIBRARY AND INFORMATION SERVICES	0+1
PGS 502	TECHNICAL WRITING AND COMMUNICATIONS SKILLS	0+1
PGS 503 (e-Course)	INTELLECTUAL PROPERTY AND ITS MANAGEMENT IN AGRICULTURE	1+0
PGS 504	BASIC CONCEPTS IN LABORATORY TECHNIQUES	0+1
PGS 505 (e-Course)	AGRICULTURAL RESEARCH, RESEARCH ETICS AND RURAL DEVELOPMENT PROGRAMMES	1+0
PGS 506 (e-Course)	DISASTER MANAGEMENT	1+0

Six courses (PGS 1-PGS 6) are of general natural and compulsory for Master's programme.

**Minimum Credit Requirements**

Subject	Master's Programme
Major	24
Minor	07
Supporting	05
Non-credit compulsory courses	-
Seminar	01

Research	20
<b>Total Credits</b>	<b>55</b>

## TEXTILE AND APPAREL DESIGNING

### M.Sc. Course Contents

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<b>TAD 511</b>	<b>FIBRE CHEMISTRY</b>	<b>3(2+1)</b>
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#### **Objective**

1. To acquaint student about the polymer and chemistry of textiles fibers and impart them knowledge about structure-property relations of textile fibers and acquaint with recent development in fibers

#### **Theory**

##### UNIT I

Chemistry of polymers- Polymerisation, types, degree & characteristics; Structure of textile fibres- general, molecular bonding, length, orientation, and requirements of fibre forming substances;

##### UNIT II

Structure-property relations of the fibres - repeating units, bonds, reactive groups and reactions of cotton, viscose rayon, silk, wool, linen, polyester, acrylic, spandex and minor fibres; action of heat, light, bleach and micro-organisms on different fibres; commercial processes of fibres;

##### UNIT III

Bi-component fibres- types of configurations & characteristics.

##### UNIT IV

Study of new fibres; Blending –principles, technology & types.

#### **Practical**

Fibre testing: cross sectional view of cotton, wool, silk, polyester and acrylic  
Chemistry of cellulose , protein and synthetics– effect of heat, acid, alkali, bleaches and solvents; detection of damage caused to cellulose; Quantitative analysis of fibre blends and mixtures; Visit to textile analysis lab

#### **Suggested Readings**

1. Andrea Wynne 1997. *Textiles*. Macmillian.

2. Bernard P Corbman 1983. *Textiles - Fiber to Fabric*. McGraw-Hill.
3. Lyle DS.1976. *Modern Textiles*. John Wiley & Sons.
4. Marjory L. Joseph 1966. *Introductory Textile Science*. Rinehart & Winston.
5. Vilensky G. 1987. *Textile Science*. CBS.
6. Wingate, I.B. 1984. *The Fabrics - Their Selection*. Prentice Hall, New Jersey.

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**TAD- 512**

**TEXTILE QUALITY ANALYSIS**

**3(2+1)**

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### **Objective**

1. To develop an understanding of methods and techniques used to analyze textile fiber, yarn and fabrics for end–use performance, different testing equipment, their underlying principles.
2. To know about standards, test methods and the language of measurements, various structural properties of textiles and relate them to end use fabric performance and product and analyze and interpret the results and predict the general textile.

### **Theory**

#### UNIT I

Importance of textile testing, Objectives of testing, Standardization and quality control, Functions of ISI and other national and international standards, Textile Research Associations.

#### UNIT II

Sampling techniques- fibre, yarn & fabric; Moisture relations in textiles- effect of moisture, humidity on properties of textiles, standard conditions of testing.

#### UNIT III

Fibre testing - Length, linear density, maturity; Yarn testing – yarn number, single &lea strength, twist, crimp & evenness.

#### UNIT IV

Fabric testing –weight, thickness, strength – breaking, tear & bursting; abrasion resistance – flat, flex; Pilling; crease recovery; stiffness; drapability; air permeability; thermal properties; flammability & assessment of other safety aspects in textiles; water permeability – repellency, wicking and dimensional stability; comfort & fabric handle measurement.

### **Practical**

Fibre testing – Staple length, effective length, linear density, maturity ;Yarn testing – yarn number, twist, crimp, evenness and strength ; Fabric testing - weight, thickness fabric count, balance, strength – breaking, tear & bursting; abrasion resistance – flat, flex; pilling; crease recovery; stiffness; drapability; air permeability; thermal properties; water permeability, wicking and dimensional stability; Processing & statistical analysis of the test data.

### **Suggested Readings**

- 1.AATCC Technical Manual. 1966. Vol. 68. USA American Association of Textile Chemist.

- 2.AATCC Technical Manual. 1993. Vol. 69. USA American Association of Textile Chemist.
- 3.AATCC Technical Manual. 1995. Vol. 70. USA American Association of Textile Chemist.
- 4.AATCC Technical Manual. 1998. Vol. 73. USA American Association of Textile Chemist.
- 5.Angappan 1987. Textile Testing. SSM Institute of Technology, Komarapalayam.
- 6.Booth JL. 1983. Principles of Textile Testing. Butterworth.
- 7.ISI Hand Book of Textile Testing. 1982. ISI.

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**TAD 521**

**ADVANCED TEXTILE DESIGNING**

**3(1+2)**

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### **Objective**

To develop knowledge about different looms, types of weaves, analyze different weave patterns and learn principles of creating design through weaving

### **Theory**

#### UNIT I

Shuttle less looms- projectile, rapier, air jet, water jet weaving; multiple-shed loom, automatic controls in modern looms & scope of modern methods of weaving; detailed pre-weaving processes.

#### UNIT II

Study of design, draft & peg plan for different weaves; weave calculations; advantages & disadvantages.

