

SECTION IX

FACULTY OF HOME SCIENCE

General information

Disciplines

- Apparel and Textile Science
- Fashion Designing
- Extension Education and Communication Management
- Family Resource Management
- Interior Design
- Food and Nutrition
- Nutrition and Dietetics
- Human Development and Family Studies

COLLEGE OF HOME SCIENCE

Home Science is an inter-disciplinary field of knowledge which integrates concepts from Physical, Biological, Agricultural, Social and Environmental Sciences along with its own components of Apparel and Textile Science, Extension Education and Communication Management, Family Resource Management, Food and Nutrition, and Human Development and Family Studies. It prepares the individuals to obtain recent scientific information for dealing with real life situations to cope up with everyday problems effectively by providing broad-based, culturally relevant knowledge in different areas of Home Science.

The need of Home Science Colleges as a part of State Agricultural Universities emerged with an increase in awareness of contribution of rural and urban women to family economy and in raising the standard of living. Punjab Agricultural University started the College of Home Science in July, 1966 with the help of two USAID experts in Home Science - Dr Edna R Kaufman and Dr Maria S Friesen. Through its integrated programme of teaching, research and extension, the College grew rapidly, playing a significant role in improving the socio-economic conditions of rural as well as urban families, thereby, giving them opportunity to have a better quality of life.

Mrs Sushila Dantiyagi, a renowned Home Scientist, was the founder Dean of the College who was at the helm of affairs till August, 1973. The other successive Deans of the College were: Drs S Bajaj, N S Randhawa, K K Sharma, P L Srivastava, M B Singh, , S K Mann, M K Dhillon, Neelam Grewal, Jaswinder Kaur Sangha and Jatinder Kishwaria. Dr. G K Sangha took over as Dean of the College in November 2015.

The mainstay of College of Home Science is B.Sc. (Hons) Community Science 4-year programme after 10+

2. The College has started three new degree programmes - B.Sc. (Hons) Fashion Designing of 4-year duration, B.Sc. (Hons) Nutrition and Dietetics of 4-year duration and B.Sc. (Hons) Interior Design also of 4-year duration from the academic sessions 2008-09, 2009-10 and 2014-15 respectively. The College has also started M.Sc. Fashion Designing from the academic session 2011-12.

The College of Home Science is a pioneer institution among the Home Science Colleges of State Agricultural Universities that started offering Masters' programmes in all the disciplines of Home Science in the seventies. The Doctoral programmes in Food and Nutrition and Family Resource Management were introduced in the years 1974 and 1978, respectively. As the discipline grew, the Ph.D. programmes were initiated in other departments as well

- Extension Education and Communication Management in 1986-87, Human Development and Family Studies in 1997-98 and Apparel and Textile Science in the year 1998-99.

Since the inception of the College, periodic, need based revision of course curriculum has been undertaken to cater to the emerging scenario in the discipline. The Vth Deans' committee of the ICAR has recommended change in the syllabi of various UG programmes being run by SAUs with a view to orient these towards emerging needs of respective disciplines and the educational scenario. The course curriculum of B.Sc (Hons) Community Science 4-year degree programme has been restructured in the light of these recommendations, without deviating from the main mission of the programme. Under the restructured curriculum, the students are required to take specialization/ professional courses in one of the specific disciplines of Home Science in the last year. These courses are vocational in nature and provide practical training in self-employment/entrepreneurship. In the last semester, Experiential Learning and In plant Training of the students has been planned to hone their entrepreneurial skills and enable them to start their own enterprises. The students will also undertake Rural Awareness Work Experience in this semester.

The curricula of Masters' and Ph.D. programmes in all the disciplines of Home Science was also restructured in 2010-11 in accordance with ICAR guidelines. The present curricula aims at increasing both the academic as well as vocational capabilities of the students for better employability. Therefore, a choice of elective courses for intra discipline specializations is being offered.

The College has the privilege of having one of the best-equipped laboratories amongst the Home

Science Colleges of the country. There are good number of class rooms, seminar rooms and laboratories in the College. To facilitate the teaching of highly vocational professional electives, several additions have been made to the existing laboratories. These include Baking, Institutional Management, Multimedia, Computer and ARIS laboratories. The College also has four Experiential Learning Units, one each on Apparel Manufacturing, Artistic Creations, Bakery and Confectionary and Early Childhood Care and Education. Latest equipment have also been added to the laboratories of the departments to impart quality education both at UG and PG level.

APPAREL AND TEXTILE SCIENCE

PROGRAMMES

1. **B.Sc.(Hons) - Fashion Designing**
2. **M.Sc. Fashion Designing**
3. **M.Sc.**
4. **Ph.D**

COURSE REQUIREMENT

M.Sc. Fashion Designing

Field of specialization	Fashion Designing
Required courses	FD 501, FD 502, FD 503, FD 504, FD 505, FD 506
Supporting courses (other	Stat 421, PGS 501 and other courses from subject matter fields than minor) relating to area of special interest and research problem.
Minor fields	Apparel and Textile Science, Business Management, Extension Education, Family Resource Management, Sociology or any other as approved by the Dean Postgraduate Studies.
Deficiency Courses	As recommended by the Student's Advisory Committee and approved by the Dean, Postgraduate Studies

M.Sc.

Fields of specialization	Apparel, Textiles
Required courses	ATS 501, ATS 502, ATS 503, ATS 504, ATS 505, ATS 506
Supporting courses (other	Stat 421, PGS 501 and other courses from subject matter fields than Minor) relating to area of special interest and research problem.
Minor field	Business Management, Extension Education and Communication Management, Extension Education, Family Resource Management, Sociology, Chemistry or any other as approved by the Dean, Postgraduate Studies.
Deficiency courses for students with elective other than Apparel and Textiles	As recommended by the Student's Advisory Committee and approved by the Dean, Postgraduate Studies

Ph.D.

Fields of specialization	Apparel, Textiles
Required courses	ATS 601, ATS 602, ATS 603, ATS 604
Supporting courses area of	Courses from subject matter fields (other than Minor) relating to special interest and research problem.
Minor field	Business Management, Extension Education and Communication Management, Extension Education, Family

Deficiency courses

Resource Management, Sociology, Chemistry or any other as approved by the Dean, Postgraduate Studies.

As recommended by Student's Advisory Committee and approved by the Dean, Postgraduate Studies

DESCRIPTION OF COURSE CONTENTS

Undergraduate Courses

ATS 101 Fundamentals of Clothing Construction **1+2** **Sem I**

Importance and functions of clothes. Terminology related to clothing construction. Sewing tools and equipments required for measuring, drafting, cutting and stitching. Selection and preparation of fabric for garment construction. Layout of paper pattern, marking, cutting and stay stitching. Unit construction method. Socio-economic and psychological factors affecting clothing choices. Consumer behaviour and motivation. Clothing requirements of different age groups: infant, toddler, pre-schooler, school age children, teenager, adolescent, adult and senior citizen. Application of elements and principles of art in apparel designing.

Practical: Demonstration on sewing equipments and tools, sewing machine and its care. Preparation of samples - hand stitches, basting, slip-stitching, hemming, smocking, overcasting, attaching fasteners and button holing, mending and patching. Machine stitches- seam and seam finishes, pleats, gathers and tucks, stay stitch, under stitching and placket opening. Demonstration on taking body measurements. Preparation of fabric for cutting and layout of paper pattern on different fabrics, patterns including plain, print, lines, plaid and check. Drafting, cutting and stitching of petticoat, bloomer and baby's frock.

ATS 102 Textile Science and Fabric care **2+1** **Sem II**

Importance of textile industry in national economy. Terminology, forms of textiles. Properties of textile fibres - primary and secondary. Classification of textile fibres. Chemical composition. Orientation of fibres. Cotton, Flax, Jute, Wool, Silk - fibre production, varieties and their grading, morphology, physical, chemical and biological properties and end-uses. Introduction to hemp and ramie. Man-made and synthetic fibres – Rayon, Diacetate and Triacetate, Nylon, Polyester and acrylic - manufacturing, microscopic structure, physical, chemical and biological properties and end-uses. Spinning of natural and man-made fibres. Classification of yarns on the basis of structure - simple and novelty, twist direction, twist amount fibre length and end uses. Important yarn properties. Methods of fabric construction- weaving, knitting, braiding, tufting, netting, lace making, crocheting, macramé, stitch through fabrics, quilting, lamination, bonding, felting, nonwovens and films. Stain removal-classification, principle and methods of removal. Laundry - definition, principles, equipment, methods and dry cleaning. Laundry agents- water, soap. Laundry auxiliaries- stiffening agents, bleaches and blues. Care of textiles. Labeling and Labeling Act. Labels and tags used in textiles. Storage of clothes - requirements of short and long term storage.

Practical: Testing of textile fibres - microscopic, burning, solubility and visual inspection. Identification of different types of yarns, fabric samples of different thread count and construction. Removal of different stains from fabric surface. Washing and finishing of garments made from cotton, wool, silk, blends/ synthetic. Folding and packaging of clothes. Collection of different labels. Visit to a textile industry.

ATS 201 Techniques of Fabric Construction **2+1** **Sem I**

Fabric construction – Introduction and methods. Weaving terminology. History of weaving and looms. Characteristics of woven fabric. Classification, parts and working of looms. Loom mechanics and weft insertion. Loom accessories and their functions. Principles and mechanism of weaving - primary, secondary and tertiary motions. Basic weaves- plain, twill and satin and their variations. Complex weaves: extra yarn fabrics- pile, lappet, swivel; leno, damask, dobby and jacquard. Knitting terminology. History and principle of knitting. Knitting machines- parts and their functions. Types of knitting machines. Stitches used in knitting - plain, rib and purl. Types of knitted fabrics and their characteristics. Non wovens – construction, properties, types and end uses. Felting - manufacturing process, characteristics of felt and end uses. Macramé and crochet- tools and materials, construction, properties and end uses.

Practical: Analysis of fabric structures using a magnifying glass. Graphical representation of woven designs. Identification of parts of the loom. Weaving calculations. Yarn preparation for plain weave. Setting of loom and weaving of plain weave samples. Types of knitting machines and its parts. Sample preparation using different hand and machine knitting techniques. Construction of macramé and crochet samples. Visit to weaving, knitting and felting industrial units.

ATS 202 Garment and Accessory Designing

0+3

Sem II

Anthropometry -importance and techniques. Selection of figure template for men, women and children. Designing of women's garments using different construction features- collars, sleeves, necklines and yokes; men's garments using different collars, sleeves, cuffs and yokes; children's garments using different gathers, pleats, tucks, yokes, shirring, smocking and trimmings. Drafting and construction of selected garments for women, men and children- fancy frock, *salwar/ pyjama/ pyjama, kurta (gents)/ kameez (ladies)*, night dress/ gown. Classification of accessories - footwear, hand bags, belt, jewellery, gloves, hats, scarves and umbrella. Designing of accessories for women, men and children. Selection of design and construction of one accessory each for women, men and children.

ATS 301 Textile Finishes

2+1

Sem I

Textile finishing- definition and its importance. Classification of textile finishes- chemical and mechanical; performance finishes-durable/ permanent /non-renewable and temporary/ renewable/surface/semi- permanent; reactive and additive, aesthetic/basic and functional. Processes of removing impurities from fabrics - scouring, desizing, degumming and carbonizing. Purpose and application of different finishes - fulling / milling, felting, singeing, stiffening, decatizing, bleaching, delustering, calendaring, beetling, napping, flocking, devore, parchmentation, plisse finishing, tentering, shearing, brushing, water proofing, water repelling, shrinkage control, wrinkle resistance, anti-static, anti-microbial, durable press and flame retardant finish. Dyes and pigments. Application and classification of dyes- direct, acid, basic, vat, azoic/naphthol, mordant, sulphur, reactive, disperse and natural dyes. Dyeing equipment and techniques - solution dyeing, fibre dyeing, tow and stock dyeing, yarn dyeing, skein and package dyeing and piece dyeing. Styles of printing- direct, discharge and resist printing. Printing equipment and methods - block, screen, stencil, roller, discharge, heat transfer printing, batik and tie and dye.

Practical: Finishing of cotton fabric- scouring, bleaching, mercerization. Tying and dyeing of cotton fabric with direct dyes. Fabric designing by batik technique using azoic/naphthol dyes. Printing of cotton fabric using different methods – block, stencil, screen, discharge and heat transfer. Visit to dyeing and printing unit.

ATS 302 Traditional Textiles of India

2+1

Sem II

Traditional textiles of India – Introduction, importance and market scenario. Geographical indications obtained for traditional Indian textiles. History of woven textiles- Dacca muslin, brocades, traditional sarees of India - *Jamdani, Baluchari, Pochampalli, Patola, Ikat, Kanjivaram, Chanderi, Maheshwari, Bomkai, Sambhalpuri, Vichitrapuri, Paithani, Kota doria, Gadwal, Irkal, Venkatagiri, Narayanpet, Kasavu, tanchoi* and brocade sarees. Traditional woven and embroidered shawls of Kashmir, Himachal Pradesh, Gujarat, North Eastern and other states. Printed textiles- calico printing, block printed textiles - *Dabu, Bagru, Sanganeri* and *Bagh* printing. Tie and dyed textiles. Painted textiles- *kalamkari, Madhubani, Warli, Patchitra, Phad and Pichhavai*. Embroideries of different states of India- *kashida, Chamba rumal, chikankari, zari work, phulkari* and *bagh, Kathiawad, kantha, kasuti, Rabari, Pipli, Kutch and Manipuri* embroidery. Introduction to costumes of India.

Practical: Documentation of motifs and preparation of samples of traditional Indian embroideries. Documentation of woven textiles of India. Adaptation of traditional motifs and designs to contemporary textiles through collection of samples, sketches and development of scrap book. Visit to museums and art gallery.

ATS 303 Retailing and Merchandising – Textiles and Apparel **2+0** **Sem II**

Retailing and merchandizing-, concept, terminology and principles. Factors affecting merchandizing. Role and responsibilities of merchandiser. Merchandizing for buying houses, departmental stores and export houses. Evolution of retail and retail formats – specialty stores, chain store, factory outlets, temporary outlets, discount stores, and warehouse clubs. Malls – introduction, components and types- neighborhood, community, regional, super regional and outlet malls. Marketing research- meaning, scope, classification and steps in marketing research. Role of marketing research in product planning. Methods and techniques of sale promotion, - personal selling, publicity, advertizing and visual display. Promotion mix and 7 Ps' of marketing. Pricing methods and pricing of textiles. Export and import- introduction to policies, procedures and organizations. WTO and its functions.

ATS 401 Seminar **1+0** **Sem I**

ATS 402 Experiential Learning-I Computer Aided Designing and Pattern Making **0+8** **Sem I**

Introduction to geometric and fleshed twelve head figure- manual and computerized. Introduction to tools of fundamental designing softwares. Detailed use of smart drawing tools. Designing and draping garments on croquis. Colouring the draped garments using interactive tools. Creating shades in dress with interactive fill and mesh tools. Creating effects in various silhouettes. Drafting of an adult bodice block. Designing of shirts, jackets and skirts using selected necklines, yokes, collars, sleeves, pockets and accessories. Introduction to pattern making software. Basics of pattern making tools. Creating and grading basic patterns. Bodice front and back, sleeves, skirt front and back. Designing and styling using flat pattern technique. Moving, dividing and combining darts- pivot and slash method. Converting darts into seam lines. Adding fullness by gathers, pleats and tucks. Construction of different types of yokes, collars and sleeves.

ATS 403 Experiential Learning – II Manufacturing of Life Style Products **0+12** **Sem I**

Identification and designing of products to be manufactured. Market Survey and need assessment. Analysis of existing status of identified products and targeted market and customers. Execution of the plan and product development.

ATS 412 Internship I /Entrepreneurial placement / In plant Training **0+8** **Sem II**

Training of the students in hosiery or ready-made garment industrial unit to develop industry oriented skills and impart practical experience in actual work environment.

ATS 413 Internship II/ Project Report and Presentation **0+2** **Sem II**

Training of the students to identify the problem, develop tools to collect data, analyze and interpret the data. Report writing and presentation.

Postgraduate courses

ATS 501 Fibre Chemistry **2+1** **Sem I**

Chemistry of polymers - polymerisation, types, degree and characteristics. General structure of textile fibres, molecular bonding, length, orientation, and requirements of fibre forming substances. Structure-property relations of the fibres - repeating units, bonds, reactive groups and reactions of cotton, linen, jute, silk, wool, viscose rayon, polyester, nylon, acrylic, spandex and minor fibres. Action of heat, light, bleach and micro-organisms on different fibres. Types and characteristics of bi-component and bi-constituent fibres. Study of new fibres. Blending- types, principles and technology.

Practical: Fibre testing - cross sectional view of cotton, wool, silk, polyester and acrylic. Effect of heat, acid, alkali, bleaches, finishing agents and solvents on cellulosic, protein and synthetic fibres. Detection of damage caused to cellulose and protein fibres by acids and alkalies. Quantitative analysis of fibre blends.

ATS 502 Textile and Apparel Quality Analysis **2+1** **Sem II**

Importance of textile testing, standardization and quality control. Functions of BIS and other standards.

Sampling techniques of fibre, yarn and fabric. Effect of moisture and humidity on properties of textiles. Standard conditions of testing. Testing of fibre length, linear density, maturity, yarn count, single and lea strength, twist, crimp, evenness, weight, thickness, breaking, tearing and bursting strength, abrasion resistance, pilling, crease recovery, stiffness, drapability, air permeability, thermal properties, flammability, colour fastness and assessment of other safety aspects in textiles, water permeability, water repellency, wicking, dimensional stability, comfort and fabric handle measurement. Identification of fabric defects. Quality control in spreading, cutting and bundling products.

Practical: Testing of fibre for length, effective length, and linear density. Testing of yarn for count, twist, crimp, evenness and strength. Testing of fabric for weight, thickness, fabric count, balance, breaking, tearing and bursting strength, abrasion resistance, pilling, crease recovery, stiffness, drapability, air permeability, thermal properties, water permeability, wicking and dimensional stability. Processing and statistical analysis of the test data. Inspection of raw material. Classification and analysis of fabric defects. Analysis of seams and fasteners' quality. Study of specification sheets for various garments. Quality analysis of selected garments available in the market. Visit to textile analysis laboratory.

ATS 503 Fashion Draping and Custom Clothing **0+3** **Sem I**

Draping, trueing and stitching of dartless shirt, surplice front and bustier. Draping collars, cowls, sleeves and lowered exaggerated armhole sleeves. Draping and stitching of skirts, flounces, ruffles and peplums. Draping sundresses and sculptured dresses. Draping knit fabrics. Designing custom clothing. Analysing

style lines of various garments including collars, cowls and sleeves. Analysis of fitting problems related to wrinkles/creases and pulls of fabric at various sections of the garments, remedial measures and presentation.

ATS 504 Computer Aided Textiles and Apparel Designing **0+2** **Sem I**

Creating stripes and checks using suitable software. Creating weave library and assigning weaves to develop designs for weaving. Introduction to commands from different tool groups - file menu, freehand tools, geometric tool, selection tool, selection utility tools, colour utility tools and general utility tools.

Developing motifs and creating full design/ repeats using the CAD commands. Creating weaves and storing in jacquard weave library and assigning weaves to the design plan. Developing a computer-aided portfolio of different motifs. Introduction to specialized designing software, command bar, 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.

ATS 505 Consumer Behaviour in Clothing **2+0** **Sem II**

Origin of clothing, use of clothing among primitive people. Theories of clothing. Clothing symbolism in relation to customs, traditions, cultural contacts, status, education, social agitation of women and technology and role of legislation. Understanding the consumer demand. Consumer resources: motivation, knowledge and attitudes. Individual differences in consumer behaviour. Psychological processes involved in selection

of textiles and apparel products. Consumer decision processes and behaviour. Consumer analysis and marketing strategies. Market Segmentation. Diffusion of innovation. Counterfeit textiles and consumer protection measures. Global consumer markets.

ATS 506 Textile and Apparel Industry Trade **2+0** **Sem I**

History and development of textile industry in India. Present status of textile and apparel industry in India-cotton, wool, silk, rayon, jute, handloom, hosiery and apparel industry. Government policies on textile and clothing. Textile Research Associations, Apparel Export Promotion Council, Textile Crafts Council, Khadi and Village Industries Commission, Apparel Promotion and Export Association. Study of Apparel Parks,

Globalization, TUFFS, ISO 9000 and ISO 14000 standards. SWOT analysis. Visit to Apparel Export Promotion Council.

ATS 507 Historic Textiles and Costumes **2+1** **Sem I**

Study of traditional dyed, printed, embroidered and non-woven textiles of Egypt, Greece, Rome, France,

America, England, Japan and China - fibre content, fabrics, motifs, colours, dyes and designs used. History and evolution of traditional costumes and accessories of Egypt, Greece, Rome, France, America, England, Japan and China for women and men and their significance in socio-economic status.

Practical: Collection and documentation of traditional textile prints and surface designs of various countries. Surface designing of textiles with combination of motifs of different countries. Documentation of various styles of men and women's costumes of different countries. Adaptation of historic costumes to current male and female costumes. Visit to a museum.

ATS 508 Applied Techniques in Pattern Making **0+2** **Sem II**

Applied techniques of pattern making by incorporating style lines and fullness. Procedures used in the development of slopers and patterns. Developing dartless slopers, princess line variations, blouses, halters and surplice; vests and their types; collars, sleeves and skirts. Pants - pants length variations, bell bottom pants, body fitting pants, and other types. Application of pattern making techniques to designing and construction of five garments.

ATS 509 Woven and Knitted Structures **1+2** **Sem I**

Present status of textile industry of India. Modern looms and scope of modern methods of weaving. Dobby and jacquard patterning devices. Detailed pre-weaving processes. Study of design, draft and peg plans for different weaves; weave calculations; advantages and disadvantages. Study of complex and fancy structures- crepe, leno, mock-leno, double cloth, honey comb, diaper, diamond, doobby, warp and weft figuring, terry and pile, huck-a-back. Production technology of knitted fabrics and garments. CAM and automation in knit wear. Finishing requirements of knitted fabrics. Quality control in production of knitted fabrics.

Practical : Analysis of woven samples. Preparation of draft plans and peg plans of different weaves. Weaving samples of various weaves. 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. Making samples of different designs using multi-coloured and complex knitting techniques. Visit to a knitwear garment unit.

ATS 510 Dyeing and Printing **1+1** **Sem II**

Concept of colour and its relation to light. Classification and types of dyes/colouring matter. Chemistry of dyes and pigments - composition, structure, properties, affinity towards fibres, method of application, fixing and after treatments. Eco-friendly natural dyes. Role of mordants. Advanced dyeing and printing techniques. Application and uses of selected enzymatic treatments.

Practical : Preparation of shade cards with selected classes of dyes and colour matching. Natural dyes - dyeing with different mordants. Advanced and non-conventional techniques of fabric printing. Theme based project work.

ATS 511 Textile Auxiliaries **1+1** **Sem II**

Definition, history, classification and selection of auxiliaries. Characteristics and properties of selected textile auxiliaries. Use of auxiliaries in processing operations. Chemistry and synthesis of surface active agents - essential requirements of surfactants and their classification. Biodegradability of surfactants. Methods of evaluation of textile auxiliaries. Eco-friendly auxiliaries.

Practical : Analysis of the surfactant properties in selected surfactants. Preparation of various sizing combinations. Analysis of the sized samples and selection of suitable combinations. Assessment of whiteness of fabrics finished with various bleaches and optical brightening agents. Assessment of finished fabrics with selected finishing auxiliaries.

ATS 601 Clothing Physiology **2+0** **Sem I**

Clothing as a portable environment. Comfort in clothing - principles of heat transfer in apparels, thermal insulation, breathable textiles. Designing comfortable apparel suitable for warm and cold weather.

Requirements, importance, designing and fastening systems in sports clothing. Materials and design features for military clothing. Clothing design to accommodate physical disabilities and irregularities. Designing requirements for expecting and lactating mothers. Protective clothing for farm, industrial and fire fighters. Impact of protective clothing.