#### UNIT III

Complex & fancy structures – leno, crepe, double cloth, honey comb, mock-leno, diaper, diamond, dobby, warp and weft figuring, terry and pile, huck –a-back.

#### UNIT IV

Dobby & jacquard patterning devices; methods of making carpets

### **Practical**

Weaving- Preparation of draft plans, peg plans etc. for all weaves ;Analysis of woven samples ; Weaving samples of various weave ; Developing designs for weaving- motif preparation and placement, colour and texture plans; Documentation of traditional and modified textile designs and development of textile design library.

### **Suggested Readings**

Grosicik 1975. *Watson's Textile Design & Colour*. Butterworths.

Grosick ZJ. 1980. *Watson's Advanced Textile Design*. Universal Publ.

Grosick ZJ. 1989. *Watson's Advanced Textile Design - Compound Woven Structures*. Universal Publ.



Marjory Joseph 1972. *Illustrated Guide for Textiles*. RineHort and Winsoten, New York.

Radha Krema 1971. *Manual of Non Wovens*. Textile Trade Press.

Sen Gupta 1959. *Weaving Calculations*. DB Taraporawala Sons, Bombay

Talukdar MK. *Weaving Machines, Mechanism and Management*. Mahajan Publ.,  
Ahemedabad

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<b>TAD-522</b>	<b>ADVANCED PATTERN MAKING</b>	<b>3(1+2)</b>
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### **Objective**

1. To impart in-depth knowledge of style reading pattern making and garment construction techniques.
2. To enable students to make advance pattern and obtain perfect fit and harmony between the knitted fabric and design of the garment.

### **Theory**

#### UNIT I

Advanced techniques of pattern making - incorporating style lines- Princess Line and its variations & fullness through Darts, Tucks, Pleats and Gathers.

#### UNIT II

Principles of contouring, surplice/off shoulder and halter designs; built-in necklines, cowls and collars- Convertible, Chinese, Sailors and shawl.

#### UNIT III

Skirts-Umbrella, Gathered, Gored, Flared and Tiered, advanced sleeve variations- raglan, Kimono, Cape and Petal , exaggerated armholes, pockets-Patch, Welt, Inseam, Bound and Pocket with flaps, bias cut dresses.

#### UNIT IV

Jackets, types of pants-GaUCHO, Palazzo, Bell Bottom; pattern adaptation to knits.

### **Practical**

Procedures used in the development of slopers and patterns ;Developing dartless slopers; Princess line variations ; Blouses; Halters and surplice; Vests and their types; Collars- Convertible, Chinese, Sailors and shawl; Sleeves- kimono and raglan variations; Skirts

Umbrella, Gathered, Gored, Flared and Tiered; Developing sloper for Pants- pant length variations, bell bottom pants, body fitting pants, and other types; application of pattern making techniques to garment designing and construction.

### **Suggested Readings**

1. Bane A .1996. *Creative Clothing Construction*. MC Graw-Hill.
2. Connie Amaden-Crawford 1989. *The Art of Fashion Draping*. Fair Child Publ.
3. Janine Mee& Michal Purdy 1987. *Modelling on the Dress Stand*. BSP Professional Books.
4. Natalie Bray 1994. *Dress Fitting*.BlackWell.

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**TAD 513**

**ADVANCED FASHION ACCESSORIES**

**2(1+1)**

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### **Objective**

To familiarize the students with special techniques of creation of fashion accessories and develop skill in them for the development of fashion accessories.

### **Theory**

#### UNIT I

Introduction to fashion accessories, tools and equipment.

#### UNIT II

Fashion trends in accessories.

#### UNIT III

Product development and designing- trims, foot wear, handbags, belts, buttons and buckles, hats, scarves.

#### UNIT IV

Hosiery, jewellery, neck ties, hand kerchiefs, eye wear and watches.

### **Practical**

Market survey ;Creation of theme boards for all accessories; Product development and designing – trims ;Product development and designing – buttons and buckles ;Product development and designing - foot wear ;Product development and designing - handbags ;Product development and designing - belts ;Product development and designing - hats ;Product development and designing - scarves ;Product development and designing -jewellery Product development and designing –neckties; Product development and designing -handkerchiefs Cost analysis of all items

### **Suggested Readings**

Bhargav, R. 2005. *Design Ideas & Accessories*, Jain Publications Pvt. Ltd., New Delhi.

Carr Harold & John Pomeroy, 1996. *Fashion Design & Product Development*. Blackwell Science, London.

Taylor, P.1990. *Computers in Fashion Industry*. Heinemann, London

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<b>TAD 514</b>	<b>KNITTING TECHNOLOGY</b>	<b>2(1+1)</b>
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### **Objective**

To familiarize students with special techniques of knitted fabric production and creation of new designs and acquaint them with the art of handling different fabric and styles using knits.

### **Theory**

#### UNIT I

Advance study of knit fabrics made on warp & weft knitting machines; different types of knitting machines and kniitingguage; types of yarns & web formation.

#### UNIT II

Production technology of knitted fabrics and garments.

#### UNIT III

CAM and automation in knit wear.

#### UNIT IV

Finishing requirements of knitted fabrics; quality control in production of knitted fabrics.

### **Practical**

Study & identification of different types of knitted fabrics; Practicing the knitting on flat knitting machines – Familiarisation of commands; making samples of different designs produces ;Making samples of different designs using multicoloured / and complex designing techniques; Visit to a knitted garment unit.

### **Suggested Readings**

Terry Brackenburry. 1996. *Knitted Clothing Technology*. Blackwell Science, London.

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<b>TAD 523</b>	<b>FASHION DRAPING AND CUSTOM CLOTHING</b>	<b>3(0+3)</b>
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### **Objective**

To enable student to make pattern from sketch/photograph and enable them to obtain perfect fit and harmony between the fabric and design of the garment.