ATS 602 Technical Textiles **2+0** **Sem I**

Importance and classification of technical textiles. Types and uses of medical textiles. Special textiles for industrial textiles, automotive textiles, agro-textiles, geo-textiles, build-tech and pack-tech. Smart textiles, ape memory materials and chromic materials. Conductive and other functional materials - characteristics, applications, factors affecting their selection and uses. Developments in nano-fibres and non-wovens. Survey of technical textiles and smart wear in Indian market.

ATS 603 Textile Ecology **2+0** **Sem II**

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 and its importance. Health hazards of textile workers working in various textile units and their remedial measures. Banned dyes and auxiliaries. Eco-friendly production and processing of textiles with special reference to organic and naturally coloured cotton, natural dyes and detergents. Indian and International environmental legislations. Eco labeling, management and auditing.

ATS 604 Recent Advances in Textile and Apparel Designing **2+0** **Sem II**

Recent researches in production and manufacturing of textile fibers, yarn and fabric structures. Chemical processing of natural and synthetic textiles and their conversion into clothing. Developments in the field of functional textiles and clothing technology. Use of special techniques in textile processing. Thrust areas of contemporary research and future projections.

ATS 605 Apparel Industrial Management **2+0** **Sem.I**

Management issues in garment industries. Principles of effective management. Status of garment industry in India - production, marketing, distribution, consumption and export trends over last five years. Personnel management in domestic and export apparel industry. Techniques in managerial application of cost-

volume-profit analysis and productivity analysis. Productivity rate. Problems of apparel industry and remedial measures. Trends in management, infrastructure facilities and incentives offered for starting a garment industry.

ATS 606 Non-Woven Textiles **2+0** **Sem I**

Characteristics and properties of polymers, fibres, binders and non-woven fabrics. Types of non-woven fabrics and their applications. Types of web formation, bonding and finishing processes. Felt fabrics, needle punched fabrics, spun laced fabrics, dry and wet laid non-woven fabrics, spun bonded and stitch bonded non-woven fabrics. Finishing non-wovens. Trends in non-woven technology. Scope of non-woven textiles. Identification of non-woven fabrics. Testing and evaluation of non-wovens. Laminated fabrics.

ATS 607 Laboratory Techniques in Textile Research **0+2** **Sem II**

Optimization of conditions for various dyeing, printing, finishing and enzyme treatments. Laboratory techniques for assessing colour strength and reflectance. Use of different scales to assess light, washing and rubbing fastness. Management and interpretation of data generated. Image analysis techniques. Visit to textile research image analysis laboratory.

ATS 591 Seminar

ATS 600 Master's

ResearchATS 700 Ph.D

Research

FASHION DESIGNING

B.Sc. (Hons) Fashion Designing - 4 Year Programme

FD 101 Basics of Design Composition	1+2	Sem I
Definition of art. Introduction to art media. Elements and principles of design. Dimensions of colour. Colour schemes - their importance and application. Types of motifs and trends in Indian art. Practical : Materials, equipment and techniques of drawing and rendering. Basic sketching techniques. Free hand sketching of various objects and scenes. Composition of floral, geometrical and abstract designs. Colour wheel - grey scales and various colour schemes. Developing colour combinations. Placement of motifs in repeat. Enlargement of motifs. Development of design portfolio.		
FD 102 Visual Studies and Appreciation	0+2	Sem I
Aesthetics in nature. Situational analysis and inspiration from different elements of nature. Nature drawing-leaves, flowers and trees. Shading techniques for creating different effects. Object drawing with reference to light and angle of sight.		
FD 103 Introductory Textiles	2+1	Sem I
Basic textile terminology. Classification of textile fibres. Properties and uses of natural and man-made fibres/fabrics. Different types of fabrics - woven, non-woven, knitted and felted. Classification, importance and utility of finishes applied on fabric. Labels and tags used in textiles. Practical : Identification of fibres by non-technical, burning, microscopic and chemical tests. Study of thread count and yarn types, drapability and weight of fabrics. Collection and interpretation of labels and tags used in yarns and fabrics. Survey of common fabrics available in the market. Stain removal.		
FD 104 Introductory Sewing Techniques	0+3	Sem I
Use of sewing equipment and supplies. Preparation for layout of fabrics - plain, printed, plaid and stripes. Handling specialty fabrics. Use of selected stitches, seams, seam finishes, gathers, pleats, tucks, placket openings and fasteners in infants' garments. Finishing of different necklines and baby collars. Market survey of infants' fabrics and garment designs. Application of different types of fabrics according to the garments. Preparation of infant's layette. Portfolio development.		
FD 105 Dynamics of Fashion	2+0	Sem I
Fashion terminology. Components of fashion. Movement of fashion - fashion cycle and its stages. Fashion adoption theories. Factors influencing fashion movement. Consumer identification with fashion.		
FD 106 Introduction to Apparel Industry	2+0	Sem I
Brief history and development of textile and apparel industry. SWOT analysis. Major apparel exporting and importing countries. Introduction and roles of various departments, design, sampling, sales, sourcing, merchandising and production. Future prospects of domestic and global apparel industry. Export oriented units and organizations for export promotion. Incentives given to apparel industry by the government - central and state.		
FD 111 Fashion Drawing-I	0+2	Sem II
Proportions of human figure - female. Developing female figures using figure guides. Sketching faces, hands, legs, feet, hair styles and accessories. Free-hand sketching of figures. Study of different silhouettes. Study of figure proportions in relation to draped apparel.		
FD 112 Fashion Studies	2+0	Sem II
Effect of different cultures on the development of fashion. Relationship between social, psychological, economic, demographic, life style factors and fashion trends. Exploration of fashion, art, architecture, textiles, costume, customs and rituals in major art and fashion cities of the world.		
FD 113 Textile Decorations	0+3	Sem II
Styles in fabric painting. Textile embellishment with pamentaries. Block, screen and stencil printing.		

Innovations in printing. Industrial survey of the popularly used printing techniques. Market survey of embellishments and pasementaries used in apparel. Report writing and presentation.

FD 114 Pattern Making and Garment Construction-I **1+2** **Sem II**

Basic terminology. Use of different techniques of garment construction - drafting, pattern making, flat pattern and draping. Different types of patterns. Children's body measurement chart.

Practical : Drafting of a child's bodice block and its adaptation. Designing and pattern making of frocks, tops, skirts, shirts and contemporary lower garments. Group assignment on children's line development.

FD 115 Introduction to Knitwear Technology **1+2** **Sem II**

Knitting terminology. Types, construction and working of knitting machines. Types of knitting. Different types of knitted fabrics. Qualities of knit structures. Status of knitwear industry in India.

Practical : Study of yarns for knitwear. Preparation of samples of tuck stitch, slip stitch and multi-coloured knitting. Preparation of samples of various designs by hand and machine knitting. Preparation of hand/machine knitted articles. Visit to knitwear industry.

FD 116 Woven Structures **1+2** **Sem II**

Parts of a loom. Types of looms and loom operations. Types, characteristics and uses of different simple and novelty weaves. Defects in woven structures. Difference between knitted and woven structures.

Practical : Parts of a loom and loom motions. Preparation of drafts of different weaves. Design development on loom. Designing of a woven article. Collection of woven samples and their weave analysis.

FD 201 Fashion Drawing-II **0+3** **Sem I**

Proportions of human figure - kids. Developing kids figure using figure guides. Sketching of various garment details - collars, necklines, sleeves, cuffs, gathers, pleats and folds. Flat-sketching of various garments (front and back). Sketching of accessories. Costume anatomy (style lines). Garment draping on fashion figures. Designing garments for various age groups. Techniques of creating textures and patterns. Analysis of design collections of famous designers. Case studies of famous national and international designers. Development of fashion portfolio.

FD 202 Merchandising Fashion **2+2** **Sem I**

Careers in merchandising. Fashion merchandising concepts and responsibilities. Trade merchandising systems - international fashion market and domestic market. Policies for fashion distribution.. Fashion forecasting and market research. Merchandising fashion in relation to family cycle. Budgeting fashion merchandise - importance and types of financial plans.

Practical : Preparation of merchandiser's buying plan. Two week's internship in stores to study the merchandising system.

FD 203 Traditional Textiles **2+1** **Sem I**

Traditional textiles of various states of India. Design characteristics of various woven, dyed, printed and painted textiles.

Practical : Identification of different types of textiles - contemporary and modern. Collection of traditional motifs and designs used in textiles. Field visit.

FD 204 Pattern Making and Garment Construction-II **0+2** **Sem I**

Anthropometric measurements. Adult's body measurement chart. Developing adult bodice block. Different neck lines, yokes, collars and sleeves. Different types of trousers and skirts. Adaptation of bodice, designing and pattern making of various garments - blouse/blouson, corsets, jackets, skirts, trousers etc. Construction of selected garments. Portfolio development.

FD 205 Knitwear Designing **0+2** **Sem I**

Preparation of designed machine knitted samples. Embellishments of knitwears. Study of trends in knitwear. Designing and preparation of machine knitted articles. Portfolio presentation.

FD 206 Costumes of the World **2+1** **Sem I**

Study of historic costumes and accessories of ancient times - Egyptian, Asiatic, Greek, Roman, French and American in relation to fibres, fabrics, colours, motifs and designs used.

Practical : Collection of motifs and designs of historic costumes of world. Sketching of four western costumes and accessories. Adaptation of period costumes and designs to five garments of contemporary use.

FD 207 Computer Aided Fashion Illustrations **0+2** **Sem I**

Introduction to the tools. Drawing fashion figures. Designing and draping garments on croqui. Creating effects in various silhouettes. Drafting the basic blocks and fashion details - collars, sleeves, pockets, accessories.

FD 211 Apparel Production Technology **1+2** **Sem II**

Status of apparel industry in India. Structure of apparel industry. Automation in apparel industry. Garment production - sample development and designer's worksheet, pattern making, spreading and cutting, assembling, labeling and finishing. Challenges in apparel industry.

Practical : Exercises in development of worksheets and cost sheets for line development of apparel for children/adults. Visit to an apparel manufacturing unit.

FD 212 Computer Aided Designing and Pattern Making **0+4** **Sem II**

Designing various garments using CAD software. Pattern making and marker making of the designed garments for various age groups, using advanced softwares. Introduction to advanced illustration tools.

FD 213 Draping and Flat Pattern Making **0+3** **Sem II**

Terminology and importance of draping and flat pattern making. Tools and equipment used. Preparation of muslin cloth, steps in draping, marking and trueing. Draping basic patterns of bodice block, neck lines, collars, yokes and skirts. Adding and reducing fullness. Construction of selected draped garments - blouse, jacket, skirt, trousers/capris. Development of a sloper. Dart manipulation through flat pattern methods. Portfolio presentation.

FD 214 Basics of Grading **0+2** **Sem II**

General terminology. Importance of grading in readymade garments. Tools and equipment used. Computer aided grading. Types of grades. General principles and techniques of marker making; sloper development; increasing and decreasing patterns of bodice, sleeves, collars, pockets and styled garments. Portfolio presentation.

FD 215 Indian Costumes **2+1** **Sem II**

Study of Indian costumes and accessories of different regions of India from Indus Valley civilization to contemporary times.

Practical : Collection of motifs and designs of Indian costumes. Sketching of four Indian costumes and accessories. Adaptation of period costumes and designs to five garments of contemporary use.

FD 216 Garment Production Machinery and Equipment **1+1** **Sem II**

Introduction to industrial sewing machines. Different types of industrial sewing machines - single and double needle machines, button hole and tacker, overlock and interlock machines - their working and function. Care and maintenance of industrial machines.

Practical: Hands on training on machines, paper exercises, Machine operations, special attachments and their uses.

FD 301 Retail Fashion Merchandising and Marketing **2+1** **Sem I**

Buying terminology. Types of shopping centers. Retail fashion distribution and operations. Retail buying, selling and the fashion cycle. Interpreting customers' demand. Preparation of merchandise plan. Assortment planning and buying. Importance of record keeping. Sales training.

Practical : Developing inventories, stock reports and sales reports. Assortment planning for different types of customer profiles and stores. Sales training. Project work and report writing.

FD 302 Quality Control **2+2** **Sem I**

Introduction to quality control. Inspection of fabrics, sewing threads, zippers, ancillaries, linings and

interlining. In-process inspection. Final inspection. Inspection of labels and packaging. Quality control through physical testing - bow and skewness, shrinkage, colour fastness, strength, crease recovery, drapability, abrasion resistance, light fastness, colour matching. Tests for non-textile accessories. Statistical quality control.

Practical : Study of various types of defects - yarn and fabric defects. Pilling and raising defects. Defects related to processing and embellishments. Defects in embroideries. Test for shrinkage, colour fastness, strength, crease recovery, abrasion resistance, pilling, light fastness, colour matching.

FD 303 Commercial Product Designing **0+3** **Sem I**
Exercises in design development, style reading, sample preparation, product costing. Drafting, cutting and stitching of garments for different age groups. Project work.

FD 304 Graphic Design **0+2** **Sem I**
Concepts of graphics and multimedia. Image manipulation techniques, image correction techniques. Designing brochures, catalogues and newspapers. Designing for publications. Use of different design softwares. Illustrating advertising concepts. Media publishing using in design, motion graphic techniques. 2D animation using macromedia flash. Layout designing, key framing and tweening techniques, introduction to action script programming for interactivity. Approaches to 3D animation. Rendering. Planning and preparing layouts of graphics for designing brochures, flyers, newsletters, stationery, postcards, ads and posters to promote products, product lines, fashion sales and fashion business. Case studies and project.

FD 305 Dyeing Studies **1+2** **Sem I**
Classes of dyes. Methods of dyeing. Dyeing machines and industrial dyeing.
Practical : Preparation of fabric for dyeing. Dyeing of cotton, wool and silk with different classes of dyes. Resist styles of dyeing. Recent dyeing processes used in industry - a survey.

FD 306 Textile Printing **1+2** **Sem I**
Terminology used in printing. Methods of printing different fabrics. Types of printing. Styles of printing - block, screen, stencil, roller and resist printing. Common printing defects, their causes and preventive measures.
Practical : Preparation of fabrics for printing. Optimization of printing paste using fixer, binder and colour. Preparation of samples of different styles of printing - block, screen, stencil, roller and resist. Developing products for personal and household use with any one or a combination of different styles of printing. Visit to a printing unit.

FD 307 Trims and Accessories **2+0** **Sem I**
Garment accessories - selection and design, functional utility and aesthetic performance. Characteristics of different types of trims and accessories- ribbons, braids, laces, buttons, zippers, snap fasteners, hooks & eyes, hook & loop tape, eyelets. Sourcing of different trims and accessories and preparation of a portfolio.

FD 311 Fashion Communication **1+1** **Sem II**
Concept, definition and scope of communication. Functions of mass communication through different media. Role of media in society and its need in fashion world. Media ethics. Creative writing. Interviews- types and how to conduct it. Designing catalogues and brochures. Editing and its various techniques. Event management- fashion shows and photo shoots.
Practical: Creative photo shoots, network fashion communication, writing of fashion articles.

FD 312 Sociological, Psychological and Ethical Aspects of Fashion **2+0** **Sem II**
Sociological factors influencing fashion - Impact of culture, society, myths and rituals, ethnocentrism and ethnic dresses and contemporary culture on fashion. Historic view of fashion history. Impact of demographic sub culture, age, race, income and social classes. Types of social influences, social comparison, compliance and obedience to norms. Fashion independence - resistance to influence, opinion leadership, buying and disposing of fashion. Psychological factors affecting fashion - group conformity, creativity, sexual attraction, fashion adoption leadership, individuality and brand consciousness. Ethics in fashion and ethical consumerism - Consumer protection, offensive fashion advertising, imitation, stealing of design concepts,

adoption of ethical means for fashion brands, workers' rights, chemicals used in production and processing, labour issues, exploitation in fashion industry and other social and environmental effects.

FD 313 Apparel Supply Chain Management **2+0** **Sem II**

Introduction to supply chain management - its need and importance. Principles of supply chain development. Hierarchy of supply chain and its components. Critical analysis of nature of supply chain management for products and services. Impact of global economy on supply management process. Integrated supply chain management. Strategies for customer service, quality and inventory management. Factors affecting the supply chain and their effective management. Case studies and critical evaluation of companies' supply chain development and management.

FD 314 Visual Merchandising **1+1** **Sem II**

Concept of visual merchandising. Definition, techniques, principles and importance. Theory of colour, form, composition and proportion. Study of store design objectives, techniques and layout.

Practical : Project report on existing visual merchandising practices followed by different retail outlets. Presentation on visual illustration and merchandising on selected themes.

FD 315 Craft Documentation **2+4** **Sem II**

Use of primary and secondary sources for documentation of selected craft- history, region, motifs, design, equipment, production process and techniques, finishing, marketing, uses and product range of a craft. Evolution of the craft from traditional to contemporary times.

Practical: Developing a manual of motifs, design, equipment, production process & techniques and finishing of a selected craft from craft hub. Training in the production of the craft from artisans.

FD 401 Green Technologies in Apparel Manufacturing **2+0** **Sem I**

Use of certified organic natural fibers (wool, cotton, linen etc.). Use of highly renewable fibers (bamboo, soy etc.). Use of low impact synthetic or recycled fibers. Use of non toxic or reduced toxicity fiber processes and treatments. Use of low impact or natural dyes. Design and colour choices aimed at longevity rather than planned obsolescence. Reduced energy use throughout the product life cycle. Minimal or environmentally appropriate packaging. Importance of carbon credits in apparel and textile manufacturing. Fashion Industry and the environmental issues- use of chemical dyes, cruelty to animals and humans, concern for environment, certifications etc.

FD 402 Experiential Learning in Fashion and Lifestyle Products **0+12** **Sem I**

Orientation to experiential learning. Project report on setting up of a 'Fashion and Lifestyle Products' enterprise. Running and managing a 'Fashion and Lifestyle Products' enterprise - market survey, need assessment, designing, construction & costing of prototype, getting orders, production, packaging and shipment. Developing a product catalogue. Redressal of problems in running 'Fashion and Lifestyle Products' enterprise.

FD 410 Seminar **0+2** **Sem I**

FD 411 Product Line Development/ Presentation **0+6** **Sem II**

FD 419 Internship-I **0+12 (NC)** **Sem II**

FD 420 Internship-II **0+4** **Sem II**

Postgraduate Courses

- FD 501 Apparel Brand Management** **2+0** **Sem I**
Concept and understanding of brand. Contemporary definitions and theories of branding. The changing role of promotion and design in developing brands. Use of brands in modern society and institutions. Understanding consumer, their interests and demands. Effect of social, economical and political factors on brand development. Developing Company's Logo. Themes in branding- Intellectual property rights, changing media environment, globalization and international trade, impact of digital communication and marketing technologies. Appraisal of current branding usage - large corporations and media organizations, public sector bodies, charities, sports organizations and educational establishments.
- FD 502 Design Illustrations** **0+2** **Sem I**
Introduction to geometric, muscled and fleshed male figure. Sketching of different features and postures of male croquis. Different silhouettes of men's apparel. Draping male figure in casual, sports and formal wear. Designing a collection of five ensembles of men's wear on specific themes and draping on fashion figures. Designing a collection of five ensembles of women's wear on specific themes and draping on fashion figures. Rendering of different fabrics - prints (woven and knitted), denims, plain coloured fabrics, pile fabrics and textured fabrics. Defining a personal designer style with innovative sketches of men and women draped apparel and preparation of a portfolio.
- FD 503 Design Studio** **0+3** **Sem I**
Designing, pattern making, garment construction and development of specification sheet of any one formal men's and any one formal women's wear. Understanding of different fashion seasons - spring, summer, autumn and fall winter. Factors to be kept in mind while designing for different fashion seasons like time, fabrics, accessories, fashion trends, etc. Pattern making, garment construction and development of specification sheet of a garment range comprising of three garments for any one season.
- FD 504 Fashion Retailing and Marketing** **2+1** **Sem II**
Concept of Retailing and different types of Retail outlets. Management of operation of different types of retail outlets like chain store, specialty store, departmental store etc. Importance of four P's of marketing. Online buyer to buyer and buyer to consumer selling. Negotiating store purchases and discounts. Importance of store environment and atmosphere. Principles of visual merchandising and store layout. Importance of visual merchandising in boosting up sales.
Practical: Survey of different retail outlets and comparison of their 4 p's of marketing. Study of visual merchandising in different retail outlets. Arranging window and stock displays for men, women and children section
- FD 505 Apparel Exim Management** **2+0** **Sem II**
Handling overseas enquiries. Documentation of import and export markets. Study of import restrictions, antidumping and countervailing duties. Policies and procedure of apparel export. Introduction to the tariff. Importance and various terms of LC. Sources of assistance- state, central and financial institutes like banks. Export promotion, infrastructure facilities and incentives. Handling shipment - processes and procedures. Impact of government policies on export market.
- FD 506 Apparel Production, Planning and Costing** **2+0** **Sem II**
Pre-production planning. Different Manufacturing Systems. Production schedule. Time and motion studies- importance and technique. Lean Manufacturing and other advanced concepts in production. Advancements in cutting room operations- planning, fusing, sewing and pressing. Advancements in sewing room operations- layering and marker planning. Apparel industrial waste management and zero waste concept. Reduction of waste production, energy consumption and production time. Production costing- fabric, labour, overhead cost and garment costing.
- FD 507 Computer Aided Designing** **0+2** **Sem I**
Introduction to advanced CAD / CAM system. Understanding of different options for creation of woven, printed and knitted fabrics as well as other tools for sketching and managing collections. Study of marker

planning using advanced CAD/CAM system. Study of CAD application software for product design, pattern making and 3-D prototyping. Introduction to options for better finished apparel for men, women and children. Study of flexible work flow and sourcing functions tailored to the needs of fashion sector.

FD 508 Fashion Consumer Behaviour

1+1

Sem I

Importance of consumer. Consumer and marketing interrelation. Consumer dynamics- motivation and values. Effect of global market on consumer behaviour. Manipulation of consumers by marketers and compulsive buying. Social responsibility of consumers. Consumer protection.

Practical: Surveys to study consumer marketing relationship.

FD 531 Industry Internship

0+3 (NC)

FD 591 Seminar

FD 600 Master's Research

EXTENSION EDUCATION AND COMMUNICATION MANAGEMENT

PROGRAMMES

1. **M.Sc.**
2. **Ph.D**

COURSE

REQUIREMENTS **M.Sc.**

Field of Specialization:

Home Science Extension, Communication Management
Required courses HECM 501, HECM 502, HECM
503, HECM 504, HECM 505.

Supporting courses

Stat 421, PGS 501 and other courses from subject matter field
(other than Minor) relating to area of special interest and
research problem.

Minor fields

Food and Nutrition, Family Resource Management, Human
Development and Family Studies, Journalism, Languages &
Culture, Economics, Sociology, Business Management or any
other as approved by the Dean Postgraduate Studies.

Deficiency courses for students
with elective other than
Home Science Extension &
Communication Management/
Home Science Extension
Education

As recommended by the Student's Advisory Committee and
approved by the Dean, Postgraduate Studies

Ph.D

Field of specialization

Home Science Extension, Communication Management.

Required courses

HECM 601, HECM 602, HECM 603, HECM 604

Supporting courses

Courses from subject matter fields (other than Minor) relating to
area of special interest and research problem.

Minor fields

Food and Nutrition, Family Resource Management, Human
Development and Family Studies, Journalism, Languages &
Culture, Economics, Sociology, Business Management or any
other as approved by Dean Postgraduate Studies.

Deficiency courses

As recommended by Student's Advisory Committee and approved
by the Dean, Postgraduate Studies

DESCRIPTION OF COURSE CONTENTS

Undergraduate Courses

EECM 101 Extension Education and Rural Development **3+0** **Sem I**

Home Science education - meaning, philosophy and historical development. Extension Education- concept, importance, philosophy, principles and objectives. Evolution of extension education- glimpses of pre- and post-independence era. Community – meaning, definition, types of communities, community and science. Community development programmes- concept, objectives, organization, activities, achievement and failures. Sociology and rural sociology- meaning, scope and importance. Concepts- structural and functional differences between rural, urban and tribal societies. Rural development- concept, need, meaning, aim and functions of extension education for rural development. *Panchayati Raj* Institutions- concept, structure and functioning. Current rural development programmes/ Organisations- SGSY, MGNREGA, IAY, ICDS, Total Sanitation Schemes/ Campaigns etc., ATMA, DRDA. Role of ICAR, SAUs, KVKs/ DAATTCs and NGOs in rural development.

EECM 102 Diffusion and Adoption of Homestead Technologies **2+1** **Sem II**

Concept and functions of communication. Types of communication- written, verbal and nonverbal. Forms of communication- interpersonal and intrapersonal communication. Levels of communication- horizontal, upward and downward. Communication process, elements- source, message, channel, receiver and feedback. Techniques of communication. Different channels of communication and their characteristics. Theories & models of communication- Berlo's model and Aristotle model. Barriers of communication. Concept and elements of diffusion process- Innovation, channels of communication, social system and time. Innovation–decision process, types of innovation–decision, consequences of innovations. Homestead technology- concept and its relevance to innovation – decision process. Different homestead technologies with special reference to Home Science. Adoption- meaning, definition and adoption process. Factors affecting adoption and innovation – decision process and constraints. Different terms used in diffusion of innovation and adoption process- rate of adoption, overadoption, innovativeness, dissonance, rejection and discontinuance. Adopter categories- concept and types. Social change: concept, theories, dimensions and factors. Change agents and opinion leader- meaning, definitions, and characteristics. Change proneness – acceptance and resistance to social change.

Practical: Collection of homestead technologies. Adoption in localities – observation, visit to different entrepreneurs with adopted home stead technologies for business enterprise. Visit to different successful SHGs. Categories of adopters among SHG's members. Analysis and presentation of reports. Identification of change agents in a localities and presentation of reports.

EECM 201 Women in Agriculture **2+0** **Sem I**

Agricultural and allied sectors in rural India. Role of women in agricultural and allied sectors. Status of farm women -social, economic and health status of women in agriculture. Women friendly tools and implements. Gender issues, women in agriculture Policy, Programmes (government and non-government) and institutions for women in agriculture. Women empowerment in agriculture, agripreneurship and training to farmwomen.

EECM 202 Instructional Technology **1+2** **Sem II**

Instructional technology- concept, definition, principles, classification, characteristics, uses and approaches. Audio visual aids (A V Aids) – concept, definition, classifications, purpose, use, advantages and limitations of various AV aids. Criteria for selection and evaluation of AV aids. Instructional methods and latest innovative techniques (simulation, team teaching, micro teaching, video conferencing etc.) - meaning, classification, purpose, use and limitations. Definition, purpose, use, advantages and limitations of projected, non projected aids, electronic and folk media. Lesson planning and evaluation of teaching.

Practical: Planning, preparation, presentation of posters, charts, flash cards, display and other AV aids. Handling of audio-visual equipment. Planning, preparation and delivery of teaching/extension lesson. Evaluation of student – teacher performance based on planned lesson.

EECM 301 Extension Training Management **1+2** **Sem I**

Training - concept, definition, related terms and importance. Principles of extension training. Types of training. Training process - phases and their management. Steps of training process - need assessment, formulation of objectives, content planning, selection of training methods and planning of training schedule, execution and evaluation of training. Adult learning and characteristics of adult learner. Qualities of good trainer - communication, training, motivational, facilitation and problem solving skills. Problems in training. Important training institutions in India

Practical: Visit to state level training and vocational training institutes, report writing and presentation. Familiarization with offline and online training modules. Hands-on experience of planning and execution of training programme- need assessment, objective formulation, content planning, preparation of training module, selection of training methods, conducting and evaluation of training by using evaluation tools and techniques. Analysis of HRD programmes of any one training institute. Interaction with the HRD professionals. Presentation of reports.

EECM 302 Programme Development for Rural Families **1+2** **Sem II**

Planning - definition and nature. Extension programme planning-concept, definition, objectives and principles. Relevant terms used in programme planning - situation, aims, objectives, problem, solution, project plan, plan of work, calendar of work, etc. Steps in extension programme planning-situation analysis through PRA techniques, need and environment assessment and rapport building. Leader and leadership- meaning, definition and identification of leader. Role of local leaders, involvement of local bodies/ organizations and extension agencies. Programme implementation and constraints. Monitoring and evaluation of extension programme. Critical analysis of few major development programmes under five-year plans.

Practical: Establishing rapport with rural families and identification of leader. Conducting baseline survey of village and household using PRA techniques. Analysis of information. Triangulation of information from conventional and PRA methods. Preparation of detailed plan of work for need based short duration programme. Implementation and evaluation of programme. Report writing and presentation.

EECM 401 Seminar 1 **1+0** **Sem I**

EECM 402 Instructional Video Production **0+9** **Sem I**

Practical: Orientation to photography and photographic equipment. Hands on training with different types of professional cameras, writing captions, editing photo using different software, photo features and presentation. Familiarization with instructional video, writing instructions for instructional video. Familiarization with script, hands-on-experience with script writing. Familiarization with video and audio formats. Preparation of amateur instructional video. Familiarization with video camera and operations. Hands-on-training with video camera. Production of video – pre-production, production and post production. Projection and evaluation.

EECM 403 Public Relation and Social Marketing **0+2** **Sem I**

Practical:Public relations - concept, objectives, tools, laws and ethics. Visit to Institution under government sector for analysing the public relations institution. Orientation to different models of PR. Designing PR models. Analysis of the situation to find out the social problems in a community. Assessment and analysis of the problems. Preparation of report on collected information. Planning for social marketing strategy based on the identified problems. Execution of social marketing programme, planning for publicity campaign, execution of publicity campaign. Evaluation of programme and reporting.

EECM 404 Web Designing and Multimedia Production **0+9** **Sem I**

Practical: Familiarization with different types of websites. Hands-on-experience with Adobe Photoshop for designing of website. Hands-on-experience with HTML 4.01, writing for construction of website. Hands-on-experience with Dreamweaver for construction of website. Hands-on-experience with flash for animations of website,

Familiarization with cascading sheet styles. Familiarization with web analytics, practical orientation to Multimedia application. Multimedia - types of multimedia production. Handling multimedia-parts, connections and peripherals. Scanning, retrieval, capturing and navigating skills. Planning and production of multimedia package. Integrating various media elements i.e. text, graphics, animation, audio and video into an educational application. Multimedia authoring tools - CD and DVD writing techniques, presentation of the prepared Multimedia kit by using LCD Projector.

EECM 411 Rural Awareness Work Experience in Home Science (RAWE) 0+10 Sem II

Practical: Orientation to village institutions. Village profiling. Bench mark survey for need assessment using quantitative and participatory approaches. Developing and implementing various instructional media and resources for capacity building. Planning and executing need based interventions on nutritional health, hygiene, resource management, consumer empowerment and family counselling, purchase, care and maintenance of garments and home textiles. Organizing campaigns to address rural issues. Skill development for entrepreneurship. Mobilizing women to form SHGs. Development of marketing linkages. Documentation of ITK. Organizing exhibition cum Farm Women Fair.

EECM 412 Internship I -Entrepreneurial Placement/In Plant Training 0+8 Sem II

Practical: Placement of students in TV station/ Radio station/ training centres/ KVKs/ Publishing Houses/ Printing Press to get acquaintance with the functioning of media production including familiarity with the working of studio, sync studio, compeering, script writing, story boarding, video shooting, editing and synchronization of sound and video. Experience in designing and integrating interface elements, experience in human resource development and desk top publishing.

EECM 413 Internship II Project Report and Presentation 0+2 Sem II

Practical: Preparation of project proposal for establishing multimedia production unit/ printing unit/ training centre/ video production centre complete with resource mobilization, finances, infrastructure and other facilities. Preparation of report and power point presentation of the same.

Postgraduate Courses

HECM501/Ext 505/Econ. 506/Soc. 506 Research Methodology for Social Sciences 2+1 Sem I

Importance and scope of research in social sciences. Concept and characteristics of social research. Types of research- Fundamental vs. Applied. Concept of researchable problem - research prioritization, research process. Hypothesis - meaning, characteristics, types and testing. Review of literature. Development of theoretical orientation of the research problem. Concept, construct, variables and their

measurement. Sampling design, sampling error and methods of sampling. Research design and techniques. Types of data collection tools and testing their reliability and validity. Scaling techniques. Coding, editing, tabulation and validation of data. Tools of data analysis. Statistical package for social sciences, interpretation of results, preparing research report / thesis. Writing of research articles. Universal procedures for preparation of bibliography.

Practical: Selection and formulation of research problem, objectives and hypothesis. Selection of variables and their operationalisation. Developing conceptual framework of research. Development of data collection tools and measuring their validity and reliability. Data processing, tabulation and analysis. Formulation of secondary tables. Writing of thesis and research articles. Presentation of reports.

HECM502/Ext. 502 Development Communication and Information Management 2+1 Sem II

Communication- concept, meaning, importance, models, theories and types. Communication fidelity, credibility, empathy, feedback and factors affecting communication process. Communication skills. Characteristics and role of key communicators in development. Expert system in selected enterprises.

Role of ICT in communication. Social networks and development. Effective oral communication, public speaking, non-verbal communication, writing skills, soft skills. Participative 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.

Practical: Practical exercises in oral and written communication. Planning and use of different communication approaches. Practical hands on experience in recent advances in print, electronic and new media.

HECM 503/Ext. 503 Participatory Programme Management **1+1** **Sem II**

Conceptual framework of extension programme planning - key concepts and importance in planned change. 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. 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. 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. Organizing and evaluating programmes related to women and children at village level.

HECM 504 Media Production and Management **2+1** **Sem II**

Production technology, process and skills. Process of producing newspaper, magazine and other printed literature-leaflets, brochures, newsletters, bulletins, booklets, posters etc. Concept of media and its role in changing communication scenario. Multimedia - concept and evolution of multimedia. Fundamentals of making a multi media programme-text, graphics, audio etc. Process of producing radio, television and multimedia programmes. Different programme formats for radio and television. Planning of selected media products-print and electronic. Paper- kinds of paper, sizes, colour theory for print and multi media. Ownership patterns of various media. Economics of media organizations. Organizational structures- different departments, production planning, lay out consideration, marketing planning, registration and liaison with government departments. Understanding regulatory mechanisms for newspapers, radio and television. Co-ordination, motivation, decision making and control.

Practical: Visit to media industries and marketing agencies. Production of selected media products - print and electronic. Study of one multimedia enterprise. Preparing a project proposal for submitting to a funding agency.

HECM 505 Global Extension Systems **3+0** **Sem. I**

Extension systems in India. Extension efforts after independence. Area and target oriented programmes- IAAP, T & V, Special programmes for poor and women and children, IRDP, TRYSEM, DWCRA, JRY, IAY, SGSY, SGRY. Adult literacy programme, National literacy mission, Post literacy activities. Support structures and their functions- DRDA, NREGP, Central Social Welfare Board, State Social Welfare Board, NABARD.

National level voluntary agencies- CAPART and KVIC. ICAR extension systems- KVK, IVLP, ATIC, NATP, NAIP, AICRP. 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. Comparative extension system of selected developed and developing countries-USA, UK, Israel, China, Pakistan, Japan and Brazil with brief history, approaches, organizational structure, linkages with research and extension methods. Its comparative analysis with Indian extension system.

HECM 506/Ext. 511 Gender Sensitization for Empowerment **2+0** **Sem I**

Gender sensitization-meaning, need and importance of empowering women. Gender in community diversity

and its implication for empowerment. Gender perspectives in development of women, social characteristics, desegregated roles, responsibilities, resources, constraints and opportunities. Economical, educational and anthropological parameters in gender perspectives. Gender dimensions and methodologies for empowerment. Gender analysis framework- context, activities, resources, tools and programme action profile. Training aids for gender sensitization. Empowerment through gender specific technologies, Household technology interface. Socio-cultural interface and women as consumers of technologies. Gender issues and development-health and nutrition, violence, governance and educational media.

HECM 507 Extension Management **2+0** **Sem I**

Concept of administration and management. Principles and theories of administration and management. Techniques of participatory planning- RRA, PRA and PLA and their application in extension. Approaches of participatory planning- cooperative, democratic, bottom up and down. Schools of management thoughts. Meaning, nature and scope of extension management. Scientific management movement. Process of management- planning, organizing, staffing, directing, communicating, co-ordination, controlling, monitoring and evaluation. Organizational climate, behaviour, development. Management by Objectives (MBO). Qualities and functions of extension personnel. Extension system of ICAR, SAUs and State departments. Problems and issues of extension management in India. Critical appraisal of management of various extension organizations. Community conflicts and its resolution.

HECM 508 Dynamics of Training **1+1** **Sem II**

Training and its importance in developing human resources and rural areas. Types of training and the conceptual model of training process. Group dynamics-origin, concept, issues and theories. Groups and group membership- their role in training. Theories of training. Roles, styles, needs and influence of trainers. Stakeholders in training and their responsibilities. Participatory training methods. Experiential Learning Cycle (ELC)- concept and types. Designing, management and delivery of training programme- its monitoring, evaluation and impact assessment. Government policies for development of women and children as resources.

Practical: Examining the need for training. Visiting and studying the nature and functioning of training institutes, practice of selected training methods. Planning, organizing and evaluation of training programmes for different clientele.

HECM 509 Organizational Communication and Event Management **2+ 0** **Sem II**

Introduction to organizational communication. Communication theories. Team based communication in organizations. Leadership management communication. Goal setting and communication by objectives. Developing critical organizational communication competencies, negotiation and conflict resolution. Communication distortion-factors, dimensions and theories. Communicating with public. Advertising as a communication tool, interviewing and surveying, conducting meetings. Making presentations. Structuring the message. Values and ethics in communication. Professional communication management. Event Management- concept, objective, need, types and structures of events; priority of event management, 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/exhibition, organizing media tours, evaluating public opinion.

HECM 510 Educational Technology **2+1** **Sem I**

Teaching- learning process. Systems approach to design teaching-learning. Maxims of teaching. Stages, forms and levels of teaching and learning. Concept, role, meaning, nature, dimensions, functions, scope and trends in educational technology. Curriculum design and development. Designing instructions-formulation of objectives. Teaching-Learning strategies- microteaching, programmed instruction, simulation, team teaching, experiential learning. Modularized instruction- fundamentals, process, formulation of objectives,

selection of media, field testing and evaluation of a module. Genesis and trends in modern education, management of formal and non formal education in India. Vocationalization of education. Distance education, guidance and counseling. Evaluation of Instructional effectiveness. Construction and evaluation of criterion reference based test, reliability and validity of test items.

Practical: Designing a course curriculum. Preparation of moduled instructions. Preparation and use of different instructional media/material. Classroom delivery of instructions, using different teaching- learning strategies. Construction of competency/criterion based test and seminar organization.

HECM 511 ICT and New Media

0+2

Sem II

Multi media and emerging technologies. Video on- demand, internet, radio and web television. Impact of new media on traditional media. Writing for general Internet sites, online and net newspapers and editions, blogs, search engines, video logs, citizen journalism, 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 concept, HTML, interactive web animation, animated graphics, designing interactive elements, sound addition, web visual editor, creation and editing.

HECM 601 Recent Trends in Extension and Communication

2+0

Sem II

Changing concepts and emerging issues in extension - rational and realities, recent extension strategies for rural upliftment, future scenario of extension. 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.

Emerging issues in communication- understanding communication in global perspective. Role of mass media for rural audience with special emphasis on women. 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, advantages, limitations and application in Home Science.

HECM 602/Ext. 602 Scaling Techniques for Behavioural Research

2+1

Sem II

Meaning, types, principles and steps of scaling. Techniques of attitude scale construction- Paired comparison, Equal appearing intervals, Successive intervals, Summated ratings, Scalogram analysis, Scale discrimination technique. Sociometric technique. Q-sort technique. Semantic differential technique. Projective and semi- projective techniques. Critical incident technique. Reliability and validity of scales.

Knowledge measurement. Participatory tools and techniques in behavioural research. Data collection and evaluation. Impact analysis. E-data collection and evaluation. Use of computer in analysis of data.

Practical: Practice in construction of different scales and their use under different situations. Testing reliability and validity of constructed scales. Application of semi-projective and projective techniques. Practicing participatory tools and techniques. Use of e-data collection methods. Review of previous studies.

HECM 603 Managerial Skills for Extension Professionals

2+0

Sem I

Conceptualization of management process and its major functions. Management problems in extension organizations. Managerial skills - nature and importance for extension professionals. Skills in effective management of extension and rural development organizations. Strategic planning- importance, steps and techniques. Creative problem solving techniques. Stress management practices. Total Quality Management

(TQM), Time management practices, Development of Management Information System for extension organizations at various levels. 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, concretization and empowerment of rural people

HECM 604 Monitoring, Evaluation and Impact Assessment

2+0

Sem II

Monitoring- meaning and theoretical concepts, components of project monitoring, performance appraisal

standards and sustainability, approaches to participatory impact monitoring. Evaluation- meaning and theoretical concepts, criteria, steps, models and standards of evaluation, planning evaluation process, design of evaluation studies and methods of data collection. Designing evaluation instruments, analysis

and interpretation of evaluation data, cost effectiveness and cost benefit analysis, managing evaluation projects and writing evaluation reports, reporting and meta- evaluation (evaluation of evaluation), utilization of evaluation results. Impact assessment techniques- concepts and process, levels and approaches of impact assessment in development programme. Domains, types, criteria and indicators of impacts, impact monitoring, methods and designs, impact assessment, perception of partners, techniques of analysis of impact assessment, policy implication of impact assessment.

HECM 605 Project Planning and Management **1+1** **Sem I**
(In collaboration with Deptt. of Economics and Sociology)

Project management - Concept, process, types, project life cycle, project appraisal, feasibility analysis, techno- economic analysis, project design and network analysis, input analysis, financial analysis, social cost- benefit analysis and project appraisal. Project planning - criteria for selecting project, planning proposal, project review techniques, project estimation, managerial and other problems related to projects. Data management, monitoring and control of a project. Evaluation and reporting results. Thrust areas of Home Science research. Sources and priorities of funding agencies for Home Science research. National and International funding agencies for project. Research applications of Home Science in industry.

Practical: Identifying researchable issues in Home Science- 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.

HECM 606/Ext. 608 Advanced Media Management **2+1** **Sem I**
(In Collaboration with Department of Agril. Journalism, Languages and Culture)

Principles of management- managing the media organization, managerial functions in the media organization, Introduction to media organization- history, functions , uses and theories of media. Editorial and circulation management- need and importance, marketing concept/circulation affecting factors, circulation manager, functions of circulation department, difficulties in circulation, promoting circulation. 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. Significant issues in the management of broadcast media-organizational structure of radio and television in public and private sectors. Concept, history and role of FM Radio, Community Radio and TV in transfer of technology. Functions of various departments and personnel-production, marketing, financial, managing the station/ channel.

Practical: Visit to print, electronic and new media organizations to understand the designing, media development, organizational management, functions, problems etc.

HECM 607 Advertising and Marketing Communication **1+1** **Sem I**
(In collaboration with Deptt. of Agricultural Journalism , Languages & Culture)

Evaluation and history of advertising, relevance of advertising in marketing. Classification of advertising, various media for advertising, advertising writing process, law and ethics in advertising, socio-economic effects of advertising. Advertising agency, operations/ management, an understanding of key issues, strategies in advertising, government policy on advertising and management, Apex bodies in advertising. Advertising as a tool of marketing. 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 and wall paintings. Case studies on institutional advertisement and advertisement campaigns.

HECM 608 Dynamics of Group Behaviour **2+0** **Sem II**
The science of Group Dynamics, meaning, characteristics, types and functions of groups. Stages and

process of group formation, group norms and structure. Understanding individual, interpersonal and human behaviour and its different dimensions, recognizing points of view, feeling, perception and assumptions that intervene in inter-personal interactions. Group dynamics- cooperation, competition, communication, group pressure, group cohesiveness, leadership etc. Managing group- team building, conflict management, stress management, active listening and feedback. Achieving cooperative group structure.

HECM 609 Sustainable Livelihood Systems

2+0 Sem II

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. The production systems- agriculture, horticulture, sericulture, forestry, animal husbandry and dairying, fisheries, non-farm activities, their linkages with the livelihoods of rural people. Food security and livelihood security. Sustainable development- concept and challenges, ecological, social and economic dimensions of sustainable development, people's participation and sustainability. Indicators of environmental sustainability, sustainable livelihood and quality of life.

HECM 591 Seminar

HECM 600 Master's Research

HECM 700 Ph.D Research

FOOD AND NUTRITION

PROGRAMMES

1. **B.Sc. (Hons) Nutrition and Dietetics**
2. **M.Sc.**
3. **Ph.D**

COURSE**REQUIREMENTS****M.Sc.**

Field of specialization	Dietetics, Community Nutrition
Required courses	FN 501, FN 502, FN 503, FN 504, FN 505
Supporting courses	Stat 421, PGS 501 and other courses from subject matter fields (other than Minor) relating to area of special interest and research problem.
Minor field	Food Science and Technology, Biochemistry, Microbiology, Biotechnology or any other as approved by the Dean, Postgraduate Studies.
Deficiency courses for students with elective other than Food and Nutrition	As recommended by the Student's Advisory Committee and approved by the Dean, Postgraduate Studies

Ph.D

Field of specialization	Dietetics, Community Nutrition
Required courses	FN 601, FN 602, FN 603, FN 604
Supporting courses	Courses from subject matter fields (other than Minor) relating to area of special interest and research problem.
Minor field	Food Science and Technology, Biochemistry, Microbiology, Biotechnology or any other as approved by the Dean Postgraduate Studies.
Deficiency courses	As recommended by Student's Advisory Committee and approved by the Dean, Postgraduate Studies

DESCRIPTION OF COURSE CONTENTS

Undergraduate Courses

FN 101/ N Diet 101 Principles of Human Nutrition 3(3+0) Sem I
Introduction and overview of basic principles of nutrition. Relationship of nutrition to health, growth and human welfare. Definitions of terms used in nutrition- Recommended dietary allowances, balanced diet, health, functional foods, phytochemicals, nutraceuticals, dietary supplements, food groups. Energy- units, sources and requirements, fuel value of foods, methods of measuring energy value of food, energy requirement of body, physical activity and thermogenic effect of food. BMR- methods of measurement, factors affecting BMR. Digestion and absorption of carbohydrates, lipids and proteins. Carbohydrates- Types, functions, sources, requirement, health conditions affected by carbohydrates, significance of dietary fibre. Lipids- Types, functions, sources, requirement, health problems associated with lipids. Proteins- Types, functions, sources, requirement, quality evaluation, improvement and deficiency and protein energy malnutrition. Vitamins- Classification, functions, sources, requirement, deficiency and toxicity of fat soluble-(A, D, E, K), (water soluble – C, B Complex (thiamine, riboflavin, niacin, B6, Pantothenic acid, B12 and folic acid). Minerals- Classification, functions, sources, requirements, deficiency and toxicity of calcium, phosphorus, iodine, fluorine, iron, sodium, potassium, chloride, copper and zinc, bio availability and factors calcium and iron. Water-functions, sources, distribution in body water balance and electrolyte balance.