## Practical

Draping, trueing and stitching– dartless shirt, surplice front, bustier; Draping and stitching skirts; Draping collars, sleeves, lowered exaggerated armhole sleeve; Cowls; Flounces, ruffles and peplums; Dresses – sundress and sculptured dress; Draping knits; Designing custom clothing;. Analysis and presentation

## Suggested Readings

Bane A. 1996. *Creative Clothing Construction*. Mc Graw-Hill.  
Connie Amaden-Crawford. 1989. *The Art of Fashion Draping*. Fair Child Publ.  
Janine Mee& Michal Purdy. 1987. *Modelling on the Dress Stand*. BSP Professional Books.  
Natalie Bray. 1994. *Dress Fitting*. Blackwell.

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**TAD 524**

**HOME TEXTILES**

**3(1+2)**

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## Objective

1. To develop awareness about different home textiles and furnishing
2. To acquaint students about selection ,care and maintenance of different home textiles.

## Theory

### UNIT I

History and evolution of household textiles and furnishings, importance and their functions.

### UNIT II

Study of various household textiles and furnishing-Their Properties and application; Bed linen, towel, table napkins, kitchen aprons and dusters, table mats; types of curtains & draperies & valences; Slip covers, bed spreads, table linen; Diwan, cushions, sofa covers and bolsters.

### UNIT III

Non-woven furnishing materials, Study of various styles of accessories used in household textiles and furnishing .

### UNIT IV

Selection, care and maintenance of different household textiles; floor coverings, rugs and carpets; Types and role of under linings in draperies.

## Practical

Study of various household textiles-fibre content, yarn type, weave, design and finish. Bed linen, towel, table napkins, kitchen aprons and dusters, table mats; types of curtains & draperies & valences; Slip covers, bed spreads, table linen; Diwan, cushions, sofa covers and bolsters; development of theme board and Project work

## Suggested Readings

1. Brilliant J. 1986. *The Soft Furnishing Book*. Conran Octopus.
2. Macalls S. 1972. *Sewing in colours, Home-making, Tailoring, Mending, Soft Furnishing*. Hawlyn.
3. Naik, Shailja, D. 1996. *Traditional Embroideries of India*, A.P.H. Publishing Corp., New Delhi.
4. Pat Jones 1979. *Creative Sewing - Household Linen*. A Studio Vista Book.
5. Rutt Anna Hong 1967. *Home Furnishing*. John Wiley & Sons.
6. Taylor, P., 1990. *Computers in Fashion Industry*, Heinemann, London.

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**TAD 525**

**HISTORIC TEXTILES AND COSTUMES**

**3(2+1)**

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## Objective

To make them aware of the historical development in western textiles and costumes from ancient world to 21<sup>st</sup> century and acquaint them about male and female textiles and costumes of India and other countries.

## Theory

### UNIT I

Study of traditional dyed, printed, embroidered and non-woven textiles of America, China, Egypt, France.

### UNIT II

Study of traditional dyed, printed, embroidered and non-woven textiles of Greece, Japan and Rome – fibre content, fabrics, motifs, colours, dyes and designs used.

### UNIT III

History and evolution of traditional costumes of America, China, Egypt, France.

### UNIT IV

Greece, Japan and Rome through ages for women and men including the accessories- head dresses, jewellery, footwear and their significance in socio-economic status of the society.

## Practical

Collection of traditional textile print & surface designs of the above countries and documentation; Designing textile surface with combination of motifs of different countries; Documentation of various styles of men & women's garments of the

above countries; Designing outfits for men & women to suit to the current trends;  
Visit to a museum

### **Suggested Readings**

- Annalce Gold.1987. *One World of Fashion*. Fair Child Publ.  
Blanche Payne. 1965. *History of Costumes from the Ancient Egyptian to the Twentieth Century*. Harper & Row.  
Jack Cassin-Scott. 1994. *The Illustrated Encyclopedia of Costume and Fashion*. Studio Vista.  
John Peacock. 1996. *A Complete Guide to English Costume Design and History - Costume 1066–1990's*. Thames & Hudson.  
Pamela Stecker. 1996. *Fashion Design Manual*. Mac Millan.

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**TAD 526**

**ADVANCED DYEING & PRINTING**

**2(1+1)**

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### **Objective**

To understand the theory of dyeing in relation to various classes of dyes and its application, inculcate awareness of the different methods of printing and appreciate the technical advantages of each and develop technical competency in printing with different dyes on different fabrics.

### **Theory**

#### UNIT I

Concept of colour and its relation to light; classification and types of dyes/colouring matter.

#### UNIT II

Chemistry of dyes and pigments- composition, structure, properties, affinity towards fibres, method of application, fixing, after treatments and fastness properties;

#### UNIT III

Eco-friendly natural dyes and role of mordants; advanced dyeing techniques;

#### UNIT IV

Printing auxiliaries; advanced printing techniques; assessment for colour fastness.

### **Practical**

Preparation of shade cards with various class of dyes and colour matching; Natural dyes – Dyeing with different mordants; advanced techniques of fabric printing; theme based project works

### **Suggested Readings**

- Hall AJ. 1955. *Handbook of Textile Dyeing & Printing*. The National Trade Press.
- Joyce Story. 1974. *The Thames & Hudson Manual of Textile Printing*. Thames & Hudson.
- ShenaiVA. 1994. *Technology of Dyeing*. Sevak Publication, Bombay.
- Shenai, V.A., 1985. *Technology of Printing, Technology of Textile Processing, Vol. IV*, Sevak Publication, Bombay.
- Sule AD. 1997. *Computer Colour Analysis Textile Application*. New Age International.
- Vidyasagar, P.V. 1998. *A Handbook of Textiles*, Mittal Publications, New Delhi.
- Vilensky G. 1987. *Textile Science*. CBS

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**TAD 531**

**TEXTILE INDUSTRY AND TRADE**

**2(1+1)**

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### **Objective**

1. To enable the students to recognize the place of textile industry in the Indian economy, industries trends .
2. To develop awareness about the standardization of textile goods, consumer agencies and services.