FN 102 Fundamentals of Food Science and Processing 3(2+1) Sem II
Food groups, Food guide pyramid and its importance. Foods as a source of nutrients. Objectives of cooking, processing and preservation. Methods of cooking and their merits and demerits. Effect of processing on nutritive value of foods. Functional properties, nutritive value, processing and storage of cereals and millets, pulses, fruits and vegetables, milk and milk products, meat, fish and poultry, nuts & oil seeds, oils and sugars. Types and uses of spices and herbs. Beverages and appetizers-classification and uses with special reference to tea, coffee, cocoa and alcoholic drinks. Classification and functions of leavening agents. Convenience foods : types and uses.
Practical: Laboratory conduct and responsibilities. Knowledge of different food stuffs in English, Hindi and local language. Terms used in cookery, weights and measures, identification and use of different kitchen items and equipment. Identification and listing of various food groups, market survey of processed and preserved foods. Preparation of dishes and beverages using cereals, pulses, fruits, vegetables, milk and milk products, egg, fish and meat. Use of leftover foods. Sugar cookery. Preparation of fudge and fondant. Process of caramelization; demonstration of 1-thread and 2-thread consistency. Fats and oils. Preparation of puris, cakes and biscuits. Appetizers. Preparation of hot and cold/season specific beverages. Visit of food processing industries.

FN 201 Normal and Therapeutic Nutrition 3(2+1) Sem I
Importance of meal planning and factors effecting meal planning . Determination of nutritional requirements- Recommended Dietary Allowances (RDA), calorie consumption unit and food exchange lists Maternal nutrition- physiological changes and nutritional requirements during pregnancy and lactation. Infancy- growth, development and nutritional requirements, importance of breast feeding, weaning and supplementary foods. Growth and development, food habits and nutritional requirements of pre-schoolers , school age children and adolescents. Geriatric nutrition -physiological and psychological changes during old age, nutritional requirements and consideration for diet planning. Importance and modification of normal diet to therapeutic diets. Methods of feeding. Aetiology, symptoms and dietary management of acute and chronic diseases. Fevers- typhoid, tuberculosis, influenza dengue, chickengunia. Gastrointestinal disorders- diarrhoea, constipation and peptic ulcer. Liver diseases- hepatitis, jaundice, cirrhosis. Cardiovascular diseases- atherosclerosis, hypertension

and diabetes mellitus. Dietary management in underweight, overweight and obesity. Practical: Standardization of serving size portions. Planning and preparation of diets for different age groups-infancy, pre-schoolers, school age, adolescents, adults and elderly. Planning and preparation of diets for pregnant and lactating women. Planning and preparation of diets for diseased conditions-fevers, diarrhoea, constipation, hepatitis, hypertension, diabetes mellitus, underweight, overweight and obesity.

FN 202 Food & Nutrition Policy and Agriculture

2(2+0)

Sem I

Food situation in India and world. Food production and consumption trends. Food balance sheets. Role of nutrition in agricultural planning and national development. Linkages between agricultural practices, food production, food distribution and nutritional status. Food crop failure and malnutrition, poverty and vicious cycle of low food production. Effect of agricultural development, food production and economic policies on food availability. Impact of physical resources, farming and cropping systems, inputs and manipulations, agricultural marketing systems and post harvest processing on food and nutrition situation. Food distribution systems. Food security – concept and definition, its relation with agriculture, urbanization, nutrition and health. Food systems and macroeconomic policies- employment and cash income, markets and food prices. Effect of urban agriculture on the nutritional status of vulnerable groups. Innovative approaches to enhance local food production and to improve food distribution systems. Innovative and effective approaches to manage health risks of urban agriculture. Food and nutrition security at national and household level. National Nutrition Policy (NNP) and implementation. Nutritional impact of agricultural programmes, food price control and consumer subsidy. Contribution of national and international organizations for agricultural development.

FN 203 Community Nutrition and Education

3(2+1)

Sem II

Concepts of community, health, malnutrition, maternal and infant mortality, morbidity and nutritional status. Malnutrition- definition, types, causes and vicious cycle of malnutrition. Assessment of nutritional status using dietary survey, anthropometry, biophysical tests clinical symptoms and biochemical methods. Major nutritional problems and life style diseases prevalent in India - protein energy malnutrition, anaemia, vitamin A deficiency, iodine deficiency disorders, obesity, hypertension, atherosclerosis and diabetes mellitus. National programmes and international agencies in improving nutritional status of the community - Integrated Child Development Service (ICDS), Supplementary Nutrition Program (SNP), Applied Nutrition Program (ANP), Mid Day Meal Program (MDMP), Vitamin A Prophylaxis Program, Anaemia Prophylaxis Programme, Food and Agricultural Organization (FAO), World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), United Nations Development Programme (UNDP), Cooperative for American Relief Everywhere (CARE). Nutrition education- objectives, methods and principles. Nutrition surveillance. Practical: Assessment of nutritional status of an individual/community using anthropometry and dietary survey - preparation of schedule, data collection, analysis of data and report writing. Visit to local health centre to identify clinical signs and symptoms of nutritional problems. Visit to an ICDS Block. Development of audio visual aids- radio script, popular articles, charts/posters, leaflets, folders and models. Planning, implementation and evaluation of nutrition education programme for a target group.

FN 204 Clinical Nutrition and Dietetics

3(2+1)

Sem II

Clinical Nutrition - Introduction , nutritional status and disease . Pathogenesis of nutritional deficiency diseases. Macronutrient and micronutrient deficiency diseases- protein calorie malnutrition, vitamin A deficiency, anemia, iodine deficiency disorders. Aetiology, risk factors and dietary management of diseases of gastro intestinal tract and liver , chronic obstructive pulmonary disease, diabetes mellitus, cardio vascular and renal diseases. Cancer- causes of cancer cell development, impact of tumor on host metabolism and systemic effects of cancer. Burns - physical destruction of skin, metabolic aberrations and alteration in nutritional requirement. Dietary management of cancer and burns. Interaction between nutrients, infection and drugs.

Practical: Nutritional care and documentation of hospitalized patients. Assessment of clinical symptoms during nutritional deficiency disorders - protein energy malnutrition, iron deficiency anaemia, iodine

deficiency disorders, fluorosis, vitamin A and vitamin B complex deficiencies. Biochemical assessment of blood and urine and their interpretation in terms of health and diseases. Nutritional intervention during different diseases.

FN 205 Fundamentals of Food and Nutrition

2(1+1)

Sem II

Food groups, Food guide pyramid and its importance. Objectives of cooking, processing and preservation. Methods of cooking and their merits and demerits. Relationship of nutrition to health. Energy, definition, determination of energy requirements, food energy, total energy needs of the body. Mineral nutrition: macro and micro-minerals (Ca, Fe and P), function, utilization, requirements, sources, effects of deficiency. Vitamins: functions, sources, effects of deficiency, requirements of water soluble and fat-soluble vitamins. Balanced diet: recommended dietary allowances for various age groups, assessment of nutritional status of the population.

Practical: Methods of measuring food ingredients, effect of cooking on volume and weight, determination of percentage of edible portion. Browning reactions of fruits and vegetables. Preparation of dishes and beverages using fruits and vegetables and to estimate their nutritional composition.

FN 301 Fundamentals of Food Hygiene and Sanitation

2(1+1)

Sem I

Concept, significance and interrelationship of health, food hygiene and sanitation. Characteristics and factors of good health. Inculcating hygienic habits to promote health. Water- requirement, use, sources, pollution and purification. Potable water- quality, criteria and standards. Hardness of water and its treatment. Defluoridation of water. Food hygiene. Contamination of foods from various sources. Health hazards of plant foods, animals, sewage, soil, air and water. Food spoilage- perishable, semi perishable and non perishable foods. Sanitary procedures for preparation, handling and storage of foods. Causes, symptoms and control of food borne diseases - diarrhoea, dysentery and cholera. Microbial food poisoning - sources, incubation period and mechanism of action. Food poisoning caused by agents other than microorganism - poisonous plants, animals, chemicals, metals and pesticides. Investigation of food poisoning, prevention and control.

Practical: Survey of hygienic and sanitary conditions in canteens/cafeterias/food shops/food vendors. Report writing. Preparation of oral rehydration solution (ORS). Chlorination of water, water testing and purification. Visit to primary health centre and civil hospital. Organization of health and hygiene camps

FN 302 Home Scale Food Preservation

2(1+1)

Sem I

Food preservation- introduction and scope. Classification of foods on the basis of shelf life. Food spoilage -causes and effects. Principles and methods of food preservation - drying and dehydration, use of high and low temperature, foods as preservatives, use of chemicals, radiation and combination of above methods. Storage of common perishable, semi-perishable and non-perishable foods. Selection and purchase of foods for preservation. Food standards and quality control. Packaging and packing materials, labelling and costing of products. Food additives, preservatives, anti-oxidants, colouring matter and emulsifying agents.

Practical: Preparation and storage of pickles with and without oil, chutneys and sauces. Preparation of squashes, syrups jams, jellies, preserves, marmalades and sugar candies. Demonstration of canning and bottling of fruits and vegetables. Preparation of *papad*, *wadian* utilizing cereals and legumes and their storage. Drying of blanched and unblanched fruits and vegetables by solar dryer, sun and oven drying methods. Domestic preservation of foods by freezing. Availability of preserved foods in the market.

FN 303 Food Standards and Quality Control

3(2+1)

Sem II

Importance of quality control and assurance. Food laws and regulations. Prevention of Food Adulteration Act, Fruit Product Order, AGMARK, Essential Commodities Act, Consumer Protection Act, Food Safety and Standards Act (FSSA), Bureau of Indian Standards and Codex Standards. Specifications and application of food standards for raw material and food additives- preservatives,

colorants, antioxidants, emulsifiers, leaveners and stabilizing agents. Methods for quality assessment of different foods. Selection of sensory panel and sensory evaluation of food products. Concept of food adulteration, common adulterants, related health hazards, prevention and control. Food safety, risks and hazard assessment. Food packaging and packaging materials.

Practical: Examination of agricultural, horticultural and animal foods and food products in relation to different standards. Development of score cards and sensory evaluation of selected finished products. Detection of adulterants and preservatives in food products. Visit to quality control laboratory and food processing industries. Market survey of processed foods for quality assurance.

FN 304 Food Analysis

3(2+1)

Sem II

Sampling and sampling techniques. Proximate analysis- moisture, ash, crude fat, crude fibre, crude protein and carbohydrates. Principles and methods of food analysis. Basic principles of different analytical techniques - refractometry, polarimetry, densitometry, High Performance Liquid Chromatography(HPLC), Gas Liquid Chromatography(GLC), spectrophotometry, electrophoresis, automatic amino acid analyzer. Determination of starch. Test for unsaturation of fats and rancidity of fats. Quantitative analysis of protein by Biuret method, Ninhydrin method, Lowry's method and Dye-binding method. Bioassays for protein quality of grains. Chemical, microbiological, fluorometric and colorimetric methods of analysis of fat soluble and water soluble vitamins. Principles and methods for estimation of minerals- atomic absorption spectroscopy, colorimetric, titrimetric and gravimetric. Methods for determining physical and rheological properties of food.

Practical: Proximate analysis- moisture, ash, crude fat, crude fibre, crude protein and carbohydrate. Demonstration of kelpplus, fibraplus, socsplus for estimation of protein, fibre and fat. Estimation of reducing and non-reducing sugars in fruits. Estimation of starch content of cereals. Determination of iodine value and saponification number of fats. Physical tests for grain quality and rheological properties of foods.

FN 305 Bakery and confectionary

2(0+2)

Sem II

Practical: Terms and techniques used in bakery. Use of different bakery equipment. Selection, properties and functions of various ingredients - flour, fat, sugar, eggs, salt, milk, yeast, baking powder used in bakery and confectionery. Role of gluten and starch in bakery products. Rheological properties of doughs and batters. Emulsifiers used in bakery. Balancing the formula for bakery products. Demonstration on standard method of making different types of biscuits- sweet, salty, coconut and fruit biscuits. Demonstration on standard method of making different types of cookies - peanuts, cornflakes, and choco chips, coconut macrons. Demonstration on standard method of making different types of cakes- plain cake, sponge cake, chocolate cake, pineapple upside down cake, walnut cake, fruit / plum cake and carrot cake. Demonstration on standard method of making of pastries. Icings and cake decoration. Preparation of supplemented and therapeutic baked products- cakes, biscuits, cookies, bread and desserts.

FN 401 Seminar

1(1+0)

Sem I

FN 402 Experiential Learning-I Bakery and Confectionary

8(0+8)

Sem I

Practical: Introduction to bakery unit. Equipment used in bakery unit. Maintenance of hygiene and sanitation. Preparation and maintenance of work area, work place ethics. Role and responsibility of baker Terms and techniques used in the bakery. Overview of bakery ingredients. Selection and purchase of material for the preparation of bakery products. Faults and remedies of bakery products. quality check of baked products. Balancing of formula for preparation of baked products. Demonstration and preparation of cakes, breads and muffins. Demonstration and preparation of biscuits and cookies. Standardization for portion and costing of various products. Production plan-organization of resources, sequential grouping of activities and time management. Packaging, post-production cleaning and documentation and record keeping.

FN 403 Experiential Learning-II Bakery and Confectionary **12(0+12)** **Sem I**

Practical: Preparation and marketing of different kinds of cakes. Preparation and marketing of different kinds of biscuits and cookies. Preparation and marketing of different kinds of breads. Preparation and marketing of different kinds of fermented bakery products- doughnuts, pizza etc. Preparation and marketing of different kinds of puddings. Preparation and marketing of different kinds of chocolates. Preparation and marketing of innovative value added bakery products. Preparation and marketing of different kinds of muffins. Preparation and marketing of decorative cakes. Visit to different bakery units. Assessment of sale performance- profit generated. Preparation of project proposal. Presentation of project proposal and evaluation.

FN 412 Internship-I Entrepreneurial Placement/Inplant Training **8(0+8)** **Sem II**

Practical: Acquaintance with the working of dietary departments in the hospitals. To record the clinical, nutritional and biochemical profile of the patients and modification of diets accordingly. Prescription of therapeutic diets. Organization, management and administration in institutions such as canteen/ cafeteria, nursery school/ day care centre/ hostel mess for one week. Visit to different food service institutions. Training in food service institutions.

FN 413 Internship-II Project Report and Presentation **2(0+2)** **Sem II**

Practical: Development of entrepreneurial and managerial skills. Preparation of project proposal for establishing diet counselling cell including resource mobilisation, finance, raw material, site and manpower. Report writing and presentation.

Postgraduate Courses

FN 501 Macronutrients in Human Nutrition **3(2+1)** **Sem I**

Body composition. Nutritional requirements and dietary allowances. Factors affecting requirements. Methods of estimation and formulation of recommended allowances of energy and protein for different age and activity groups. Functions, sources, requirements, digestion and absorption of carbohydrates. Composition, classification, functions and role of dietary fibre in various physiological disorders. Classifications, functions, sources, digestion and absorption of proteins. Methods of assessing of protein quality. Classifications, functions, sources, digestion, absorption and deficiency disorders of lipids, essential fatty acids. Regulation of food intake. Relationship between energy and protein requirements. Nutrient adaptation to low intake of energy and protein.

Practical: Measurement of basal metabolic rate. Calculation of energy requirements of population. Estimation of energy, proteins, fats, limiting amino acids and fatty acids in food stuffs. Blood analysis for haemoglobin, serum proteins, globulin, albumin and glucose. Urine analysis for nitrogen, urea, uric acid, creatinine and sulphur.

FN 502 Micronutrients in Human Nutrition **3(2+1)** **Sem I**

Functions, food sources, absorption and utilization of vitamins and minerals in human body. Factors affecting requirements and formulation of recommended dietary allowances of minerals and vitamins. Methods of determining the requirements. Deficiency and toxicity of vitamins and minerals. Nutritional adaptation to low vitamins and minerals intake. Inter-relationship between vitamins, minerals and hormones. Water balance, acid base balance in human body.

Practical: Estimation of important minerals and vitamins from foods and biological materials. A human balance study for vitamin C and iron, determining availability of water soluble vitamins.

FN 503 Food Analysis **3(1+2)** **Sem II**

Familiarization to terms and calculations used in preparation of various standard solutions. Sample and sampling techniques. Principles, techniques and applications of colorimeter, spectrophotometer and atomic absorption spectrophotometer. Principles, techniques and applications of fluorimetry, flame photometry and electrophoresis. Principles, techniques and application of paper, thin layer, gas liquid and high pressure liquid chromatography. 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. Methods of detection of food adulteration.

FN 504 Applied and Community Nutrition

3(2+1)

Sem II

Assessment of the nutritional status at individual, household and institutional level, direct and indirect methods. Ecological, socio-cultural, economic and demographic correlations of malnutrition. Prevalence, etiology, biochemical and metabolic changes in Protein Energy Malnutrition (PEM), vitamin A deficiency, iron deficiency anaemia, Iodine Deficiency Disorder (IDD). Major nutritional problems of the state, nation and world. Nutrition intervention- Importance, methods of nutrition intervention and their impact evaluation. National nutrition programmes and policies, nutritional surveillance. National programmes and policies regarding food production and distribution.

Practical : Development of low cost nutritious recipes suitable for various vulnerable groups. Visit to the ongoing public health nutrition centre and report writing. Techniques of assessment of nutritional status. Studying existing dietary practices, planning and conducting dietary survey, analyzing data and writing report. Development, implementation and evaluation of community nutrition and health programmes.

FN 505 Nutrition, Physical Fitness and Immunity

3(3+0)

Sem II

Overview of nutritional management vis-à-vis body composition and physical fitness. Body composition in different physiological conditions and factors affecting it. Methods of measuring direct and indirect body composition. Importance and factors influencing energy metabolism and physical fitness. 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. Classification of immunity and immunological responses. Mechanism of phagocytosis and antigen antibody reactions. Regulation of immunity. Mucosal defense system and effects of nutrients. Effect of malnutrition on immunity. Role of carbohydrates and fats on immune system. Factors affecting acquired immunity. Protein and immune functions, effect of arginine, glutamine and sulphur amino acids. Glutathione and immune system. Effect of deficiency and excess of vitamins and minerals on immune cell functions. Role of immunization. Effect of probiotics, prebiotics and antioxidants on immune function. Immunity against infection

FN 506 Clinical Nutrition

2(1+1)

Sem I

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

Practical: Biochemical analysis of blood under normal and diseased conditions for glucose, calcium, iron, creatin, urea, uric acid, creatinine, albumin, globulin, cholesterol, phosphate, glutamate oxaloacetate transaminase, glutamate pyruvate transaminase, phospholipids. Analysis of urine for specific metabolites under normal and diseased conditions. Estimation of alkaline phosphatase, Serum Glutamate Oxaloacetate Transaminase (SGOT) and Serum Glutamate Pyruvate Transaminase (SGPT).

FN 507 Therapeutic Nutrition

3(2+1)

Sem II

Importance and scope of diet therapy. Therapeutic adaptation of a normal diet. Newer concepts in dietary management of various nutritional disorders and disease conditions -fevers, infections. Dietary management during burns, allergy, gastrointestinal and liver diseases. Dietary management of cardiovascular diseases, renal disorders and obesity. Dietary management of diabetes, cancer and HIV. Nutrition in critical care. Role of dietician in a health care team in hospital and community. Health foods and supplements. Dietary recommendations for blood donors.

Practical: Formulation of food exchanges. Therapeutic modifications of diet in terms of nutrients, consistency and composition for various disorders and diseases. Preparation of Subjective Objective Assessment Plan

(SOAP) notes and case studies. Visit to hospitals. Internship of one month in a hospital.

FN 508 Nutrition Counselling

2(0+2) Sem I

Procedure of nutritional counselling in clinical practice. Preparing nutritional and dietary care plans for individuals and groups. Development of resources and dietary guidelines for counselling. Records required for follow up study, group discussion and motivation as tools to bring attitudinal changes in food selection and preparation. Exercises on writing scientific facts in simple manner for the people. Use of exhibitions, demonstrations and workshops. Setting up counselling unit. Counselling in outpatient wards in local hospitals. Simulation techniques for counselling in selected settings.

FN 509 Food Service Management

3(1+2) Sem I

Development of food service organization and recent trends. Types of food services. Types of organisation and tools of management. Menu planning and meal services management Types of food services. Quantity food production, principles involved in development of recipes in large scale cooking. Planning of layout and equipment for food services. Sanitation and hygiene in handling foods. Personal hygiene and its importance. Personnel management. Books and record keeping. Cost control in food services. Dish washing.

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

FN 510 Nutrition During Life Cycle

3(3+0) Sem II

Food and nutrient requirements of adults according to sex, occupation and physiological conditions. Physiological changes during pregnancy, weight gain, food and nutrient requirements, storage of nutrients and impact of good nutrition on the outcome of pregnancy, complications of pregnancy and their nutritional management. Physiology of lactation, food and nutrient requirement, impact of nutrition on efficiency of milk production. Role of nutrition in growth and development of infants. Nutrient requirements, feeding of infants, breast feeding vs artificial feeding, types of milk and their use in infant feeding. Feeding the premature and low birth weight infants. Complementary feeding. Nutritional disorders and common ailments in infancy, feeding the sick child, immunization schedule and growth charts. Physical and mental growth, development, food habits and nutritional requirements of preschool and school children. Prevalence of malnutrition in children and supplementary feeding. Physical and physiological changes, nutritional requirements, food preferences and eating disorders of adolescents. Physical and physiological changes during old age, their nutritional requirements and health problems.

FN 511 Development and Evaluation of Food Products

2(1+1) Sem I

Basic principles of food product development. Sensory properties of food and their role in product development. Formulation and evaluation of recipes, their nutritive value and costing per portion. Methods of sensory evaluation of food. Selection and training of judges. Development of score cards and analysis of data. Development of schedule and data analysis for consumer evaluation. Packaging materials and types for different products. Food labeling. Food safety issues in product development, food quality regulations and standards. Methods of quality control. Modification of developed products for therapeutic use.

Practical: Sensory evaluation of developed products by various methods, training of judges, score card preparation. Selection and modification of food products for therapeutic use. Formulation and standardization of products. Evaluation of consumer acceptability. Packaging of developed food products.

FN 512/FT 501 Principles of Food Processing

3(2+1) Sem I

Scope of food processing and historical developments. Principles and methods of food processing and preservation - blanching, pasteurization, sterilization and UHT processing, aseptic processing, canning, extrusion, baking, roasting, frying, drying, concentration and evaporation dielectric and microwave heating, refrigeration, freezing, controlled atmosphere (CA), modified atmosphere (MA), and dehydro-freezing. Non-thermal methods - irradiation, high pressure, pulse electric field, hurdle technology, minimal processing

and membrane technology. Food fermentations, pickling, smoking and chemical preservation.

Practical: Canning, freeze drying, dehydration, concentration, refrigeration and freezing of foods. Determination of thermal inactivation time of enzymes. Use of chemicals in preservation of foods. Extrusion cooking. Preparation of intermediate moisture and fermented foods. Visit to a food processing plant.

FN 601 Advances in Macronutrients

3(3+0) Sem II

Carbohydrates, proteins and lipids-their digestion, absorption, metabolism. Inborn errors of metabolism. Metabolic disorders like diabetes and obesity. Glucose homeostasis determined by insulin/glycogen ratio, carbohydrates free diet and its metabolic consequences. Dietary fiber, composition, classification, functions and role in various physiological disorders. Hypolipidemic action of rice bran, oat, barley and legumes. New discoveries in protein and their functions such as protein in immune system, as lubricants, biological buffers and carriers. Amino acid pool, protein turnover in man with special reference to body size, age and various pathological conditions. Novel food/sources of protein. Role of hormones on protein metabolism. Effect of dietary protein on cardiovascular disease and cholesterol metabolism. Adaptation of body to low intake of energy and protein. Estimation of body fat, lipoproteins and hyper lipoproteinemia. Hypolipidemic action of PUFA, omega-3 fatty acids and oxidation products of cholesterol. Fish oils in health and disease. Disturbance in lipid metabolism, role of modified diet in cardiovascular disorders. Causes, prevention and treatment of high blood cholesterol.

FN 602 Advances in Vitamins and Hormones

2(2+0) Sem II

History of vitamins and hormones. Causes of vitamin deficiencies in India. Chronology, chemistry, distribution, functions, absorption, transport, metabolism, deficiency manifestations of vitamins. Nutritional requirements, methods of assay of vitamins. Interaction with other nutrients, antagonists and analogues of vitamins. 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. Assessments of vitamin status of population. Antioxidants and their relationship with aging, cancer and other metabolic disorders.