### **Theory**

#### UNIT I

Textile industry- history and development.

Status of textile industry in India - cotton, wool, silk, rayon, jute, handlooms, and knitting industry; Government Textile & Clothing policies.

#### UNIT II

Study of Apparel parks, GATT, TUF, ISO 9000 & ISO 14000 standards, Apparel Export promotion Council, and Textile crafts councils.

### **Practical**

#### UNIT I

Market survey: awareness about the standardization of textile goods, consumer agencies and services.

Field visit to related industry.

#### UNIT II

Internship in related industry: Report writing and presentation.

### **Suggested Readings**

1. Karpan 2004. Change in Trends in Apparel Industry. Abiskeh Publ.
2. Kathryn Moore Greenwood 1978. Fashion Innovation & Marketing. Macmillan Co.
3. Kitty Dickerson 1995. Textiles & Apparels in Global Economy. Merrill Prentice Hall.
- 4.

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**TAD 532**

**COMPUTER AIDED TEXTILE & APPAREL DESIGNING 3(1+2)**

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### **Objective**

To introduce students to the various Textile and Apparel Designing designing concepts through CAD and introduce them about various advanced Textile and Apparel Designing software packages and develop the creativity of the students in use of 3D softwares.

### **Theory**

#### UNIT I

Ideal workstation for CAD- Selection of suitable hardware & software; role of computers in Textile and Apparel Designing production.

#### UNIT II

Types of images and characteristics; saving of images; colour ways in computers, creation of new designs for textile surface - planning for various weave designs – stripes, checks etc; leading to application and change of fabric texture, print and colour.

#### UNIT III

Creation of designs in apparel; texture variation by using effects like embossing, blooming, transparency and translucent look on a garment.

#### UNIT IV

Use of 3 D softwares for customisation of created designs as per end uses.

### **Practical**



Revision and practice on CAD commands ;Creating stripes and checks using various commands ;Creating weave library and assigning weaves to the designed stripes and checks for weaving ;Introduction to commands from different tool groups- file menu, freehand tools, geometric tool, selection tool, selection utility tool, colour utilities tool and general utilities tool ;Developing motifs by scanning and drawing using the CAD commands ;Creating full design/ repeat using drop devices ;Creating weaves and storing in Jacquard weave library; Assigning weaves to the design plan. Learning print commands- simulation and graph/ point paper; Developing a computer aided portfolio of different motifs; Introduction to Prima Vision software ;Command bars and assistants; Menu bar and options ;Drawing tools; Colour rendering ;Fill, pattern and repeat; Creation of Special effects Layers and layer settings; Introduction to draping mode ;Outlining, creation of grid and editing the object ;Draping scanned pictures ;Texture mapping and creating effects; Development of library and printing draped figures.

### **Suggested Readings**

- Davis L. Msrirn. 1980. *Visual Design In Dress*. Prentice Hall.  
 K. Prakash. 1995. *Traditional Indian Motifs for Weaving & Textile Printing*. Design Points, Bombay.  
 K. Prakash. 1994. *Impression – A Classic Collection of Textile Designs*. Design Points, Bombay.  
 Rene Weiss Chase 1997. *CAD for Fashion Design*. Prentice Hall.  
 Winfred Aldrich 1992. *CAD in Clothing & Textiles*. BSP Professional Books.  
 Yates, Mary Paul. 1996. *Textiles – A Handbook for Designers*, W.W. Norton, New York.

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**TAD 533**

**APPAREL QUALITY ANALYSIS**

**2(1+1)**

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### **Objective**

To familiarize students with the different apparel quality standards, their underlying principles and the international accepted standards and test methods and develop ability to analyze and interpret the results and predict the general quality control.

### **Theory**

#### UNIT I

Quality control- scope and functions of quality control; Quality specifications and standards in raw material purchasing, quality control in spreading, cutting and bundling products.

#### UNIT II

quality factors in sewing, pressing, folding & finishing; quality aspets of trims and fashions.

#### UNIT III

Standards- sources of application; national and international organisation for standards.

#### UNIT IV

Inspection techniques; quality auditing system.

#### **Practical**

Visit to an apparel industry; Inspection of raw material – classification and analysis of fabric defects ;Study of specification sheets - various garments; Analysis of sewing & fasteners quality; Study of quality auditing system in the industry ;Quality analysis of selected garments available in the market.

#### **Suggested Readings**

Gerry Cooklin. 1991. *Introduction to Clothing Manufacture*. Blackwell.

Gerry Cooklin. 1997. *Garment Technology for Fashion Designer's*. Blackwell.

Jacob Solinger. 1980. *Apparel Manufacture*. Van Nostrand Reilfold.

Latheam Barbara & Carr Harold, 1999, *The Technology of Clothing Manufacture*. Blackwell Science.

Pradeep V Mehta. 1998. *Managing Quality in Apparel Industry*. New Age International.

Ruth Glock. 1990. *Apparel Manufacturing*. Macmillan Publ.

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<b>TAD 534</b>	<b>CONSUMER BEHAVIOR - TEXTILES &amp; APPAREL</b>	<b>2(1+1)</b>
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#### **Objective**

To provide the in-depth knowledge of consumer behavior, consumer protection measures and give them knowledge about retailing in fashion industry.

#### **Theory**

##### UNIT I

Introduction & Overview; the Consumer perspective and view points; understanding the consumer; Environmental Influence; Individual Differences.

##### UNIT II

Consumer Resources: Involvement and Motivation Knowledge, Attitudes: Individual difference in behaviour; Psychological Processes.

##### UNIT III

Consumer Decision Processes and Behaviour; Consumer Analysis & Marketing Strategy; Retailing; Consumer Trends; Market Segmentation; Diffusion of innovation.

#### UNIT IV

Counterfeit textiles and consumer protection measures; Global Consumer Markets.

#### **Practical**

Conducting survey to study the consumer behaviour & preferences of fabric, colour, texture, style of garments etc. from various sectors ;Analysis of market; Identification of areas of consumer education in the field of apparel & textiles; Developing educational material for education consumers; Educating selected consumer groups in the identified areas.

#### **Suggested Readings**

Cranz Rosen Lou Mary, 1972. *Clothing Concepts*. Collier Mcmillan Ltd., London.

Flugel JC. 1950 . *The Psychology of Clothes*. Prentice International Ltd., London.

Fringes G.S. *Fashion from Concept to Consumer*. Prentice International Ltd., London.

Mary Kafgen & Phyllis 1971. *Individuality in Clothing Selection & Personal Appearance*. The Macmillian Co.

Ryan.M.S. 1966. *Clothing - A Study in Human Behaviour*. Winston.

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<b>TAD 535</b>	<b>TEXTILE FINISHES</b>	<b>2(1+1)</b>
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#### **Objective**

To study the chemicals used in textile processing from sizing to finishing, along with the essential properties of raw materials used in their manufacture and study the recent developments in various finishing processes.

#### **Theory**

##### UNIT I

Finishing – Concept, scope & importance; Functional finishes – soil repellent, soil resistant, soil release; antistatic, anti-pilling; wash and wear; crabbing, decatizing, water proof & repellency, mildew-proof; flame resistant and flame proof; anti-bacterial.

##### UNIT II

Eco-friendly finishing with enzymes; comfort imparting finishes with reference to the application, uses, characteristics, problems and evaluation.

### UNIT III

Textured yarns & fabrics; finishing of blended fabrics.

### UNIT IV

Recent advances in finishing.

### **Practical**

Identification of finishes; Preparation of fabric for finishes; application of selected finishing agents and their assessment; Eco-friendly finishing of textiles; Assessment of properties of the finished fabrics ;Study of labels pertaining to finishes; Visit to processing and finishing units

### **Suggested Readings**

- Bernard P Corbman. 1983. *Textiles - Fiber to Fabric*. McGraw-Hill.  
Nisbel, H., 1978. *Grammer of Textile Design*. D.B. Taraporevale Sons and Co. Pvt. Ltd., Bombay.  
Prayag RS. 1988. *Textile Finishing*. Sri T Printers.  
Shani. 1976. *Chemistry of Textile Axillaries*. Sevak Publication, Bombay.  
Shenia. 1995. *Technology of Bleaching & Mercerizing*. Sevak Publication, Bombay.  
Vaidya A & Trivedi 1975. *Textile Auxiliaries & Finishing Chemicals*. ATIRA, Ahemadabad.  
Vilensky G. 1987. *Textile Science*. CBS.  
Wynne A. 1997. *Textiles*. Macmillian.

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TAD 536

SOCIO-PSYCHOLOGICAL ASPECTS OF CLOTHING

2(2+0)

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### **Objective**

To study the psychological effects of clothing on the individual in social situations and develop the understanding about self esteem and clothing symbolism.

### **Theory**

#### UNIT I

Origin of clothing, use of clothing among primitive people; Functions and theories of clothing; Clothing in relation to culture.

UNIT II

Psychological aspects of clothing-self respect, self-enhancement, self expression, gender desirability and individuality; Socio-psychological aspects of clothing among children; significance of uniforms and national costumes.

UNIT III

Clothing symbolism, fashion, fad, custom, tradition, culture contact, status, youth, education, social agitation of women and technology and role of legislation.

UNIT IV

Clothes for conformity, mobility, aesthetic appearance; Health and sanitation related to clothing.

**Suggested Readings**

Cranz Rosen Lau Mary, 1972. *Clothing Concepts*. Collier Mcmillan Ltd., London.

Horn, Marilyn, J. 1981. *The Second Skin – An Interdisciplinary Study of Clothing*, HughtonMifflin Co., Boston.

Marion, S. and Hill House 1963. *Dress Selection & Design*. The Macmillan Co.

Mary Kefgen& Phyllis 1971. *Individuality in Clothing Selection & Personal Appearance*. The Macmilliam Co.

Ryan MS. 1966. *Clothing - A Study in Human Behaviour*. Winston.

**Department of Textiles and Apparel Designing**

**SEMESTER WISE COURSE DISTRIBUTION – Ph. D. Programme**

<i>Semester – I</i>		
<b>TAD-611</b>	Functional Clothing	3(2+1)
<b>TAD-612</b>	Technical Textiles	3(2+1)
<b>H.Sc. 600</b>	Research Project Management	3(2+1)
<b>Minor I</b>	From other department	3
<b>TAD-691</b>	Doctoral Seminar I	1

<b>PGS-501</b>	Library & Information services	0+1
<b>Total</b>		<b>14</b>

<i>Semester – II</i>		
<b>TAD-621</b>	Textile Ecology	3(3+0)
<b>TAD-622</b>	Sourcing And Globalization	3(2+1)
<b>TAD-624</b>	Textile conservation	3(2+1)
<b>TAD-692</b>	Doctoral Seminar II	1
<b>Stat-600</b>	Data Processing	2(1+1)
<b>Minor II</b>	From other department	3
<b>PGS-502</b>	Technical writing & communication Skills	0+1
<b>Total</b>		<b>16</b>

<i>Semester – III</i>		
<b>TAD-681</b>	Preliminary	-
<b>TAD-699</b>	Doctoral Research	12
<b>TAD-631</b>	Product Development	3(1+2)
<b>Total</b>		<b>15</b>