FN 603 Minerals in Human Nutrition

2(2+0) Sem II

Causes of macro and micro mineral deficiencies in India. Chronology, chemistry, distribution, functions, absorption, transport, metabolism, deficiency manifestations, nutritional requirements and methods of assay of minerals. Interactions of minerals with other nutrients, antagonists and analogues of minerals. Assessment of mineral status of population. Mineral fortification and supplementation, Harmful effects of major mineral pollutants on health, mutagenicity, carcinogenicity, teratogenicity, heavy metal toxicity. Use of mineral isotopes/ tracers in nutritional studies. Metaloenzymes, 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.

FN 604 Food Systems and Community Nutrition

2(2+0) Sem I

Food situation in India and in the world. Food systems and their indicators. Food production and consumption trends in India and in the world. Factors affecting food distribution at macro and micro level. Per capita food availability and consumption. Food and Nutrition security at national and household level. Role of agriculture in enhancing food security. Food safety. Nutrition surveillance. National nutrition policy and intervention programmes. Role of Information Communication Technologies (ICT) in nutrition and content of nutrition education for various groups.

FN 605 Nutrition in Emergencies

2(2+0) Sem II

Starvation in emergencies arising out of drought, floods, earth quakes, locust, war, wrong policies and poverty, historical perspectives. Effect of inanition, short, medium and long term emergencies on food and nutrients intake, precautions against food shortage. Food needs at national level during emergencies. Major nutritional deficiency diseases in emergencies, mobilization of local resources, general fund distribution, mass and supplementary feeding, therapeutic feeding, social funds. Control of communicable diseases, public health and hygiene problems during emergencies.

FN 606 Global Nutrition Problems**2(2+0)****Sem I**

Food consumption pattern of underdeveloped, developing and developed countries. An overview of world nutrition situation and assessment of problems of developing countries in light of prevalence, etiology, indicators and preventive measures. An overview of world nutrition situation and assessment problems of developed countries in light of prevalence, etiology, indicators and preventive measures. Nutrition and health programmes to alleviate malnutrition, role of national and international organizations.

FN 607 Advances in Maternal and Child Nutrition**2(2+0)****Sem 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. 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. Nutritional problems and requirements of preschool and school going children, growth and development of children, growth monitoring using growth charts. 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. Rehabilitation of malnourished mothers and children. Key findings of National Family Health Survey.

FN 591 Seminar**FN 600 Master's Research****FN 700 Ph.D Research**

NUTRITION AND DIETETICS

B.Sc. (Hons) Nutrition and Dietetics - 4 year Programme

N Diet. 101/ FN101 Principles of Human Nutrition

3(3+0) Sem I

Introduction and overview of basic principles of nutrition. Relationship of nutrition to health, growth and human welfare. Definitions of terms used in nutrition- Recommended dietary allowances, balanced diet, health, functional foods, phytochemicals, nutraceuticals, dietary supplements, food groups. Energy- units, sources and requirements, fuel value of foods, methods of measuring energy value of food, energy requirement of body, physical activity and thermogenic effect of food. BMR- methods of measurement, factors affecting BMR. Digestion and absorption of carbohydrates, lipids and proteins. Carbohydrates- Types, functions, sources, requirement, health conditions affected by carbohydrates, significance of dietary fibre. Lipids- Types, functions, sources, requirement, health problems associated with lipids proteins- Types, functions, sources, requirement, quality evaluation, improvement and deficiency and protein energy malnutrition. Vitamins- Classification, functions, sources, requirement, deficiency and toxicity of fat soluble-(A, D, E, K), (water soluble – C, B Complex (thiamine, riboflavin, niacin, B6, Pantothenic acid, B₁₂ and folic acid). Minerals- Classification, functions, sources, requirements, deficiency and toxicity of calcium, phosphorus, iodine, fluorine, iron, sodium, potassium, chloride, copper and zinc, bioavailability and factors calcium and iron. Water-functions, sources, distribution in body water balance and electrolyte balance.

N Diet.102 Fundamentals of Food Science

3(2+1) Sem I

Cooking- Objectives, cooking methods, their types, merits and demerits. Cereals and millets - Structure, composition, processing techniques, effect of heat and acid, functions of starch in the cookery. Legumes, nuts and oil seeds - Composition, processing techniques, effect of heat, acid and alkali. Fruits and vegetables - Types, composition, pigments, changes caused by heat, acid and alkali. Milk and milk products – Composition, types, products, effect of acid on milk cookery, uses and functions. Egg - Structure, composition, grading of egg, function and changes during cooking. Meat, poultry and fish- Types, structure, composition, pigments, factors affecting tenderness, post-mortem changes and changes during cooking. Sugars- Types, composition, manufacturing process, effect of heat and acid, functions in cookery. Fats and oils - kinds, composition, effect of heat, functions in cookery, processing techniques, rancidity of fats; Brief overview of beverages; Condiments and spices, importance in daily life.

Practical: Orientation to kitchen equipment and their uses, weighing and measuring food items and identification of the food grains, condiments and spices. Introduction to cooking methods. Cereal cookery- practical exercise on dextrinization and gelatinization of rice starch, gluten formation in wheat. Legumes- identification and cooking methods. Nuts and oilseeds- use in food preparations. Vegetable cookery- different preparations with vegetables and effect of heat and alkali on pigments. Preparation of soups, salads and beverages. Milk and milk products- use in various preparations. Egg cookery- preparations showing functions of egg and various ways of using egg. Meat, poultry and fish cookery - preparations involving various methods of cooking. Sugar- preparations showing functions of sugar in cookery. Fats and oils - demonstration of smoking point and use in various preparations

N Diet.103 Food Hygiene and Sanitation

3(2+1) Sem I

Concept and significance of hygiene and sanitation in relation to food industry. Food storage – general guidelines and storage of specific foods. Principles of hygiene and sanitation – sanitary procedures

while preparation, cooking, holding, serving and displaying food and specific food operations. Sources of food contamination. Sanitation of physical plant (premises), sanitation of equipment and cleaning procedures. Personal hygiene and food handling habits of personnel. Water – supply sources and impurities of water. Water purification methods – domestic and industrial. Food and water borne infections – prevention and control. Regulatory laws – environmental pollution, sanitary regulations and standards.

Practical: Identification of microorganisms. Preparation of slides. Preparation of media. Collection of water samples. Testing of water - Physical quality and bacteriological quality. Survey of hygienic and sanitary conditions in food shops/food vendors. Report writing.

N Diet.104 Methods of Cookery

3(2+1)

Sem II

Kitchen attire and equipment's. Terminology used in cooking. Cooking of food – heat and heat transfer methods. Effect of cooking on food and its nutritive value. Principles and practices of boiling, simmering, steaming, frying, stewing, pressure cooking, roasting, baking, braising, grilling, infrared, microwave cooking and combined methods of cookery for different food groups. Basics of culinary practices. Thickening and binding agents. Flavoring stocks, essence, glazes, sauces, soups and garnishes.

Practical : Preparation of recipes from different food groups such as cereals, pulses, eggs, vegetables, fruits and milk. Preparation of food products using various cooking methods-boiling, steaming, frying, stewing, roasting, braising, grilling, microwave cooking and methods in combination.

N Diet.105 Food Processing and Packaging

3(2+1)

Sem II

Indian and global scenario on food production and processing. Scope of food processing. Food processing and preservation techniques for cereals, pulses, oilseeds, fruits, vegetables, milk, meat, fish and poultry. Impact of processing on physical, chemical and nutritional quality of foods. Shelf life of processed foods. Factors affecting quality of processed foods. Food Packaging - Indian and global scenario, classification, functions, requirement and packaging material. Principles in the development of protective packaging. Laws related to packaging. Shelf-life of packed food, special problems in packaging of foodstuffs. Packaging of water, beverages.

Practical: Market survey for packaged/ processed food stuffs. Processing of cereals and legumes: Milling, dehulling, parboiling, roasting, puffing, parching and malting etc. Processing of fruits and vegetables: juices, blanching and freezing. Pasteurization and homogenization of milk. Packaging of liquid milk. Preparation of curd and yogurt. Visit to chilling centre and dairy plant . Estimation of shelf-life of packaged food stuffs.

N Diet.106 Food Preservation and Storage

3(2+1)

Sem II

Scope of food preservation and storage. Classification of foods on the basis of shelf life. Food spoilage - causes and factors affecting. Selection and purchase of foods for preservation. Quality requirement of raw materials for preservation. Primary and secondary processing. Grain storage. Principles and methods of food preservation: Drying, high temperature, low temperature and irradiation. Food preservation by natural and chemical food preservatives. Traditional and modern methods of preservation and storage. Packaging and packaging materials, labelling and costing of different products. Food additives, anti-oxidants, colouring matter and emulsifying agents.

Practical: Market survey of raw and preserved foods. Drying of blanched and unblanched fruits and vegetables by solar, sun and oven drying methods. Domestic preservation of foods by freezing. Preparation and storage of preserved products. Squash, cordial, crush, jams, jellies, marmalade, candy, preserves, pickles with and without oil, chutneys, ketchup,

sauces, candies, toffees, cheese and syrup. Shelf life and sensory evaluation of developed products. Demonstration on canning and bottling of fruits and vegetables. Demonstration on storage of food grains. Visits to food processing and preservation units, canning and bottling units, grain storage institute, dairy plant and FCI godown.

N Diet. 201 Normal Nutrition and Meal Planning**4(3+1)****Sem I**

Importance and basic principles of meal and menu planning. Classification of vegetarianism. Factors influencing food intake and food habits. Factors to be considered while planning meals and menus for individual and family. Factors affecting food requirements of individuals, families and different groups of people. Steps involved in meal planning. Food groups and their use in meal planning. Food exchange list and its use in diet planning. Importance of balanced diet. Recommended dietary allowances of macro and micro nutrients for different age groups. Food and nutrient requirement of adults (male and female of all activities level), pregnant women, lactating women, infants and normal infants. Breast feeding, advantages of breast feeding, prelacteal feeding, breast feeding during illness, feeding of pre term baby, feeding problems. Weaning and complementary feeding. Food and nutrient requirement of pre-school children, school age children, adolescents, age people. physiological and psychological factors affecting the diet plan.

Practical : Grouping of foods based on richness of nutrients and quantifying foods to give uniform content of each nutrient. Standardization of serving size, portion size and costing. Planning and formulation of food exchange lists. Planning, preparation and nutrient calculation of diets of preschoolers, school going children, adolescents, adults, pregnant and lactating women and elderly. Packed lunches for school children. Introduction to different computer programmes pertaining to nutrient analysis.

N Diet. 202 Nutrition and Immunity**3(3+0)****Sem I**

Immune systems - the defense mechanisms of the body. Role of nutrients in immune functions. Undernutrition, host defense mechanisms and risk of infection. Infections and undernutrition - causes and consequences. Influence of infections on nutrition and susceptibility to infection. Role of nutrients in prevention of risk of infections. Childhood mortality associated with infectious diseases of gastro-intestinal tract and lungs. Age related immune depression. Role of nutraceuticals and functional foods. Nutrition, HIV/AIDS and Tuberculosis. Probiotics, prebiotics and immunity. Food allergy.

N Diet. 203 Food Product Formulations and Development**3(2+1)****Sem I**

Awareness about the dietetic foods available in the market. Basic principles of food product development. Sensory properties of foods and their role in product development. Bulk food preparation for food institutions and enterprises- servings, nutritive value and costing. Evaluation of formulated foods using objective and subjective methods. Selection and training of judges. Development of score cards and data analysis . Consumer evaluation- development of schedule and data analysis. Costing and cost control. Packaging materials, labeling and shelf life of formulated products. Food quality regulations and standards, food safety and quality control issues in product development. Product formulation and development for general and therapeutic use.

Practical: Survey on availability of dietetic foods in the market. Selection and modification of food products to be developed. Formulation, standardization, objective and subjective evaluation of the products. Sensory evaluation- methods, training of judges and score card preparation. Evaluation of consumer acceptability. Packaging- suitability of different packaging materials, labeling and shelf life of developed dietetic foods.

N Diet. 204 Cereals , Pulses and Oilseeds: Preparation and Utilization 4 (2+2) Sem I

Major cereals and millets of India- structure , composition, storage and varietal differences. Suitability of commercial grains for processing. Wheat types and hardness - soft, hard and

durum wheat. Suitability of wheat flour for particular end use. Rice- structure, composition, milling, parboiling, ageing, cooking, processing, fermentation and by-products. Maize, barley, oats and millets- structure, composition, malting, milling and by- products. Utilization of all commercial grains. Major pulses of India. Primary processing of pulses- cleaning, drying, storage and control of storage pests. Secondary processing methods-dehulling, small and large scale processing. Nutrient losses during

processing. Processing methods like soaking, germination, cooking and fermentation. Major oilseeds of India and their utility. Pre treatments and oil extraction from different oilseeds. Refining, bleaching, deodorization and hydrogenation processes of edible oils. Anti-nutritional factors and toxic constituents of pulses and oilseeds. Production technology of oilseeds/ pulses- meals/flours, protein concentrates , isolates and by-product utilization.

Practical: Physico-chemical properties of grains. Estimation of amylase and gluten content. Chemical tests- sedimentation test, flour swelling volume and starch gelatinization. Preparation of wheat products- bread and biscuits. Preparation of fermented rice products. Processing of pulses- soaking, dehulling, germination and fermentation. Preparation of snacks based on pulses and oilseeds. Preparation of recipes from germinated and fermented pulses. Visit to flour mills, rice mills and bakery units. Visit to traditional /modern *dal* mills and oil mills

N Diet. 205 Nutrition Through Life Cycle

2(2+0)

Sem 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 on infants, breast feeding versus artificial feeding, types of milk and their use in infant feeding. Weaning and supplementary foods, weaning practices in community, feeding of premature and low-birth-weight infants. Nutritional disorders and common ailments in infancy. Feeding the sick child, immunization schedule and growth charts. Preschool age- Physical growth and mental development, prevalence of malnutrition in preschool years and food habits, nutritional requirements during preschool age and supplementary foods. School age- Physical growth and mental development, nutritional requirements during school age, specific problems in feeding school children Adolescence- Physical and physiological changes, nutritional requirements, food preferences and nutritional problems, growth spurt and nutrition, fads influencing nutrition. Adulthood- Sex, occupation and income, nutritional requirements, biological and nutritional consequences. Nutrition, work capacity and physical fitness. Pregnancy- Physiological changes in pregnancy, weight gain during pregnancy, food and nutrient requirements. Complications of pregnancy and their nutritional management, impact of nutrition on the outcome of pregnancy. Nutritional need of fetus during different stages of fetal cell growth and maternal nutritional needs. Psycho-physiology of lactation, milk synthesis and secretion, maternal needs during lactation, composition of colostrum and mature human milk, milk of mothers of pre-term babies. Non-nutritional factors of human milk, immunological factors, enzymes and hormones. Human milk banking. Elderly- Physical and physiological changes, nutritional requirements, problems of old age, nutrients influencing aging process

N Diet. 206 Community Nutrition

4(2+2)

Sem II

Basic concept of community nutrition. Role of nutritionist in improving community nutrition. Food habits, taboos and influencing factors. Mortality and morbidity pattern of vulnerable groups and its causes. Malnutrition- definition, causes and classification of grades. Assessment of nutritional status using dietary survey, anthropometry, clinical symptoms and biochemical methods. Major nutritional problems prevalent in community– protein energy malnutrition, vitamin A deficiency iron deficiency anaemia, , iodine deficiency and fluorosis. Role of national and international agencies in improving nutritional status of the community. Objectives, principles and importance of nutrition education in a community. Nutritional

surveys- National Nutrition Monitoring Bureau. Nutrition surveillance. Communication techniques- process and components. Classification and use of audio visual aids- Electronic, non projected and three dimensional. Planning, selection and evaluation of audio visual aids in developing appropriate messages for target groups.

Practical: Assessment of nutritional status of an individual/community using anthropometry and dietary survey. Visit to local health centers to identify clinical signs and symptoms of nutritional problems. Visit to Anganwadi centres , rural and urban schools to evaluate mid day meal programme. Preparation

and use of audio- visual aids - Charts, posters, calendars, flipcharts, pamphlets and models. Planning, implementation and evaluation of nutrition education programme for a target group. Use of computers in assessing nutritional status of the community.

N Diet. 207 Public Health Nutrition

4(3+1)

Sem II

Concept and scope of public health. Public health problems of India. Aetiology, prevalence and prevention of nutrient deficiency diseases. Nutritional epidemiology- Objectives, measurements and methods. National Health Policy and National Nutrition Policy (NNP). National nutrition programmes relevant for public health-Vitamin A deficiency disorder control programme, National diarrhoeal disease control programme, National iodine deficiency disorder control programme, Iron deficiency anemia prophylaxis programme, National malaria eradication programme, National immunization programme, National programme for control of tuberculosis, National leprosy eradication programme, National AIDS control programme, National guinea worm eradication programme, National kala azar control programme. Factors affecting implementation of programmes in rural areas. Modulating factors in nutrition for public health and child care. Existing picture of child health, objectives and imaginative approach to child care. Care of infants and women. Hereditary disorders. Health problems of aged and their care. Special care and priority for mentally handicapped. Occupational health and industrial health policy. Traditional medicine, vegetarianism, health foods, genetically modified foods and their relevance in human health.

Practical: Epidemiological approach to study individual disease in a community. Analysis of data and report writing. Discussion for preventive and therapeutic strategies. Public health campaign in a village.

N Diet. 208 Introduction to Clinical Nutrition

3 (2+1)

Sem II

Aetiology, metabolic changes and clinical diagnosis in various nutrient deficiency diseases: protein energy malnutrition, vitamin A, B complex, C and D, calcium, iron Zinc, iodine and fluorine. Aetiology, metabolic changes, clinical manifestations and complications in degenerative diseases- obesity, diabetes, cardiovascular diseases- atherosclerosis and hypertension; renal disorders – nephrosis, acute and chronic; liver disorders- hepatitis, jaundice and cirrhosis and cancer. Interpretation of blood and urine report in different disease conditions.

Practical: Identification and interpretation of clinical signs of nutritional deficiency diseases sampling of blood and urine for nutritional status. Estimation of haemoglobin. Estimation of glucose in blood and urine in normal and diabetic persons. Estimation of lipid profile in normal and heart patients. Estimation of serum retinol, total protein and serum albumin. Visit to a clinical laboratory.

N Diet. 209 Therapeutic Nutrition-I

4(2+2)

Sem II

Importance of therapeutic meal planning and factors to be considered in meal planning. Use of food groups and exchange list in therapeutic meal planning. Importance and modification of normal diets to therapeutic diet. Causes, symptoms and dietary management in

Infections, acute and chronic fevers; gastrointestinal disorders- diarrhoea, constipation, peptic ulcers ulcerative colitis, diverticulitis, irritable bowel disease, malabsorption syndrome; liver diseases and gall bladder diseases -jaundice, hepatitis, cirrhosis, hepatic coma, cholelithiasis; eating disorders- Anorexia nervosa, bulimia, underweight, overweight and obesity.

Practical: Market survey for determining cost of locally available common foods. Standardization of serving sizes for different food items. Planning and preparation of soft, liquid and bland diet, ORS and therapeutic diets for typhoid, tuberculosis, influenza, malaria and AIDS. Planning and preparation of diets for gastrointestinal disorders i.e. diarrhoea, constipation, peptic ulcers, GERD, ulcerative colitis, diverticulitis, irritable bowel disease and malabsorption syndrome. Planning and preparation of diets for liver and gall bladder diseases- Jaundice, hepatitis, cirrhosis, ascites, hepatic coma and cholelithiasis.

Planning and preparation of diets for eating disorders- anorexia nervosa, bulimia, underweight, overweight and obesity . Use of computer software for nutrient calculations of therapeutic diets.

N Diet. 210 Fruits and Vegetables: Preparation and Utilization 3(2+1) Sem II

Fruits and vegetables- importance and scope in human diet. Harvesting and processing of fruits and vegetables, Selection of raw material for preservation and processing. General principles involved in preservation of fruit and vegetable products. Specification of processed products. Post- harvest practices and changes. Carbonated beverages, non-alcoholic beverages and fruit juice concentrates. Pickles, vinegar, tea, coffee and cocoa products. Wine and fermentation technology.

Practical: Evaluation and grading of pectin. Preparation and quality evaluation of fruit jam, jelly, marmalade, preserve, candy, RTS , squash and syrup with fruits of regional importance. Preparation of grape raisin, dried fig and dried banana. Processing of tomato products. Preparation and evaluation of dehydrated vegetables. Preparation of fruit cheese, pickle / mixed pickle, dried ginger and mango powder (amchur).

N Diet. 211 Sports Nutrition and Physical Fitness 3(3+0) Sem II

Concept of sports nutrition. Evolution and growth of sports nutrition as a discipline. Overview of nutritional management vis-a-vis physical fitness, techniques and methods of measuring physical fitness. Body composition -methods of measuring and factors affecting it. Energy metabolism - concept, importance and influencing factors. Techniques to measure energy expenditure and energy intake. Nutritional requirements of sports personnel involved in various sports. Basic exercise physiology and biochemistry -physiological and metabolic changes during and after sports activity. Macronutrients metabolism in exercise - carbohydrates and fats -fueling before, during and after exercise. Effects of dehydration and rehydration in exercise and role of water and electrolytes in performance. Vitamin metabolism in sports. Free radicals in exercise and role of antioxidants. Essential minerals, trace elements and their metabolism in sports. Nutrition supplements and ergogenic aids. Special consideration in sports nutrition- women, young, diabetic and vegetarian athletes. Amenorrhea in athletes - role of diet. Winning recipes for peak performance.

N Diet. 301 Therapeutic Nutrition-II 3(2+1) Sem I

Principles and objectives of therapeutic diets. Overweight and obesity- causes and consequences. Body weight management. Cardiovascular diseases- Causes, symptoms and dietary management in atherosclerosis, hypertension, myocardial infarction, cerebrovascular stroke and congestive heart failure. Diabetes mellitus and gout - Types, causes, symptoms and dietary management. Renal disorders – Physiology of kidney, causes, symptoms and dietary management in nephrosis, nephritis, acute and chronic renal failure, renal calculi and dialysis. Respiratory disorders – Acute and chronic COPD. Cancer-

Causes, symptoms and dietary management. Eating disorders. Management of severe acute malnutrition in children. Dietitian – Definition, role and responsibilities of a dietitian, code of ethics, competencies of dietitian. Registered Dietitian . Management of dietetics department, guidelines and requirements for establishing a diet counseling centre. Techniques for diet counseling.

Practical: Planning and preparation of diets for patients suffering from atherosclerosis, hypertension, myocardial infarction, cerebrovascular stroke, congestive heart failure, different types of diabetes mellitus, gout. Diet planning and preparation for various eating disorders i.e. anorexia nervosa, bulimia, underweight, overweight and obesity. Planning and preparation of diets for renal disorders i.e. nephrosis, nephritis, acute and chronic renal failure, renal calculi and respiratory disorders – Acute and chronic COPD, acute respiratory disorders. Setting up a unit for nutrition counseling and role play exercises for counseling.

N Diet. 302 Food Chemistry**4(3+1)****Sem I**

Properties of foods- solubility, vapour pressure, boiling point, freezing point, osmotic pressure, viscosity, surface tension, specific gravity, oxidation and reduction. Acids, bases and buffers. Composition of foods- classification, structure and properties of carbohydrates, proteins and lipids. Water - physical properties: free, adsorbed and bound water. Properties of minerals and vitamins. Structure and properties of pigments - chlorophyll, anthocyanins, flavanoids, tannins, betalains, quinones, carotenoids, myoglobin, haemoglobin, flavouring compounds, terpenoids, flavanoids and sulphur compounds. Enzymes, enzyme inhibitors, enzymatic browning and enzymes in food processing. Classification, structure, composition, processing and its effects on cereals, pulses and oilseeds, milk, fruits, vegetables, eggs, meat and poultry. Sugars, sweeteners, non nutritive sweeteners and their reactions. Food additives- antioxidants, chelating agents, coloring agents, curing agents, emulsions, flavours, flavour enhancers, humectants, anti-caking agents, leavening agents, nutrient supplements, preservatives, stabilizers and thickeners.