<i>Semester – IV</i>		
<b>TAD-699</b>	Doctoral Research	18
<b>Total</b>		<b>18</b>

<i>Semester – V</i>		
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<b>TAD-699</b>	Doctoral Research	15
<b>Total</b>	<b>15</b>	

## DEPARTMENT OF TEXTILES AND APPAREL DESIGNING

### Ph.D. Course Structure

COURSE NO.	COURSE TITLE	CREDITS
<b>Major-compulsory-</b>		<b>9 credit</b>
TAD 611	FUNCTIONAL CLOTHING	2+1
TAD 612	TECHNICAL TEXTILES	2+1
TAD 621	TEXTILE ECOLOGY	3+0
<b>Any two from following-</b>		<b>6 credits</b>
TAD 613	NON-WOVEN TEXTILES	2+0
TAD 622*	SOURCING AND GLOBALIZATION	2+1
TAD 623	TEXTILE AUXILIARY	1+1
TAD 624*	TEXTILE CONSERVATION	1+1
TAD 631*	PRODUCT DEVELOPMENT	1+2
TAD 632	COLOUR APPLICATION IN TEXTILES	1+1
TAD 633*	APPAREL INDUSTRY MANAGEMENT	1+1
TAD 634	RECENT ADVANCES IN TEXTILE AND APPAREL DESIGNINGS	2+0
<b>Supporting-</b>		<b>5 credits</b>
H.Sc. 600	RESEARCH PROJECT MANAGEMENT	3(2+1)
Stat-600	DATA PROCESSING	2(1+1)
TAD 691	DOCTORAL SEMINAR I	1+0

TAD 692	DOCTORAL SEMINAR II	1+0
TAD 699	DOCTORAL RESEARCH	45

**Non-Credit Compulsory Courses:**

CODE	COURSE TITLE	CREDITS
PGS 501	LIBRARY AND INFORMATION SERVICES	0+1
PGS 502	TECHNICAL WRITING AND COMMUNICATIONS SKILLS	0+1
PGS 503 (e-Course)	INTELLECTUAL PROPERTY AND ITS MANAGEMENT IN AGRICULTURE	1+0
PGS 504	BASIC CONCEPTS IN LABORATORY TECHNIQUES	0+1
PGS 505 (e-Course)	AGRICULTURAL RESEARCH, RESEARCH ETHICS AND RURAL DEVELOPMENT PROGRAMMES	1+0
PGS 506 (e-Course)	DISASTER MANAGEMENT	1+0

Ph. D. students may be exempted from these courses if already studied during Master's degree.

**Minimum Credit Requirements**

Subject	Doctoral Programme
Major	15
Minor	08
Supporting	05
Non-credit compulsory courses	-



Seminar	02
Research	45
<b>Total Credits</b>	<b>75</b>

Department of Textiles & Apparel Designing,  
College of Home Science, Udaipur

**Minor courses to be offered to students of Ph. D. (9 Credits)**

S.No.	Course Title	Course No.	Credit Hrs.
1.	Sourcing and Globalization	TAD- 604	3(2+1)
2.	Product Development	TAD-606	3(1+2)
3.	Textile Conservation	TAD-607	2(1+1)
4.	Apparel Industry Management	TAD-609	2(1+2)

**Remedial courses to be offered to students of Ph.D. (9 Credits)**

S.No.	Course Title	Course No.	Credit Hrs.
1.	Fashion Draping and Custom Clothing	TAD- 506	3(0+3)
2.	Computer Aided Textile & Apparel Designing	TAD-510	3(1+2)
3.	Home Textiles	TAD-511	3(1+2)

**Objective**

To enable the students to recognize the importance of portable clothing in textile industry and develop skills in them for designing functional clothing for farm, industrial workers and fire fighters etc..

**Theory**UNIT I

Clothing as a portable environment; Comfort in Clothing - principles of heat transfer in apparels, thermal insulation, breathable textiles, clothing systems for thermal protection.

UNIT II

Designing comfortable apparel suitable for warm and cool weather; Impact protective clothing; providing mobility in clothing- Sports clothing – Requirements, importance and designing; fastening systems in clothing; meeting special needs with clothing.

UNIT III

Clothing design for military, clothing design to accommodate physical disabilities & irregularities; clothing design for expecting and lactating mothers.

UNIT IV

Protective clothing- farm, industrial workers, fire fighters.

**Practical**

Survey on selected functional clothing available in the market; Designing clothing for pregnant women and nursing mothers; Designing garments for physically challenged and analysis; Designing protective clothing for pesticide applicators, selected industrial workers and fire fighters and analysis; Designing locale specific sports clothes and analysis;

**Suggested Readings**

Cookling, G., 1997. *Garment Technology for Fashion Designers*. Blackwell Science. London.  
Kilgus, R. (Ed.) 1999. *Clothing Technology*, Europa Lehrmittel, Textile Institute, Manchester.  
Tate M & Glisson O. 1967. *Family Clothing*. John Wiley & Sons Inc. New York

**Objective**

To acquaint the students with the techniques of development in nano fiber and micro fibres and study the recent development in the field of technical textiles.

**Theory**UNIT I

Developments in Nano-fibre and microfibre non-wovens; importance and classification of technical textiles- types of fibers, materials.

UNIT II

Medical Textiles; Special textiles for industrial applications; automotive textiles; Industrial textiles.

UNIT III

Agro textiles; geo-textiles; Phase Change Materials; Shape Memory Materials; Chromic Materials.

UNIT IV

Conductive Materials and other Functional Materials- characteristics and its applications; Smart textiles – factors affecting the selection and uses.

**Practical**

Survey of available technical textiles; development of library of technical textiles; Project work.

**Suggested Readings**

Allison Mathews 1994. *Medical and Hygiene Textile Production*. Intermediate Technology Publ.