Practical: Weight and volume of food stuffs- flours, sugar, fats and eggs. Preparation of standard solutions- percentage volume by volume, percentage weight by volume, molar and normal. Effect of solutes on boiling point of different solutions. Qualities of flour- absorptive power, gluten and effect of other ingredients on gluten. Crystallization of sugars from syrups. Tests for unsaturation and rancidity of fats- Iodine value, peroxide value and smoke point. Effect of heat on proteins.

N Diet. 303 Milk and Milk Products: Preparation and Utilization**3(2+1)****Sem I**

Introduction, importance, scope, brief history and present status of milk industry in world. Composition and nutritive value of milk and milk products- physical state, colour, flavor, acidity, pH, density, specific gravity and freezing point. Processing of milk- collection, chilling, standardization, pasteurization, homogenization and bacto-fugation. Types of milk- sterilized, homogenized, flavoured, and standardized, reconstituted/re-hydrated, recombined and toned milk. Value addition of fluid milk. Milk products- butter, *ghee*, *khoa*, cheese. Principles of dehydration. Quality control aspects of milk- status of antibiotics, pesticides, heavy metals. Microbiological defects in milk and milk products, their causes and prevention. Good manufacturing practices and implementation of HACCP standards. Indian standards for milk and milk products as per PFA, BIS, AGMARK and FSSAI. Cleaning and sanitization procedures. Grading of milk.

Practical: Sampling of milk. Estimation of fat, SNF, TS and platform tests and separation of cream. Detection of adulterants. Preparation of milk products- butter, *ghee*, *paneer*, *channa*, icecream, *khoa*, *burfi*, flavoured milk, *rasogulla* etc. Visit to modern milk processing and manufacturing plants.

N Diet. 304 Food Standards and Quality Assurance**4(3+1)****Sem I**

Importance of quality control and assurance. Food quality and quality attributes - classification and their role in food quality. Objectives and functions of quality control. Principles of quality assurance and quality assessment of raw materials. National and International food standards. Food additives- preservatives, colourants, emulsifiers, antioxidants and stabilizing agents. Various methods for quality assessment of different foods. Grading and marketing standards and specification for finished products. Food adulteration- introduction, assessment and prevention. Sensory analysis- general testing conditions, requirements of sensory laboratory, organizing sensory evaluation programme, selection of sensory panelists and factors influencing sensory quality parameters- size, shape, texture, aroma, taste, color and gloss. Different tests for sensory evaluation- discrimination, descriptive, affective, flavour profile and ranking tests. Methods of sensory evaluation of food products, statistical analysis of sensory and objective analysis data. Introduction to HACCP and its implementation in food industry. Food safety and quality control. Food grade standards for different processed products.

Practical: Sampling techniques for collection of agricultural, horticultural and animal foods. Collection of food samples from different sources, physical examination and grading of grains, spices etc for quality. Sensory evaluation of a food product. Sensory evaluation techniques- duo-trio test and score card

method. Demonstration of objective tests for quality evaluation. Detection of food adulteration in grain samples, spices, oils and milk. Collection of food products with artificial colouring and checking for quality. Visit to quality control lab.

N Diet. 305 Nutrition in Disaster Management **3(3+0)** **Sem I**

Definition and historical perspective of national disasters. Starvation in disasters arising out of drought, floods, earth quakes and war policies. Effect of short, medium and long term emergencies on food and nutrients intake. Major nutritional deficiency diseases in disasters. Food needs at national level during emergencies and precautions against food shortage. Nutritional relief- general and selective feeding programmes. Prevention, treatment and control of communicable diseases. Public health and hygiene problems during emergencies. Government strategies to combat malnutrition during national disasters.

N Diet. 306 Nutritional Strategies in ICU **3(2+1)** **Sem I**

Principles and modes of feeding. Enteral nutrition - methods of enteral feeding. Formulae for enteral feeding. Feeding requirements. Care of solutions. Recording and monitoring. Advantages of tube feeding. Parenteral nutrition - methods of parenteral feeding. Total parenteral nutrition formulae for children and adults. Complications of total parenteral nutrition. Hospital nutrition support service. Pre-operative nutritional assessment. Pre and post-operative diet. Immunonutrition.

Practical: Visit to dietary department of hospital to observe different diet formulae. Visit to ICU of hospital for observing different types of feeds given to patients. Preparation of diets using different formulae.

N Diet. 307 Fundamentals of Nutraceuticals and Health Foods **3(3+0)** **Sem II**

Nutraceuticals- Concept and definition. Synonymous terms – functional foods, health foods, bioactive compounds and phytochemicals. Relationship between nutraceuticals, foods and medicines. Classification of nutraceutical substances based on food sources and mechanism of action. Classification and importance of functional foods. National and international standards for regulatory issues of labeling and health claims of nutraceuticals. Global Markets and trends. Potential health benefits of major nutraceuticals- omega-3, lycopene, flavonoids, isoflavonoids, prebiotics, probiotics, postbiotics, glucosamine and phytosterols. Metabolism, bioavailability and pharmacokinetics of nutraceuticals. Impact of thermal and non thermal processing on the bioactivity of nutraceuticals and functional

ingredients in foods. Role of nutraceuticals in angiogenesis, cardiovascular diseases, obesity, diabetes, cholesterol management, eye, bone and mental health. Nutraceuticals and functional foods-therapeutic use, safety and toxicity. Nutraceuticals – Quality, stability and shelf life. Analytical techniques for estimation of nutraceuticals. Regulatory and legal aspects of functional foods. Current research in functional foods.

N Diet. 308 Food Service Management **3(1+2)** **Sem II**

Food service institutions-historical development and types. Styles of food services. Management, organization and administration of a food service establishment. Principles, functions and tools of management Organization of kitchen, storage areas, service area and layout designs. Equipment-classification, selection, purchase, operation, care and maintenance. Food purchasing, receiving, storage, menu planning, food production and service. Financial management-cost concepts, food cost control, pricing, book-keeping and accounting. Personnel management- policies, recruitment, selection, facilities, benefits, trainings and development. Sanitation, hygiene and safety in food service establishment. Laws governing food service establishments. Legal and current issues.

Practical: Standardization of recipes of snacks and main course dishes, portion size and costing. Compilation of standardized recipes. Preparation of various types of menu cards. Different types of

table settings. Tray service of tea and snacks for 25 persons. Running a canteen for one day. Serving high tea to 20 persons and a meal to 10 persons. Maintenance of accounts and record keeping. Visit to different food service institutions.

N Diet. 309 Drug Nutrient Interaction

2(2+0)

Sem II

Drug interactions- basic concepts. Types and mechanism of various drugs and their interaction with nutrients. Bio pharmaceuticals of orally ingested drugs. Relationship of drug therapy with intake, absorption and utilization of nutrients. Monitoring nutritional status in drug regimens. Antibiotic abuse and drug resistance. Drug induced malnutrition. Antibiotic abuse and drug resistance. Absorption of nutrients commonly affected by drugs and alcohol. Drug related gastrointestinal disorders. Obesity and appetite suppressant drugs. Drug induced metabolic alterations in patients receiving parenteral and enteral nutrition. Herbal and dietary supplements and their interaction with drugs. Dietary counselling to prevent food drug interactions and drug abuse. Computer applications in management of nutrient drug interaction. Drug nutrient interaction and Joint Commission for Health Care Organizations.

N Diet. 310 Food Toxicology

2(2+0)

Sem II

Introduction and significance of food toxicology. Types, causative factors, signs, symptoms and preventive measures of food poisoning. Natural food toxins. Anti-nutritional factors, fungal and seafood toxins, goitrogens and carcinogens - their harmful effects and methods of removal. Concept of food borne microbial infections and intoxication. Contamination- sources, effect on health, preventive measures and methods of inactivation/ destruction of micro-organisms. Chemical toxins - pesticides, metallic and radioactive materials, residual effects, preventive measures and methods of removal. Food packaging material and potential contaminants. Hazards of packaging material, contamination during storage and transportation.

N Diet. 311 Meat and Meat Products: Preparation and Utilization

3(2+1)

Sem II

Development of meat industry. Structure, composition, nutritive value, postmortem changes and eating quality of meat. Principles of various preservation techniques- chilling, freezing, curing, smoking, thermal processing, canning and irradiation. Meat cutting and packaging. Microbial and other deteriorative changes in meat and their identification. Standards and

quality control measures adopted for meat and meat products in India - Meat Food Products Order(MFPO) and FSSAI. Fraudulent substitution of meat and its recognition. Organic meat. Value added meat products and by product utilization. Effect of various cooking methods on the nutritive value of different meat products.

Practical: Evaluation of quality and grading of eggs. Preparation of various egg products. Market study related to meat and meat products. Post-mortem changes in poultry and meat. Evaluation of meat quality. Chilling and ageing of meat. Preparation of meat- products.

N Diet. 312 Food Analysis

4(3+1)

Sem II

Food analysis- Introduction, definition, reasons and official methods . Rules and regulation for food analysis and its importance in quality control. Sampling techniques, terms and calculations used in preparation of various standard solutions. Principles, techniques and applications of colorimeter and spectrophotometer. Analysis of carbohydrates- introduction, methods of analysis, sample preparation, extraction of monosaccharides, oligosaccharides, polysaccharides, starch, crude fiber and dietary fiber. Importance and analytical methods of moisture content – direct, indirect, evaporation, chemical, distillation and instrumental. Importance of protein analysis and analytical techniques- Kjeldahl, dumas, biuret, Lowry, dye binding, turbid and UV visible spectroscopy methods. Chromatography- basic principles, types and its applications. Analysis of fats- by solvent, non solvent and instrumental

methods. Basic principles and analysis of antinutritional factors- tannins, phytates, oxalates. Importance and analysis of ash - dry , wet and low plasma temperature ashing. Analysis of different minerals by gravimetric and titration methods. Introduction and applications of Atomic Absorption Spectroscopy (AAS), Atomic Emission Spectroscopy (AES), pH meter, electrophoresis , High Performance Liquid Chromatography (HPLC) and Thin Layer Chromatography(TLC). Introduction to animal assay.

Practical : Introduction to glassware used in laboratory, preparation of samples and preparation of solutions and buffers. Proximate analysis- moisture, ash, crude fat, crude fibre, crude protein and carbohydrates. Demonstration of kelplus, fibraplus, socsplus for estimation of protein, fibre and fat. Estimation of reducing and non-reducing sugars in fruits. Estimation of starch content of cereals. Determination of iodine value and saponification number of fats.

N Diet. 313 Fundamentals of Bakery and Confectionary 4(2+2) Sem II

Introduction to baking science. Terms and techniques used in bakery. Basic materials used in bakery and confectionery- their selection, properties and functions. Use of different bakery equipments. Role of gluten and starch in bakery products. Rheological properties of doughs and batters. Emulsifiers used in bakery. Biscuits and cookies- types, ingredients required and their role in biscuits and cookies preparation. Cakes- types of cakes, ingredients required and their role in cake preparation. Balancing a cake formula, characteristics of good cake -external and internal characteristics, faults and remedies in cakes preparation. Gelling, whipping agents and related products used in bakery and confectionery. Bread – ingredients required, steps involved and different methods of bread preparation. Characteristics of good bread -external and internal characteristics, bread defects and preventive measures. Icing – Types, ingredients used and their role in icing.

Practical: Balancing the formula for bakery products. Demonstration on standard method of making different types of biscuits- salty, coconut, fruit biscuits and cookies. Demonstration on standard method of making different types of cakes- plain cake, sponge cake, chocolate cake, pineapple upside down cake, walnut cake, fruit / plum cake, carrot cake and pastries. Icings and cake decorations. Preparation of supplemented and therapeutic bakery products - cakes, biscuits, cookies, breads and desserts.

N Diet. 401 In-plant Training 16(0+16) Sem I

Hospitals/Nutraceutical /testing labs-Acquaintance with the working of dietary departments in hospitals. To record the clinical, nutritional and biochemical profile of the patients and modification of diets accordingly. Prescription of therapeutic diets

or

Acquaintance with the working in Nutraceutical /testing labs . To get training in various methods of assessing nutrient content of food stuffs and development of health foods.

N Diet. 402 Report writing and presentation 4(0+4) Sem I

Case studies of patients suffering from different diseases. Development of entrepreneurial and managerial skills. Preparation of project proposal for establishing diet counselling cell including resource mobilisation, finance, raw material, site and manpower. Report writing and presentation.

or

Development of entrepreneurial and managerial skills. Preparation of project proposal for development of health foods including resource mobilisation, finance, raw material, site and manpower. Report writing and presentation.

N Diet. 403 Seminar 1(1+0) Sem II

N Diet. 404 Experiential Learning -I Diet and Nutrition Counseling 8(0+8) Sem II

Self assessment of role as a dietitian – pre-test on role, summary of competencies, preparation of self confidence checklist and post test on self role. Preparation of SOAP notes based on case studies and group discussion. Preparation of overweight and underweight fact list handout and development of counseling guidelines for weight loss and weight gain. Weight loss counseling– use of role play technique and workshop for patients at obesity clinic. Visit to hospitals with therapeutic kitchen setup. Diabetic diet counseling at diet and nutrition counseling centre, diabetic clinics, diabetic diet exhibition in collaboration with hospitals for the benefit of public, development of dietary fat facts list, cholesterol facts list, sodium facts list, Development of dietary counseling tips for different cardiovascular disorder and counseling; cardiac patients using role play technique, presentation in specialty hospital (CVD for patients as well as attendants). Diet exhibition on cardiovascular disorders in a specialty hospital / general hospital, preparation of handouts on ulcer facts list, high fibre facts list, low residue facts list, low lactose facts list, counseling for patients suffering from diarrhoea, constipation, colitis, diverticulosis and ulcer. Preparation of SOAP notes and gall bladder facts list handout and counseling a patient of gall stones. Preparation of liver disease facts list handout, collection of case history of patient suffering from hepatitis, cirrhosis of liver and alcoholics. Preparation of kidney disease facts list handout and development of counseling tips for kidney disorders, dietary counseling in a specialty hospital / diet and nutrition counseling centre for kidney disorder and diet exhibition for kidney disorder. Preparation of cancer facts list handout, Preparation of list of parenteral and enteral products available in the market for use during counseling.

N Diet. 405 Experiential Learning -II Diet and Nutrition Counseling 12(0+12) Sem II

Planning normal and therapeutic diets for patients suffering from different diseases Counseling the patient and conducting group discussion. Role play exercises for counseling. Supervised counseling of patients/clients Preparation of list of parenteral and enteral products available in the market for use during counseling. Counseling to the community in relation to physical fitness and health. Organizing health camps and campaigns to create awareness regarding major public health problems. Setting up a unit for nutrition counseling.

FAMILY RESOURCE MANAGEMENT

PROGRAMMES

1. **B.Sc. (Hons) Interior Design**

2. **M.Sc.**

3. **Ph.D.**

COURSE REQUIREMENTS

M.Sc.

Field of specialization	Ergonomics, Resource Management
Required courses	FRM 501, FRM 502, FRM 503, FRM 504, FRM 505
Supporting courses	Stat. 421, PGS 501 and other courses from subject matter fields (other than Minor) relating to area of special interest and research problem.
Minor field	Business Management, Apparel and Textile Science, Economics, Sociology, Extension Education and Communication Management, Food and Nutrition or any other as approved by the Dean Postgraduate Studies.
Deficiency courses for students with elective other than Family Resource Management	As recommended by the Student's Advisory Committee and approved by the Dean, Postgraduate Studies.

Ph. D

Field of specialization	Ergonomics, Resource Management
Required courses	FRM 601, FRM 602, FRM 603
Supporting courses	Courses from subject matter fields (other than Minor) relating to area of special interest and research problem.
Minor field	Business Management, Apparel and Textile Science, Economics, Sociology, Extension Education and Communication Management, Food and Nutrition or any other as approved by the Dean Postgraduate Studies.
Deficiency courses	As recommended by Student's Advisory Committee and approved by the Dean, Postgraduate Studies

DESCRIPTION OF COURSE CONTENTS

Undergraduate Courses

FRM 101 Management of Resources and System Dynamics **1+1** **Sem I**
Importance of resource management. Origin, classification and role of motivating factors of management- values, goals and standards. Resources – definition, types, guidelines and factors affecting their use, management of household resources. Management process: planning - importance, types, characteristics and techniques; organizing; controlling- definition, phases and factors;evaluating- definition and types of evaluation. Time - tools and process of time management. Decision making process - types, steps and factors affecting decision making. Money - management process, types and sources of income, steps in making budget, controlling budget and evaluation of budget. Systems approach to management.

Practical: Identification of individual and family values, identification of immediate, short term and long term goals of individual and family. Standards for individual and family goals. Decision making by individuals and families. Applying decision making process, group work presentation on types of decision and decision making process. Listing out human and non – human resources, listing community resources. Application of management process to organize an event – planning,organization, evaluation. Management of personal time record for a week. Presentation of personal time record.

FRM 102 Housing and Space Management **2+1** **Sem. II**
Housing - its importance and characteristics. Factors to be considered in selection of family housing. Housing needs at different stages of family life cycle. Selection of site. Principles of house planning - orientation, privacy, grouping, roominess, sanitation, ventilation, flexibility, circulation, economy, furniture requirement. Housing standards - sanitary facility, food preparation and refuse disposal, space and security, thermal environment, illumination and electricity, structure and material, interior air quality, water supply, site and neighborhood. Sanitary condition and smoke detectors. Types of house planning – floor plan, site plan, cross sectional plan, perspective plan, elevation plan and landscape plan. Advantages and disadvantages of renting and owning a house. Technology in housing – advance technology in housing construction, low cost building technology, low cost building materials. Economy in housing construction. Ergonomics and housing - space management and interior types based on functional needs, interior for youth, elderly and other special needs, functional design of areas in interior. Housing problems – rural and urban housing problems in India. Housing policies – government and non-government housing policies and housing schemes. Housing finance - government and non-government finance institutes. Building bye-laws.
Practical : Learning architectural symbols. Drawing of house plans for different income levels and activity groups. House plan for renovation according to needs of residents. Designing of kitchen, bathroom etc. for special needs. Market survey to study the available building materials in the local market.

FRM 201 Fundamentals of Art and Interior Enrichment **1+3** **Sem. I**
Introduction and objectives of interior decoration. Elements of art and their importance in interior decoration. Principles of design and their application to interior enrichment. Colour- sources, properties and emotional effect of colour, colour schemes, colour theories and colour plans for interiors. Furniture – types of furniture, materials and finishes used for furniture, factors affecting the selection, care and maintenance of furniture, furniture arrangement. Walls – types of walls, functional characteristics of walls,types of wall treatments, exterior and interior wall finishes. Floors - importance, types of floors and floor coverings, selection, care and maintenance of floor coverings. Windows – importance, functional and decorative treatments. Accessories – classification, selection/ development and their placement. Lighting – importance, types of lighting. Flower arrangement – principles, types, material used, utility and care. Table setting – linen and tableware required for table setting. Table etiquettes.
Practical : Application of elements of art and principles of design. Development of motifs and designs

through art principles. Colour – colour schemes, value and intensity scale, colour wheel. Furniture – care and arrangement of furniture. Preparation of scrap book for different types of furniture and furniture arrangement. Site survey – different types of wall and floor coverings. Use of floor decoration in interiors. Window treatments. Accessories - preparation using painting/ printing methods, calligraphy, pottery, collage, paper mache, paper sculpture, poster making, greeting cards, fabric painting, glass painting, gift wrapping, placement of accessories. Lighting - fixtures and their utility. Flower arrangement. Learning different types of table setting and napkin folding.

FRM 202 Ergonomics in Household and Farm Technologies **1+2** **Sem. II**

Ergonomics - Introduction and principles. Work - worker and workplace relationship, work simplification techniques. Household drudgery - definition and drudgery reduction techniques. Household equipment -introduction, definition, classification of base materials used in equipment. Impact of household equipment on work, worker and environment. Equipment design and its effect on body posture. Women friendly agricultural tools. Energy – definition, classification and sources. Causes of energy crisis and solutions. Status of energy crises in India and abroad. Renewable and non-renewable energy saving technologies and methods of energy conservation in household and community. Practical : Motion studies – process and operational charts. Kitchen organization and storage principles. Introduction to drudgery reducing postures, tools and equipment in home and farm. Identification of base materials and finishes used in household equipment. Use and care of common household appliances - refrigerator, washing machine, dishwasher, cooking range, vacuum cleaner, OTG, microwave oven, food processor, coffee maker, toaster and sandwich maker. Demonstration of solar household technologies, zero energy cool chamber. Visit to biogas plant.

FRM 301 Family Finance and Consumer Education **2+0** **Sem. I**

Concept, importance, objectives and major aspects of family finance. Income and its types - productive, hidden, money, real and psychic. Family as income producing and utilizing unit, factors affecting the use of family income. Analyzing income - income profile, methods of handling income and account-keeping. Family budget: steps of budget making, factors influence on budget making, advantages of budget making. Engel's law of consumption. Standard of living. Credit - needs, types, sources and use. Planning for financial security of families. Savings and Investment- types of savings and investments. Saving institutions and their importance. Criteria for calculating family investments. Taxation -objectives, characteristics and classification. Consumer – definition, role, concept of consumer economics. Problems of consumers in rural and urban areas - unfair trade practices, adulteration, faulty weights and measures. Consumer Rights and responsibilities. Consumerism and consumer protection - history of consumer movement and growth of consumerism. Consumer Protection Act, Government legislations and orders. Role of NGOs in consumer protection and welfare. Standards, standardization and legislative measures for regulating quality. Sources of consumer information – advertisements, labels, packaging. Consumer and environment.

FRM 302 Residential and Commercial Space Design **2+1** **Sem. II**
(In collaboration with Department of Civil Engineering)

Introduction to design and space organization. Functional requirements of a building. Building bye-laws, regulations and specifications for residential and commercial buildings. Building materials, recent advances in materials, different tests for materials, mode of measurements for material requirements. Pre and post execution. Specification writing. Estimation of cost of fittings, fixtures, furniture, lighting, air conditioning, thermal insulation, solar panelling and finishing materials for residential and commercial buildings. Appraisal on space needs in commercial buildings. Study of commercial interiors for business establishments, hotels/restaurants, hospitals, educational buildings and public service buildings. Analysis of independent houses, apartments and flats of different income groups. Rural housing details.

Practical: Develop conceptual drawings and floor plans for various income groups. Develop layouts of furniture, lighting, electrical and plumbing for various income groups. Practical applications of design and space organization of apartments and flats and analysis. Cost estimation for designing interiors of

various income groups. Planning of ergonomic work layout for a small project (1000 sq.ft.). Planning of ergonomic work layout for residential and commercial areas. Evolving interior decoration details with material sample for the small project. Evolving interior decoration details with material sample for rural, urban residential and commercial areas. Presentation of the detailed work done for small projects. Presentation of the detailed work done for small and large commercial projects.

FRM 401 Seminar **1+0** **Sem I**

FRM 402 Experiential Learning I -Art Creations **0+8** **Sem. I**

Developing business plan for 'Artistic Creations, Survey of art galleries for need assessments and identification of products to be prepared. Exploration of target markets and customers. Preparation of detailed project proposal with inputs required, personnel plan, production plan, funds required sales strategy, sales volume, profit to be generated and pay back period.

FRM 403 Experiential Learning II -Marketing Management of Art Creations **0+12** **Sem. I**

Planning for production, organization of resources, delegation of duties, sequential grouping of activities production of items, product pricing packaging and storage of articles, monitoring production, product quality assessment, maintenance of production records, marketing of products, preparation of final report, oral performance.

FRM 412 Internship I - Entrepreneurial Placement/Inplant Training **0+8** **Sem II**

Training of the students in art centers, with interior designing and architects to develop industry oriented scale and acquire practical experience in actual work environment.