Cookling Gerry, 1997. *Garment Technology for Fashion Designers*. Blackwell Science, London.

Padmanabhan, A.R. 1988. *A Practical Guide to Textile Testing*, SITRA, Coimbatore. Prentice Hall, New York.

Skinkle, John H. 1972. *Textile Testing*, D.B. Taraporewala, Bombay.

**Objective**

To develop the knowledge about fundamental techniques of nonwoven textiles and skill in testing and evaluation of nonwoven textiles.

**Theory**UNIT I

Introduction, History, Terms and Definitions of Nonwoven fabrics, characteristics and properties of Nonwoven fabrics, polymers, fibres and binders.

UNIT II

Terminology of non-woven; and types of web formation, bonding and finishing processes, felt fabrics, Needle punched fabrics, spun laced fabrics, dry & wet laid non-woven fabrics; spun bonded and stitch bonded non-woven fabrics; properties and end uses; finishing non-woven.

UNIT III

Trends in non-woven technology, scope of non-woven textiles, Identification of Nonwoven fabrics.

UNIT IV

Testing and evaluating of Nonwovens; Laminated fabrics

**Suggested Readings**

Gohi E.G. and Vilensky. 1993. *Textile Science*, C.B.S. Publishers, New Delhi.

Hall, A.J. 1995. *Students Hand Book of Textile Science*, Newness Butterworths, London.

Lewin, M. and Pearce, E.M. (Eds) 1998. *Handbook of Fibre Chemistry*, Marcel and Dekker, New York.

Vidyasagar, P.V. 1998. *A Handbook of Textiles*, Mittal Publications, New Delhi.

**Objective**

To develop awareness about types of pollution from textiles processing units and their effect and understand the health hazards of textile workers and their remedial measures.

**Theory**UNIT I

Industrialization, eco-balance and textile ecology. Air, noise and water pollution by mechanical and chemical textile processing and their effect. Treatment and disposal of textile effluents. Treatment processes of sewage.

UNIT II

Health hazards of textile workers working in various textile units and their remedial measures. Banned dyes and auxiliaries.

UNIT III

Eco-friendly production and processing of textiles with special reference to organic and naturally coloured cotton, natural dyes and detergents etc.

UNIT IV

Indian and International environmental legislations. Eco labeling, management and auditing.

**Suggested Readings**

Mark, K.H., Woodlings and Atlas, S.M.. 1971. *Chemical after treatment of Textiles*. John Wiley & Sons., New York.

Skinkle, John H. 1972. *Textile Testing*, D.B. Taraporewala, Bombay.

**Objective**

To develop the knowledge about the key issues of globalisation and skill in testing and evaluation of nonwoven textiles.

## **Theory**

### UNIT I

Supply chain management in Textiles & Apparel- principles and role in branding; evaluation of key issues facing Textile and Apparel Designing businesses in global markets considering ethical, economic, political, social and professional implications.

### UNIT II

Developments in textile & apparel industries before and after phasing out quota system.

### UNIT III

Recent trends in major exporting countries, trade policies; integrated strategies towards fair globalisation- improving competitiveness and social responsibility in the industry.

### UNIT IV

Actions, policies and shared responsibilities – role of governments, manufacturers, buyers, trade unions and Multinational enterprises.

## **Practical**

Demographics related to textiles & apparel of various countries before and after phasing out quota system; Analysis of opportunities and extent of utilisation by the leading countries - sourcing options considering quality, production capabilities, workers' rights, investment risk, logistics, legal compliance, and trade policies; Study on supply chain management in textiles & apparel – preparation of flow diagrams describing the supply system in different countries and analysis; Project work based on secondary data.

## **Suggested Readings**

Easey Mike, 2000. *Fashion Marketing*. Blackwell Science. London.

Jarnow Jeannette, Guessio Miriam, 1991. *Inside the Fashion Business*. Prentice Hall, London.

Paola de Helena and Muellor Stewart Carol, 1986. *Marketing Today's Fashion*. Prentice Hall, New Jersey.

**Objective**

To impart the knowledge about various textiles auxiliary used in textile processing and finishing with eco-friendly auxiliaries.

**Theory**UNIT I

Definition, history, selection & classification of auxiliaries; important processing operations in which auxiliaries are used.

UNIT II

Chemistry and synthesis of surface active agent- essential requirements of a surfactant, classification, anionic surfactants, cationic agents, non-ionic surfactants, biodegradability of surfactants.

UNIT III

Finishing Agents-Stiffening agents, cross linking agent, optical brightening agent, softeners, water repellents, Flame retarding agent, antistatic agent, soil release agent, antipilling agent, mothproof and mild proof agents.

UNIT IV

Methods of Evaluation of Textile Auxiliaries; eco-friendly auxiliaries.

**Practical**

Collection of various surfactants available in the market; Analysis of the surfactant properties in selected surfactants ;Preparation of various sizing combinations; Analysis of the sized samples and selection of suitable combinations; Assessment whiteness of fabrics finished with various bleaches & optical brightening agents; Assessment of finished fabrics with selected finishing auxiliaries; Finishing with eco-friendly auxiliaries and assessment.

**Suggested Readings**

Bogley, M., 1977. *Textile Dyes, Finishing and Auxiliaries*, Garland Publication, New Wood, London.

Fiscus, G. and Grunenwald, D. 1996. *Textile Finishing: A Complete Guide*, Textile Institute, Manchester.

Hall, K.J. 1966. *Textile Finishing*, Heywood, London

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**TAD 624**

**TEXTILE CONSERVATION**

**3(2+1)**

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**Objective**

To develop the awareness about textiles conservation and skill in assessment of damage, repair and stabilization of textiles.

**Theory**

UNIT I

Importance of textile conservation; Various methods for analysis of textiles -fibre content, yarn & fabric structure.