FRM 413 Internship II - Project Report and Presentation **0+2** **Sem II**

Training of the students to identify the problem, develop tools to collect data, analyze and interpret the data. Report writing and presentation.

Postgraduate Courses

FRM 501 Approaches to Resource Management **2+0** **Sem I**

Significance and scope of resource management. The evolving discipline of management - classical approach, behavioural approach, systems approach and scientific management. Managerial decision making - techniques, creativity, rationality and risk and certainty. Theories and concepts in Resource Management. Management process. Planning - types and dimensions, planning in a systems perspective and factors affecting planning. Implementation - controlling and facilitating. Controlling - checking and adjusting. Evaluation and feedback. Leadership- importance and characteristics, behaviour and styles. Motivation - importance, theories, approaches and elements of sound motivation. Organisation, supervision and communication.

FRM 502 Housing and Interior Space Designing **3+1** **Sem I**

Historical perspective of the architectural features of buildings. Housing stock quality, demand and supply in urban and rural areas of India. Housing problems. Role of government and non-government organizations in providing and regulating housing needs. Ancient Science of house design. Emerging techniques in the house construction. Low-cost building materials and fabrication techniques. Eco and ergo-friendly house design. House wiring and sanitary fittings. Rain water harvesting structures for houses. Housing in areas prone to natural disasters - earth quakes, cyclones, floods and fires. Recent developments in building Bye-Laws. Landscape planning. Development of interior design. Effect of interior design and decoration on family well being. Functional and aesthetic considerations in use of elements and principles of design. Human factors and special needs. Designing social zones, work and support areas and private spaces in residential buildings. Trends in decoration treatments for interiors and interior backgrounds from past to present - furniture, furnishings, lighting, fittings and fixtures, surface materials and finishes. Trends in

thermal, acoustics and safety mechanisms. Solutions for problem areas in residential and commercial building interiors.

Practical: Evolving eco, ergo and space saving house plans for selected climatic regions for different socio-economic categories through CAD. Estimation of cost of construction. Assessment of existing house plans and suggesting cost effective renovations. Landscape planning. Critical analysis of interiors of selected residential and non-residential buildings. Visits to building design institutes, hotels and furnishing show rooms and residential buildings to identify new trends. Market survey of surface materials, finishes, fittings and fixtures.

FRM 503 Empowerment of Families as Consumers

2+0

Sem I

Concept of consumer economics - definition of basic concepts. Role and importance of consumer in economy. Profile of Indian families as consuming units. Classification of consumers according to age groups, social class and culture. Consumer wants, consumer choice and factors influencing consumer choice. Consumer in market place. Theories of consumer behaviour, types of buying behaviour, and factors influencing buying behaviour. Consumer economic issues related to services - banking, insurance, health, housing and electricity. Measurement of cost of living. Changes in economy / policies and its impact on family consumption. Saving, investments and taxes.

FRM 504 Consumer Ergonomics

2+1

Sem II

Significance and scope of ergonomics. Man, Machine and Environment system interactions. Anthropometric measurements and their application in designing household products. Human body in relation to ergonomic study. Fundamentals of work physiology, muscular efforts, energy consumption, body size and movements. Measurement of physical fitness using different techniques. Mechanical parameters. Work postures, postural variations and discomfort. Measurement of physical work capacity and factors affecting energy requirements and costs for various activities. Fatigue. Environmental parameters - measurement, evaluation and effect on worker and work performance. Visual Ergonomics - illusions and accidents. Ergonomic investigations - techniques and problems. Ergonomic requirements for people with special needs.

Practical: Anthropometry and its statistical treatment for design applications. Methodologies for assessment of ergonomic cost of work in terms of physiological indices. Measurement of physical workload. Determination of physical fitness using various techniques. Measurement of posture and postural discomfort using Ergo Software. Measurement of various environmental parameters, evaluation and effect on worker and work performance.

FRM 505 Energy Conservation in Building Design

2+1

Sem II

(In collaboration with Deptt. of Civil Engineering)

Building as a system for residential and commercial needs. Energy use and crisis. Building design - need and scope for energy use and conservation. Environmental and architectural characteristics and energy consumption. Green building design evaluation system - GRIHA (Green Rating for Integrated Habitat Assessment) and LEED (Leader in Energy and Environmental Design) system. Energy Conservation Building Codes (ECBC) launched by BEE. Green Building Council of India. Factors Influencing building design. Human behaviour in relation to interior and built-in design. Climate and thermal comfort. Design parameters for climate and energy control. Design parameters for visual comfort. Day lighting and artificial lighting. Energy economy. Green strategies. Energy efficient housing options.

Practical: Visits to energy intensive and green buildings. Case studies on selected buildings and design assessment in terms of energy use and conservation. Estimation of energy requirements in buildings. Developing conceptual designs for residential and commercial buildings using green strategies. Calculation of energy costs.

FRM 506 Furniture Designing and Fabrication**2+1****Sem I**

Furniture design in different styles. Historical development of furniture. Furniture for different functions. Furniture decisions. Human factors in furniture design. Latest trends in material, furniture construction, assembling and joinery techniques and craftsmanship. Decorative and protective finishes. Marketing strategies. Functional designing of household furniture based on ergonomics. Recommendations for comfortable furniture used for different purposes - work, rest, relaxation, sleep and for physically handicapped persons. Space saving furniture. Furniture in relation to interior design and architecture. Product cost estimates and marketing strategies.

Practical: Exploring the different types of furniture, material used and fixation methods through literature search and market exposure. Developing designs and schematic drawings of selected furniture. Working out detailed drawings of components and joineries. Building small scale model. Estimating quantity of materials required and cost of construction. Workshop experience in furniture designing and construction. Exposure to furniture care and maintenance.

FRM 507 Colour and Lighting in Interiors**2+1****Sem I**

Fundamentals of colour and light in interior environment. The role of colour in history. Colour systems/theories. Colour - properties, harmony, mixing, schemes and colour interactions. Colour influencing factors. Psychological effects of colour. Visual tricks to play - space making, space shrinking, camouflage and disguise. Use of colour in interiors of residential and non-residential buildings. Physics of light. Natural and artificial lighting. Categories of lighting effects. Lighting economy. Lighting luminaires / fixtures. Lighting different spaces in the interiors. Outdoor and indoor lighting for reassurance and safety. Technical factors - measures of light, control of light, location and direction of light, size and shape of light source, and colour of light. Need for colour and lighting to provide comfort and adequate safety. Need for quality in the selection of colours and lighting in the built environment.

Practical: Evolving Munsell colour wheel. Colour schemes for problem areas in residential and non-residential interiors. Studying the psychological and emotional effects of colours in interiors. Influence of light on colour in simulated conditions. Lighting calculations for interior spaces.

FRM 508 Consumer Issues and Challenges**2+1****Sem I**

Consumer and changing trends. Consumer movement. Profile of consumers in India and Abroad. Public and private sector goods and service providers. Consumer markets - types and features. Market distribution channels. Consumer behaviour. Consumer problems and challenges. Gender issues in consumerism. Impact of media on consumers' purchase behaviour. Multinational trade and consumer welfare in India. Consumer empowerment, Citizens' Charter and Right to information Act.

Practical: Identification of problems of rural and urban consumers. Project work - in-depth study of any one identified problem and finding measures to overcome the problems. Developing consumer education material on selected issues. Impact of print and electronic media on consumers' behaviour. Developing any consumer friendly advertisement for a specific product.

FRM 509 Consumer Guidance and Counselling**2+1****Sem I**

Consumer education. Rights and responsibilities of consumer. Consumer Cooperatives. Consumer Organisations. Role of Voluntary Organizations for consumer protection. Significance of consumer guidance and counselling. Consumer protection measures- legal and non-legal. Consumer Protection Act, 1986. Consumer Legislations. Consumer redressal mechanism. Consumer Protection Councils.

Practical: Visit to local consumer redressal fora. Study of structure and functioning of consumer redressal fora. Understanding the procedure for filing a consumer complaint. Study of the proceedings of consumer court. Visit to local consumer organizations. Study of the procedures in consumer counselling and guidance centre. Mock sessions in handling consumer complaints.

FRM 510 Work and Workstation Design**2+1****Sem I**

Work, worker and workplace interrelationship. Meaning and components of work. Work analysis using

different techniques. Components of worker's input. Body Mechanics. Functional design - concept, design and arrangement of different work centers. Procedures for studying workplace design - formal and informal techniques. Workplace design for different postures. Ergonomic factors in design and selection of household goods, displays and controls. Functional designing of workplace and equipment. Hazards of ill-designed workstations.

Practical: Determining the space relationships as per workers' anthropometry, posture and movement at selected workstations. Recording the anthropometric measurements. Measurement of work costs in terms of physiological indices. Preparing plans of a unit work space. Analyzing a work station. Developing workplace design. Evaluation of existing workstation in a residential and commercial setup.

FRM 511 Product Design, Testing and Evaluation

2+1

Sem I

Definition, significance and essential factors of product design and consumer product designs. Anthropometry in design. Product services available to consumers. Product safety - hazards and liabilities. Emerging issues in product policy. Quality Control and Standardization for food, textiles, and consumer durables. Product Certification. Need for product testing. Product testing techniques and devices. Product evaluation. Product recall.

Practical: Understanding the selected consumer products through guidelines given by manufacturers. Collecting the standardization norms as per health and safety of workers. Designing the prototype of the developed product by using CAD software. Appraisal on the product testing procedures for processed foods, textiles, electrical and non- electrical equipment. Estimating the device efficiency. Visit to quality control laboratories.

FRM 601 Management of Family Environment

2+0

Sem II

Concept of environment and its significance in the rural and urban family. Components of family environment- micro and macro environment. Impact of environment on the family resources with respect to socio-economic levels. Measures for improving the quality of life in rural and urban households. Role of government and non-government organizations and mass media in welfare of families and environmental protection. Environment and future of man kind. Technological progress and quality of life.

FRM 602 Occupational Biomechanics

2+1

Sem II

Importance of human machine system in fitting the task to human. Biomechanics as an area of study. Application of biomechanics to movement - qualitative and quantitative approach. Biomechanical oriented ergonomics in different occupations. Relationships of occupations. Occupational stress - causes, measurements and remedies. Ergonomic task analysis and risk assessment at work places. Tools and techniques to assess and control ergonomic hazards at work places. Occupational safety and health. Application of biomechanics for occupational safety - accident protection and release of stress. CAD system in occupational designs.

Practical: Study of Occupational environment and Occupational stress in selected occupations. Work task analysis using appropriate software. Analysis of the biomechanics applied in work performance using ergonomic check list. Identification of accident prone and stressful occupations. Suggesting remedial performance techniques.

FRM 603 Globalization and Consumer Economics

2+0

Sem I

The ontology of consumer economics - perspectives and viewpoints. Marketing and customer behaviour - Human behaviour v/s Product behaviour. Model of consumer motivation and behaviour. Individual predisposition in marketing. Group influences in marketing. Consumer decision processes. Aggregate consumer behaviour over time. Diffusion of innovations. Brand loyalty. Globalization, Liberalization and Privatization - impact on consumer behaviour. The W.T.O - The issues for consumers. Codex Alimentarius Commission and its implications for consumers. The Services - consumer perspective and implications. Government programmes/Schemes designed to increase family financial security, increase family food security and generate consumer awareness. Consumer Protection. Managerial and Research implications of consumer issues.

FRM 604 Family Dynamics and Women Power **2+0** **Sem I**

Role analysis of Indian home makers from ancient time to modern time. Impact of change in the role of women on the family system. Family dynamics - Theoretical and Conceptual framework to study. Human rights, institutional norms of family, family structure, family ecology and family life development programmes. Economic and psychological cost of gainful employment of women in the family. Stress in the family - characteristics, category, consequences and need for stress management. Family and social support systems for facilitating women's work participation in different categories of labour - family labour and hired labour. Need for wage policy and relationship between wages and employment. Gender discrimination in wages. Women and law of inheritance and ownership of land. Women in occupational sectors. Occupational hazards of women at work.

FRM 605 Consumer Product Design **2+1** **Sem I**

Significance of product design and need for creative approach. Socio-technical and ergonomic factors in design of products. Anthropometric, ergonomic, psychological, and physiological considerations in design making. Involvement of legal factors, engineering ethics and society in consumer product design. Design models. Principles in design for manufacturability. Design analysis and implementation. Design production systems - modular design, design economics, cost analysis, cost reduction and value analysis techniques. Practical: Analyzing the user's option on the design of a specific consumer product. Collection and reporting of standards for selected consumer products as per safety regulations. Conceptualizing and developing design concept. Evolving prototype of the product. Evaluation of the product and documentation.

FRM 606 Environmental Issues and Challenges **2+0** **Sem II**

Introduction to technology and environment. State of India's environment. Environmental issues in India - water pollution, air pollution, noise pollution, land pollution and conservation. Global warming in India. Sustainable development - an international perspective. Global environmental issues. Carbon credit and its impact on growth of industries. Carbon foot prints - calculation, reduction and offsetting. Environmental education. Environmental Management System. Population and community ecology. Natural resource conservation and management. Environmental protection and law. Environmental impact assessment. Environmental audit. national and international efforts in improving environmental quality. Research methodology and system analysis applicable to environmental studies.

FRM 607 Managerial Dimensions for Special Groups **2+1** **Sem II**

Characteristics and status of people with special needs and mentally challenged children and elderly. Theoretical perspective on efficiency, comfort and safety. Physical environment and architectural dimensions- flooring, stairs, storage, workstations, furniture, equipment, fixtures and fitments. Indoor environment - light, noise, humidity and temperature. Managerial dimensions - time, energy, food and health and psycho-social. External environment support.

Practical: Appraisal of needs and coping strategies adopted by people with special needs at various levels through case studies. Presentation of reports. Inventory of external facilitators and services available as management catalysts. Developing conceptual management models. Planning simulated environments for comfortable living. Analysis of service centres catering to people with special needs and presenting report.

FRM 591 Seminar

FRM 600 Master's Research

FRM 700 Ph.D Research

INTERIOR DESIGN

B.Sc. (Hons) Interior Design - 4 Year Programme

ID 101 History of Interior Design

2+0

Sem I

Pre historic interiors. First permanent settlements. An understanding of interiors, detailed study of architectural buildings, constructional technology and materials used, secular interiors, furniture and other interior furnishings and spatial understanding and detailing during classic civilizations and early Christian to Baroque with focus on aspects of interior design. History of architecture in early Hindu, Buddhist and Jain designs. Islamic architecture in India: study of various building typologies, building elements and methods of construction. Development of Colonial architecture in India. Merging of local architecture with various Colonial styles. Architecture after the industrial revolution, transitional period, development of skyscrapers; the modern architecture movement. Overview of post- independence architecture in India. Emergence of modernism, art decoration, industrial and residential designs. Contemporary interiors.

ID 102 Elements of Design

2+1

Sem I

Elements of art: Importance in interior design. Line: types, line directions, quality, value, contour and gestures. Shape/volume: types, volume/mass, form- types, abstraction, naturalism, idealism. Texture - types, colour: characteristics, properties, colour mixing, colour harmonies, colour discord, colour vs. value, emphasis, space. Space: types, illusion of space, devices to show depth, prospective, forms of space. Pattern- types, light: systems, types. Principles of design: Harmony/Unity: ways to achieve harmony, unity and variety. Emphasis: types, levels, ways to achieve emphasis, Balance: types, ways to achieve balance. Scale/Proportion - Golden Ratio, Rhythm- ways to achieve rhythm. Principles of visual perception; principles of composition. Application of these principles in the process of design. Impact within a designed space.

Practical: Creating different types of lines. Creating lines showing different characteristics. Creating different shapes - geometric and organic. Showing negative and positive shapes through drawings. Creating different types of textures on paper. Drawing a colour wheel showing primary, secondary and tertiary colours. Creating value scale. Drawing pictures to show creation of emphasis through different methods - contrast, isolation, placement. Creating different types of balance. Show golden ratio. Creating rhythm through different elements.

ID 103 Basics of Drawings and Graphics

1+2

Sem. I

Drawing tools and types. Tracing and reproduction of drawings. Line drawing- pencil drawing, geometrical drawing, copying, enlargement and reduction of drawings. Lettering techniques. Projections types- orthographic, axonometric, isometric, perspective etc. Types of designs and sources. Computer graphics and design. Types of free hand drawing.

Practical: Designer symbols: architectural symbols, electrical symbols, furniture symbols. Design drawings including plans, sections, elevations and details. Drawing of doors, wall units and windows. Different projections and views- perspective drawings (one point, two point), Orthographic projection (Parallel projection) and views. Isometric projections and views. Axonometric views. Oblique projections. Perspective drawings.

ID 104 Soft Furnishings for Interiors

3+0

Sem. I

Importance of soft furnishings in interiors. Historical background of soft furnishings. Selecting textiles for interiors - colour and other factors. Fabric constructions -basic sewing kit, construction techniques, finishing, colour, printing. Specialized forms of textiles - embroidery, quilting, tufting, coating etc. selection criteria for soft and hard window dressings, and window accessories. Different soft furnishings for interiors: bed spreads, bed linens, sheets, slip covers, pillow cases, comforter covers, cushion covers, table linen, lamp shades,

carpet, rugs, etc. Simple upholstery- fit covers, slip covers. Decorating tool kit. Types of decorative fabrics - sheers, light weight, medium weight and heavy weight and their common uses. Factors affecting selection of soft furnishings for interiors. Use of pattern, texture and colour when combining fabrics. Solving design problems with fabric. Caring for soft furnishings.

ID 105 Elements of Building Services

2+1

Sem. I

(In collaboration with Department of Civil Engineering)

Meaning, definition and importance of building services. Various types of building services. Requirement of services in different types of buildings. Water supply services for residential and non residential buildings. Systems for safe water disposal in residential and non residential buildings. Important considerations for fire protection. General measures for fire safety in buildings. Earthing and its importance. Plumbing services. Planning of plumbing system. Essentials of termite proofing. Domestic water supply system. Cold and hot water supply for multistoried buildings. Sanitation: refuse types, collection and disposal. Basic principles of sanitation, disposal of waste water from buildings. Rain water harvesting. Waste disposal systems for rural areas.

Practical: Market survey and collection of fire resisting materials. Study of termite proofing methods. Visit to rain water harvesting units. Exposure visit to know the latest techniques for dampness and termite control. Identification of various materials used for effective plumbing. Estimation of the requirements for water supply and disposal in residential and non residential buildings. Study of methods for various types of waste disposal, Preparation of models for solid, liquid and waste disposal.

ID 111 Building Materials and Construction Practices

2+1

Sem. II

(In collaboration with Department of Civil Engineering)

Introduction to building materials. Meaning and significance of building materials. Study of basic building materials. Bricks - broad classification, characteristics of good bricks, brick sizes, types of bonds, jointing and pointing. Stones - uses, classification, general characteristics, properties of building stones namely granite, marble, sand stone, slate etc. Cement types, storage and packing. Concrete - Grades of concrete, Workability and Strength of concrete, Grades of steel, Introduction to R.C.C. Timber - advantages, uses, types of wood, defects in timber, market forms of timber, advantages of plywood, fibre board. Properties of some important woods. Paints - characteristics, constituents, types, method of painting, defects in painting, failure of paint. Varnish - properties of good varnish, constituents, process of varnishing, types.

Practical: Collection of samples and pictures of different building materials. Preparation of drawings for different thickness of wall of English bond and Flemish bond. Visits to construction sites of residential buildings. Visit to institutes. Visit to companies.

ID 112 Walls and Ceilings

2+1

Sem. II

Wall types. Wall elements - windows, doors, ventilators, stairs, fire places and pillars. Exterior and interior wall finish materials; bricks, concrete, concrete blocks, glass, metal, plaster, stone, tiles, wood, murals and Gypsum wallboard; their use, advantages, disadvantages, care and maintenance. Non-resilient wall finishes - different types of paints and their care and maintenance. Different painting techniques used for wall treatments. Finishes and surfacing/ Wall coverings - different types of wall papers, wall stickers; their advantages, disadvantages, care and maintenance. Ceilings; types, design, heat resistant, false ceiling etc. Factors influencing choice of wall and ceiling treatments. Solution for wall and ceiling related problems of interiors with the application of art elements and design principles.

Practical: Study of latest wall finishes and methods of use. Market survey for various types of wall and ceiling finishes and their cost. Wall and ceiling treatment for congenial environment. Preparation of stickers, stencils.

ID 113 Interior Landscaping

2+0

Sem. II

Introduction to interior landscaping. The need for plants. History and origin of interior landscaping. Major

determinants for plant growth and development - light, temperature, relative humidity and the atmosphere. Selection of planters. Materials for containers - wood, clay and nonporous planters. Decorative planters, hanging planters, home built planters. The growing medium for indoor plants. Planting, repotting and nutrition. Moisture - functions of water, watering quality, methods of applying water. Problems with indoor plants- diagnosis, pests, diseases, cultural and environmental problems. Placement of indoor plants - window garden, window boxes, table gardens and miniature landscapes, terrariums, bowl and dish garden, bottle gardens. Bonsai making. Popular indoor plants.

ID 114 Arts and Crafts

0+2

Sem. II

Preparation of creative articles- candle making and its decoration. Pot decoration using different techniques- decoupage, mixed media, painting and marbling. Paper creations - greeting cards, envelopes, bags, gift wrapping, quilling, photo frames and paper machi?. Alpana and Rangoli with different materials like saw dust, powdered colours, flower petals, poster colours, rice and pulses. Poster making, cartooning, collage making, clay modeling and sketching. Painting with water colours, oil colours, glass colours, murals, fabric colours and acrylic colours. Arranging exhibition.

ID 115 Colour and its Application in Interiors

2+1

Sem. II

Fundamentals of colour and light in interior environment. The role of colour in history. Colour schemes, theories, properties, harmony, mixing and colour interactions. Colour influencing factors. Psychological effects of colour. Visual tricks to play - space making, space shrinking, camouflage and disguise. Special colour effects - effects of texture, pattern and metallic materials. Colour in relation to each other. Use of colour in interiors of residential and non-residential buildings.

Practical: Evolving Munsell colour wheel. Developing various colour schemes for the residential and non residential interiors. Collecting colour samples and using coloured paper samples for preparing colour schemes on paper. Using actual materials for developing colour schemes for interiors. Colour schemes for problem areas in residential and non-residential interiors. Studying the psychological and emotional effects of colours in interiors.

ID 116 Introduction to Interior Spaces

3+0

Sem. II

Building systems and their relationship to interior environment and user needs. Analysis of various factors which define quality in interior space and the elements which make up the interiors. Importance and scope of analyzing interior spaces. Types of residential interior spaces: private, public / social and work and support areas, Open spaces. Social zone: activities and spaces- greeting guests, conversation, reading, quite games, audio visual entertainment, active indoor entertainment, outdoor entertainment, children's activities, formal dining; planning social spaces- location, room shapes and sizes. Work and support areas: kitchens- anthropometrics, work centers, storage spaces, designing the kitchen; utility spaces- laundry facility, sewing area, workshop, and general storage. Private spaces: sleeping and dressing- size of sleeping area, number, location and layout of bedrooms, storage, individual needs; bathrooms - location, layout and details; guestrooms; home office and studio space. Fundamental concepts and methods of planning, organization and arranging interior spaces; various aspects and components of interior spaces. Principles of planning interior spaces.

ID 201 Building Bye Laws and Protection

3+0

Sem. I

Building Bye Laws: Meaning, importance and objectives. Principles underlying Building Bye Laws. Building Bye Laws for residential and non residential areas. Byelaws relating to form, design, external development and landscape, site, height of building, projections and coverage for residential plot. Floor space Index. Open space requirements outside the buildings. Bye laws for habitable and non habitable rooms: size, height, openings, storage, staircase, basement, lighting and ventilation requirements. Byelaws relating to water supply, sanitation provisions, minimum plot size, off street parking, fire protection, electrical installations, building materials, plinth level, water supply, drainage and sewerage disposal, efficient use of energy and structural controls. Scrutiny and approval of building plans. Standards for maintaining fair constructional practices. Development code pertaining to residential and non-residential premises. Building protection:

Meaning, systems, guidelines. Fire proofing materials, fire protection devices, damp proofing, termite proofing. Features of lightning resistant buildings. Protection of buildings against natural calamities: flooding, storms, earthquake. Protection against theft, dacoits and wild animals. Installation of sophisticated safety gadgets: CCTV system, security camera, smoke alarms, security locks etc. Sound, thermal and electrical insulation of the buildings.