UNIT II

Damage to textiles – pests, micro organisms etc.; Condition assessment, repair, and stabilization of textiles and apparels in museum collections. Textiles Pests and their control.

UNIT III

Textiles in museum environment – Basic control of museum environment – relative humidity, dirt, sulphur dioxide, other pollutants in air, light, deterioration of museum textiles.

UNIT IV

Principles of cleaning fragile textiles; Effect of fiber composition and colorant on textile cleaning – acid, basic, direct, mordant and developed dyes. Effect of soil on cleaning – air removable and wet cleanable soil, Physical and mechanical aids to cleaning- preparation for cleaning, selection of cleansing medium-dry, aqueous, wet solvent cleaning. Cleansing techniques – soaking, sponging, brushing, tumbling and jet action, resoiling, rinsing, extraction, drying and finishing.

Proper conditions for display of various textiles – curtains, bedsheets, flat fabrics, carpets, tapestries etc. Impact of light, pollution, humidity, external and internal hazards.

**Practical**

Visit to a museum and study of various textile conservation methods; Analysis of aged textiles - fiber content, yarn & fabric structure; Assessment of damage; Repair and stabilization of textiles; Exposure to cleaning techniques; Project work;

**Suggested Readings**

Harris J. (Ed.). 1993. *Five Thousand Years of Textiles*. British Museum.

Leene JE. 1972. *Textile Conservation*. Butterworths.

Williams JC. 1977. *Preservation of Paper and Textiles of Historic and Artistic Value*. American Chemicals Society.



**Objective**

1. To impart the knowledge about various product standards and product specifications and the process of product development towards market need.

**Theory**UNIT I

Product development – definition, history, Objective; product design & manufacturing, use of merchandising calendar.

UNIT II

Product testing; product economics; product standards and specifications; product quality control; technical services &, marketing.

UNIT III

Organizational behaviour; accounting; product intellectual property law.

UNIT IV

Role of computers in product development and related software's

**Practical**

Product review – preparation of product profile; Survey on selected products from textile & apparel field ;Product testing & analysis of selected textiles– quality, serviceability, material, construction performance, products standards, specification and cost ;Product testing & analysis of selected Apparels– quality, serviceability, material, construction performance, products standards, specification and cost ;Product planning- design, production, relative to cost requirements, aesthetic and functional requirements, producibility, and market needs; Project work

## Suggested Readings

1. Bhargav, R. 2005. *Design Ideas & Accessories*, Jain Publications Pvt. Ltd., New Delhi.
2. Carr Harold & John Pomeroy, 1996. *Fashion Design & Product Development*. Blackwell Science, London.

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<b>TAD 632</b>	<b>COLOUR APPLICATION IN TEXTILES</b>	<b>2(1+1)</b>
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### Objective

To develop the knowledge about conditions for dyeing, printing and finishing treatments and skill in analysis of dyed fiber, yarn and fabric. colour science and computer colour matching.

### Theory

#### UNIT I

Detailed theory of colour science and computer match prediction in dyeing fibres, yarns, and fabrics.

#### UNIT II

Spectrophotometers for colour systems, software & hardware for colour systems.

#### UNIT III

Objective specification of colour, colour difference, shade sorting, various colour spaces.

#### UNIT IV

Assessment of whiteness, computer match prediction algorithms based on colour theory and numerical analysis.

### Practical

Laboratory techniques for assessing colour strength and reflectance; developing arbitrary scales; Familiarisation of commands to use software in colour spectrophotometer; Analysis of dyed fibre, yarn and fabrics; Creation of data files and reproduce dyed samples with the match prediction; Analysis of colour fastness of dyed samples; management and interpretation of data generated.

### Suggested Readings

Booth, J.E. 1996. *Principles of Textile Testing*, C.B.S., New Delhi.

Padmanabhan, A.R. 1988. *A Practical Guide to Textile Testing*, SITRA, Coimbatore. Prentice Hall, New York.

**Objective**

To introduce the students to various trends in management of garment industry and understand various export and import policies.

**Theory**UNIT I

Complexity of management in garment industries- Objective and expectations; status of garment industry in India-production, marketing, distribution, consumption and export trends over last five years.

UNIT II

Personnel management in domestic and export apparel industry; techniques in managerial application of cost-volume-profit analysis; productivity analysis; technology upgradation of apparel units - CAD & CAM; productivity rate.

UNIT III

Government policies in export and imports; effect of trade globalization; problems of apparel industry and remedial measures.

UNIT IV

Trends in management, infrastructure facilities and incentives offered for starting a garment industry.

**Practical**

Visit & survey in domestic and export garment industries that produce shirts, trousers & women's garments; Compilation of data as per the labour & machinery output; Drawing floor plans of the industries; Analysis of garment industries in terms of inputs and outputs; Determination of productivity of the industry & comparison; SWOT analysis of the industries.

**Suggested Readings**

Gerry Cooklin. 1991. *Introduction to Clothing Manufacture*. Blackwell.

Gerry Cooklin. 1997. *Garment Technology for Fashion Designer's*. Blackwell.

Jacob Solinger 1980. *Apparel Manufacture*. Van Nostrand Reilfold.

Pradeep V Mehta 1998. *Managing Quality in Apparel Industry*. New Age International.

Ruth Glock 1990. *Apparel Manufacturing*. Macmillan.

**DESIGNING**

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**Objective**

To provide indepth knowledge of latest developments in textile and apparel designing and help them to identify thrust areas of research

**Theory**UNIT I

Recent researches in production and manufacture of textile fibers, yarns and fabrics.

UNIT II

Chemical processing of natural and synthetic textiles and their conversion into clothing.

UNIT III

Developments in the field of functional textiles and clothing; use of special techniques in textile processing.

UNIT IV

Thrust areas of contemporary research and future projections

**Suggested Readings**

Journals of Apparels and Textiles