ID 202 Windows and Window Treatments

2+1

Sem. I

Window terminology. Types of windows and window treatments. Importance, need and purpose of a curtain/drapes. Factors influencing choice of window treatments. Types and styles of curtains and drapes - contemporary - modern curtains, traditional curtains, decorative and specialized curtains and readymade curtains. Fabric selection for curtains/drapes. Need for curtain linings for curtains. Selecting a hanging system for curtains - rods and poles, rings and finials. Types of decorative curtains, Blinds, shutters, shades and screens. Visual choices in curtain selection - pattern and texture. Curtain headings - valances, cornices, swags, cascades. Energy efficient windows. Curtain accessories. Curtains for different rooms. Thermal curtains. Selecting curtain length. Functional considerations for deciding window treatments.

Practical: Market survey for various types of curtain materials and hanging systems and their cost. Collecting samples of different materials. Making samples of different types of curtains. Planning window dressings for different types of windows, problem windows and their treatment. Elements and principles of design in windows. Window treatments for congenial environment.

ID 203 Building Technology

2+1

Sem. I

(In collaboration with Department of Civil Engineering)

Introduction to building and its components - foundation, plinth, damp proof course, walls, columns, beams, slabs, lintel, floor, doors, windows and ventilators, stairs, roof. Low cost housing for rural households. Protection to buildings-damp proofing, termite resistance and fire protection.

Framed structures - concept and advantages. Basic soil properties- water content, density, specific gravity, void ratio, porosity. Index properties. Soil investigation and testing. Foundation types (isolated foundation, combined foundation, raft foundation). Procedure in design of different foundations (isolated, combined and raft). Soil investigation and testing. Foundation types (isolated foundation, combined foundation, raft foundation). Procedure for construction of different foundations.

Practical: Visit to different hardware stores and constructional sites, practical on damp and termite proofing treatments in buildings and general measures of fire safety in buildings. Visit to construction sites, Identification of soil for construction, Preparation of drawings for isolated foundation, combined foundation, raft foundation.

ID 204/FRM 306 Interior Design Drawings

1+3

Sem. I

Drawing equipment. Introduction to scale and measurement. Types of designs and sources, design process and phases of design process. The theory of projections. Different rendering techniques and symbols used in architectural drawings.

Practical: Concept development including ideation, schematics and concept statements. Design drawings including plans, sections, elevations and details. Different projections and views - perspective drawings (one point, two point), orthographic projections (parallel projection) and views. Isometric projections and views. Axonometric views. Oblique projections. Perspective drawings. Drawing isometric views from orthographic projections. Drawing of doors, wall units and windows.

ID 205 Computer Applications in Interior Designing - I

0+2

Sem. I

Preparation of room plants / layouts on computer. Furniture arrangement in various rooms with the help of software packages. Preparation of house plants / layouts for one bedroom house, two bedroom house and three bedroom house. Colour schemes for different rooms. Placement and arrangement of wall hangings and other accessories. Preparing lighting plans for different rooms.

ID 206 Residential Interior Space Design

2+1

Sem. I

Introduction to planning and designing of interior spaces; principles of planning interior spaces; arrangement of spaces for aesthetic and other human considerations; Space requirement for various activities; factors affecting allotment of spaces in different areas; various aspects of space designing, cost, expressiveness, function and beauty. Optical illusion and its role in space designing. and creation of spaces through design elements and principles; careful planning of storage in different rooms and kitchens; types of storage units; principles of storage planning; ways to create spaciousness; space designing for aged and physically challenged people; consideration of future needs in space design.

Practical: Drawing floor plans of different rooms; functional arrangement of furniture and other accessories with recommended space allowances; critical appraisal of utilization of unused spaces in different areas of house; designing of various storage units; existing and functional (modified) floor plans of residential places. Survey of market regarding space saving furniture, storage units and other accessories.

ID 207 Rendering and Presentation Techniques **0+2** **Sem. I**

Different Rendering techniques and symbols used in architectural drawings. Drawing various textures. Techniques for showing various materials in buildings. Techniques for various types of floor finishes. Drawing plants, rocks and water. Drawing of furniture and fabrics. Methods of drawing windows in multi floored building (by ways of rendering Shadows). Simple free hand drawings. Plan and elevation of small house using rendering techniques. One point perspective of small house using rendering techniques. Arial view of small house using different rendering techniques.

ID 211/FRM 302 Furniture Design and Arrangement **2+1** **Sem. II**

Furniture style in different periods. Materials used for furniture fabrication-wood, metal, plastic, glass, wicker, rattan, cane and rush. Upholstered furniture. Quality of construction. Types of furniture and their selection - tables, desks, seating furniture, sleeping furniture and storage furniture. Furniture arrangement for various rooms and occasions. Cost estimation of furniture for different income groups and areas. Space saving, multipurpose and modular furniture. Practical: Design evaluation of furniture for various activities. Space saving multipurpose furniture. Arrangement of furniture for various occasions and different income groups on scale drawing. Market survey for latest trends in furniture design. Sketch drawing of furniture items for different users. Care of different types of furniture.

ID 212/ FRM 305 Floral Creations **1+3** **Sem. II**

Use of basic tools, equipment and containers for flower arrangement. Materials used, selection, cutting and storage of flowers. Prolonging life of cut flowers. Principles, designs and types of flower arrangements. Procedure for making flower arrangements. Application of colour in flower arrangements. Identification and characteristics of seasonal flowers. Identification and maintenance of potted plants.

Practical: Preparation and maintenance of Bonsai. Collection of flowers, storage and arrangement. Selection and preparation of plant materials. Care of flowers and foliage. Preparation of different styles and types of flower arrangements. Flower arrangements for different rooms and occasions. Preparation of permanent arrangements. Drying and preservation of flowers and foliage using different techniques. Preparation of utility and decorative articles from dried flowers and foliage. Preparation of bouquets, garlands and jewellery. Arranging exhibition.

ID 213 Interior Design Detailing **1+2** **Sem. II**

Principles of space planning related to interior design. Components of interior designing: Flooring, wall elements, false ceiling, lighting, furniture, wall units, and storage cupboards. Principles underlying layout of components of home interiors. Design parameters for preparing detailed drawings: of materials and finishes used, false ceiling, wall units, storage cupboards, flooring pattern, staircase, fire place, furniture, light fixtures and entrance. Window and door designs. Detailing of kitchen, bathroom and utility area layouts. Importance of lighting and electrification with respect to furniture and false ceiling layouts.

Practical: Elevations and sections with respect to furniture layout and interiors according to materials and

finishes. Construction details of all ceiling materials, flooring materials, wall finishes, wall elements and wood work. Layout detailing of lighting fixtures, staircase, fire place, wall units and storage cupboards. Kitchen drawings with section (platform, storage, dado tec.). detailed drawings for selected furniture items, wall units and show cases.

ID 214/ FRM 303 Floor and Floor Coverings

2+1

Sem. II

(In collaboration with Department of Civil Engineering)

Definition, importance, types and ergonomic considerations. Selection of hard floor materials - brick, concrete, stone, tile, terrazzo and wood. Selection of resilient floor materials - asphalt tiles, linoleum, cork, rubber and vinyl. Soft floor coverings. Types, care and maintenance of floor and floor treatments. Types, selection, installation methods, care and maintenance of carpets and rugs. Indoor and outdoor carpeting. Use and importance of floor coverings in interior decoration. Floor decoration. Storage of floor coverings, pretreatment and storage techniques. Eco-friendly flooring.

Practical: Market survey for various types of floor materials and floor coverings, their installation and cost estimation. Project work on traditional and contemporary floor treatments. Floor decoration. Care of floor coverings. Eco friendly cleaning techniques for floors and floor coverings. Project work on low cost floor materials.

ID 215 Lighting in Interiors

2+1

Sem. II

Importance of lighting in interiors. Natural and artificial lighting. Maximizing lighting in interiors through window locations, window sizes, window treatments, architectural devices, landscape, and interior finishes. Categories of lighting effects. Lighting economy. Lighting luminaries/ fixtures. Lighting for different spaces and activities in the residential and non residential interiors. Outdoor and indoor lighting for reassurance and safety. Technical factors - measures of light, control of light, location and direction of light, size and shape of light source, and colour of light. Lighting for comfort and adequate safety. Need for quality in the selection of lighting in the built environment.

Practical: Influence of light on colour in simulated conditions. Drawings to show the effect of different types of lighting in interior spaces. Lighting calculations for interior spaces using different methods- cavity method and point to point method. Market survey to study various lighting fixtures.

ID 301 Kitchen and Bathroom Designing

1+2

Sem. I

Principles of planning kitchen and bathroom; floor, wall finishes, counter materials and colour schemes used in kitchen and bathroom. Different styles of kitchen and bathrooms. Lighting, ventilation, wiring, water supply and storage provisions. Basic (shower, wash basin, bathtub, taps etc) and luxurious fixtures (railings, bath curtains, hangers, holders, mirrors, plants etc.). Concept and design of modular kitchens. Functional designing of kitchen and bathroom. Space requirement of different equipment, accessories and fixtures used in kitchen and bathroom.

Practical: Basic layouts of kitchen and bathroom. Planning and arrangement of different equipment, accessories and fixtures used in kitchen and bathroom considering human factors. Designs of various types of modular kitchens and their cost estimation. Survey of various showrooms related to kitchen and bathroom for knowing their latest trend in material and design.

ID 302 Sculpture and Modelling

1+2

Sem. I

Introduction to Indian Sculpture. Developing an awareness of pictorial elements such as point, line, shape, volume texture, light and colour. Basic designs problems. Sculpture of the 19th - 20th centuries. Modern Sculpture. Clay Modeling. Design tactile and malleable quality of clay. Carving in modeling and Sculpture. Carving of traditional and contemporary wood sculpture. Treatment of wood surfaces. Wood coloring. Carving techniques.

Practical: Designing of modeled heads, torso, figures. Study of composition of clay. Different types of portraiture in clay and plaster. Carving of wood, stones and marble by direct and indirect method. Flexible mold making. Casting and Modeling. Use of M seal for sculpture. Wood sculpture. Wood carving. Basic

cutting and joining techniques. Decorative designs with motifs of leaves, flowers and birds. Geometrical patterns suitable for outdoor sculpture etc.

ID 303 Furniture Design Detailing **1+1** **Sem. I**

Different types of woods used for furniture. Construction quality of furniture - joints, finishes and design. Techniques in furniture construction. - shaping, carving, turning, fluting, reeding. Construction of upholstered furniture. Furniture types - built - in and modular, beds, seating, tables and desks, storage units, outdoor furniture.

Practical: Survey of trends in furniture design in the market. Visit to furniture shops and workshops to study various processes of furniture construction. Designing of five furniture items and preparing their drawings and models. Furniture design detailing and rendering. Detailed study of various construction features of furniture.

ID 304/ FRM 405 Functional Interiors for Special Needs **1+1** **Sem. I**

Housing environments - interiors based on functional needs. Interiors for children, elderly and people with other special needs - furniture, lighting and indoor climate in different rooms. Planning and designing interiors for children, elderly and people with special needs. Functional interior options for specific purposes and special needs - fitments, space allowances/requirement and special provisions in different rooms.

Practical: Simulating interior environments for specific purposes. Making master plan concepts through drawings of interiors for special needs. Arranging simulated interiors for special needs/ specific purposes like continuing care and nursing care.

ID 305 Computer Applications in Interior Designing - II **0+2** **Sem. I**

Basic concepts for computer-aided design, drafting skills within the built environment applications. Use of 2D CAD commands used in architectural drafting and design to prepare drawings through Auto CAD. Introduction to Presentation techniques through Adobe Photoshop, understanding 3 dimensional modelling through Google sketch up.

ID 311 Vaastu in Interiors **2+0** **Sem. II**

Vaastu: meaning, history and importance. Vaastu principles, concepts based on various phases of Zodiac signs. Site, direction, elevation and plan evaluation according to Vaastu. Vaastu: Scientific application, myths and reality. Key elements of Vaastu. Importance of Vaastu for environment, comparison with Feng Shui. Vaastu for residential and non residential buildings. Importance of direction of doors, windows, fire place, furniture, cook and bathing area. Significance of corners, obstacles in main entrance. Placement of different accessories according to Vaastu. Remedial Vaastu for already built house. Major and minor changes in habitable and non habitable areas of the house/buildings. Location of pooja place, overhead tank, bore well, drainage and garden. Dealing with Vaastu faults without breakages.

ID 312 Advanced Building Services **2+1** **Sem. II**

(In collaboration with Department of Mechanical Engineering)

Energy conservation in residential buildings. Electrical services, basic concepts, wiring tests and problems. Requirements of electrical materials; conductors, insulators, electrical cables, Safety devices. Acoustics of buildings. Air conditioning of buildings: principles of comfort air conditioning. HVAC: concepts, definitions and classifications. Fire prevention and fire fighting systems. Communications and IT services installation and cabling. Illumination: concepts and considerations for artificial lighting. Different types of indoor and outdoor lighting. Building services with special reference to geriatrics and disabled. Eco- friendly amenities and services in buildings: product and processes.

Practical: Survey of different systems of air conditioning. Visit to water treatment plant, sewage treatment plant. Visit to multi-storeyed apartments to study water supply services. Visit to energy conservative buildings. Exposure visits to cinemas and open air theatres to study the sound insulation.

ID 313 Computer Applications in Perspective Drawings and Rendering **0+3** **Sem. II**

Development and practice exercises for 1-point and 2-point perspectives for different building typologies. Understanding the methods and conventions of tonal variations in rendering representations for plans, elevations and views, enhancing drafting skills for design applications using 2D and 3D CAD applications.

ID 314 Wall Units and Cabinets

0+3

Sem II

Designing and drawing front elevations of wall units for various rooms of residential buildings - living room, bed room, drawing room, study room, children's room, lobby and dining room. Designing wall units for non-residential buildings - shops, libraries, show rooms, offices, art galleries. Visit to residential and non-residential buildings to study wall units and cabinets' design. Designing cabinets for residential and non-residential buildings for storage of different purposes - clothes, shoes, crockery, books, utensils, food items etc.

ID 315 Fittings and Fixtures for Interiors

1+1

Sem. II

Sanitary fittings and appliances: Ventilation system, Water closets, Flushing cistern, bath tubs, lavatory basins, systems of plumbing. Door hardware: hinges, locks, latches, knobs and handles, Fireplace accessories, Lighting Fixtures, sanitary fittings: Types, care and cleaning, water dispensing appliances and sanitary fixtures. Fixtures required for installation of communication and IT services. Fitting requirements, fixtures for effective acoustic design in commercial buildings.

Practical: fixtures and fastenings for doors and windows, Identification and study of fittings used for plumbing in domestic buildings. Economic analysis of various electrical fixtures for cost effective electrical services. Identification and study of technical terms for various types of fixtures and fittings: electrical, electronic, fire fighting, sanitary, communication and refrigeration etc.

ID 316 Special Spaces and Public Interiors

2+0

Sem. II

Introduction to special purpose spaces. Basic principles of interior designing of special purpose spaces - lofts, studios, workshops, sewing rooms, darkrooms, home offices, media rooms, conservatories, green houses, courtyards, atriums, pools, terraces, patios, roofs, decks etc. Interior design principles for public interiors - shops, shopping malls, showrooms, offices, banks, museums, galleries, libraries, theaters, auditoriums, temples, churches, institutional buildings, restaurants, hotels, motels, clubs, transportation etc. Interior and exterior landscaping. Use of Colour and vastu. Guidelines for selection of materials for special purpose spaces and public interiors: walls, wall coverings, floors, floor coverings, soft furnishings, windows, window treatments, ceilings, doors and other elements of walls, accessories, wall units and cabinets, and furniture.

ID 401 Seminar

0+1

Sem. I

ID 402 Interior Design Studio

0+3

Sem. I

Advanced study of interior design process. Development and execution of design ideas. Advanced study of the design process through problem statement, programming, concept development, presentation, final design development and documentation. Human factors in relation to interior design projects. Development of design for commercialization. Preparation of five designs of medium and high degree of complexity for general use and for special populations. Collection of designs of famous designers. Preparations of portfolio, creating a personal logo for portfolio. Portfolio presentation.

ID 403 Non-residential Interior Space Design

1+1

Sem. I

Planning and designing of interior spaces of non-residential buildings. Guiding principles of planning interior spaces of non-residential buildings. Functional and aesthetic arrangement of interior spaces. Space requirement for different commercial activities. Factors consideration for allotment of spaces in activity and storage areas of non-residential buildings. Space creation through design elements and principles. Planning of storage in commercial area and store rooms.

Practical: Drawing floor plans specific commercial activity of non-residential buildings. Functional and aesthetic arrangement of storage areas for displaying articles. Arrangement of furniture and display/storage units with reference to recommended space allowances. Suggestions to reorganize the existing

arrangements. Survey of different commercial areas banks, government and corporate offices, shops, shopping malls, institutional buildings.

ID 404 Professional Applications in Interior Design **2+0** **Sem. I**

Interior design as a career- the classifications of interior design, responsibilities of an interior designer, preparing for a career in interior design, opportunities for interior designer, the computer application for interior designing. Increasing professionalism in Interior Design. Preparation for the Profession, Project Management, Professional design organization. Body of Knowledge for first Professional Degree level Programmes. Growing Public interest in design. Computers and design, Computer tasks, Make Data banks for information, Drafting, perspective drawing, Planning, Estimating, Specifying and ordering User participation in Design, Consultant Design services, National Council for Interior Design Qualification. Professional interior design society. Ethic. principles and licensing in Interior Design profession. Typical contract document, formats and resume concepts related to professional practice. Types of Future Projects, project formulation and delegation of work. Collaboration with market links for support materials and services. Future trends in Interior Design.

ID 405 Advances in Materials for Interior Design **0+2** **Sem I**

Market survey for latest materials in paints and finishes- oil paints, enamels, pigments, varnish etc. and application methods; floors and flooring materials- wood, marble, ceramic tiles, glass blocks, etc; walls- stones, plaster, wall paper, wood, glass block, concrete, mirror, fabric, acoustical panels etc; ceilings- plaster, wood, acoustical ceilings, metal, ceramics tiles etc; cabinets - materials, drawers, doors, hardware, shelves etc; window dressings and accessories, soft furnishings, textiles materials, planters, landscaping concepts, floral creations, lighting fixtures, accessories for interior enrichments, furniture designs and styles, kitchens- appliances, fixtures, cabinets, counters, floors, walls etc; bathrooms- faucets, tubs, showers, bidets, shower cabins; other components- mouldings, doors, door hardware, fireplaces etc. collecting samples and photographs of latest materials related to interiors.

ID 406 Landscape Design **2+1** **Sem. I**

Introduction to landscaping. History of gardening in India. Landscaping of homes - natural elements, principles, factors affecting design, styles of gardening. Terrace gardening. Principal groups of plants - trees, shrubs, climbers, bulbous plants and their importance in landscaping designing. Application of principles of art in landscaping. Location and orientation. Climatic conditions. Land profile. Soil types. Availability of water sources. Materials for paving and walkways. Features of rock garden and water garden. Lawn and its management - selection of grass, preparation of soil, planting of grass, diseases and other problems. Features of Japanese gardens, English gardens and Mogul gardens.

Practical: Planning tree guards, sit-outs and open ground sheds for semi-shady plants, gazebo, pedestals, monuments, statues, abstracts etc. study of indoor and outdoor plant species. Variety of shrubs, creepers, grass etc. water drainage. Designing of terrace garden. Natural and artificial water bodies. Garden furniture. Outdoor and indoor designing of party landscaping. Visit to local nurseries.

ID 407/ FRM 403 Accessories for Interior Enrichment **1+2** **Sem. I**

Importance of accessories in interiors. Functional and decorative accessories. Selection and placement of accessories in different parts of the interiors. Various types of accessories used in homes - mirrors, books, murals, clocks, screens, cushions and hassocks, mats, lamps, artifacts, antiques, baskets, glassware, chinaware, house plants, pictures and wall hangings. Planning a wall grouping. Three dimensional accessories for special effects. Lighting as an accessory. Buying guidelines for accessories. Guidelines for arrangement of accessories in interiors.

Practical: Market survey on latest trends in accessories. Preparation of any ten accessories like candles, pots, wall hangings, glass painting, mixed media wall hanging, lamp shades and decoupage articles. Organizing an exhibition on accessories.

ID 421 Internship I - Inplant Training **0+8(NC)** **Sem. II**
Placement of students with an architect or interior designer or interior design studio to study the functioning of the organization. Training of students for on-going interior designing residential and non residential projects.

ID 422 Internship II - Inplant Training **0+8** **Sem. II**
Handling interior design projects of medium complexity by the students for general use and special populations with special focus on human factors. Practice at solving problems related with interiors.

ID 423 Internship III - Project Report and Presentation **0+4** **Sem. II**
Development of entrepreneurial and managerial skills. Preparation of project proposal for establishment of an interior design firm or studio.

HUMAN DEVELOPMENT AND FAMILY STUDIES

PROGRAMMES

1. M.Sc.

2. Ph.D

COURSE REQUIREMENTS M.Sc.

Field of Specialization

Child Development, Family Studies

Required Courses

HD 501, HD 502, HD 503, HD 504, HD 505

Supporting courses

Stat 421, PGS 501 and other courses from subject matter fields (other than Minor) relating to area of special interest and research problem.

Minor fields

Business Management, Extension Education, Extension Education and Communication Management, Family Resource Management, Food and Nutrition, Sociology or any other as approved by the Dean Postgraduate Studies.

Deficiency courses for the students with elective other than Human Development and Family Studies.

As recommended by the Student's Advisory Committee and approved by the Dean, Postgraduate Studies

Ph.D

Field of Specialization

Child Development, Family Studies

Required Courses

HD 601, HD 602, HD 603

Supporting courses

Courses from subject matter fields (other than Minor) relating to area of special interest and research problem.

Minor fields

Business Management, Extension Education, Extension Education and Communication Management, Food and Nutrition, Sociology or any other as approved by the Dean Postgraduate Studies.

Deficiency courses

HD 501, HD 502, HD 503, HD 504, HD 505 and other courses as recommended by Student's Advisory Committee and approved by the Dean, Postgraduate Studies

DESCRIPTION OF COURSE CONTENTS

Undergraduate Courses

HDFS 101 Fundamentals of Human Development

2+0

Sem I

Human development as a field of study. History of study of human development, scope and importance of study of human development from a life-span perspective. Relationship of the discipline of human development with other disciplines of study. Latest issues in human development. Growth and development-definition, difference between growth and development, determinants and principles of human growth and development. Genetic basis and concepts associated with human life, stages of human development, domains of human development and its characteristics. Theories of human development-naturalism, environmentalism, maturational, need, ecological, ethological, cognitive, social, psychoanalytical and moral. Definition of ethics and research, ethical principles and concerns in research with human subjects. Research designs and methods of data collection- their merits and demerits.

HDFS 106 Human Values

1+0

Sem I, II

Universal human aspirations- happiness and prosperity, attachment and detachment. Human values and ethics concept definition, significance and sources. Goal, mission, vision, principles and philosophy of life. Fundamental value-right conduct, peace, truth, love, non-violence and selfless service. Ethics-professional, environmental and ICT. Case study of ethical lives. Sensitization/sensitivity towards others particulars senior citizens developmentally challenged and gender mainstreaming. Spirituality-body, mind and soul, positive spirit and attitude, scientific temper. Team work and volunteering. Rights and responsibilities. Road safety human relations and value conflict. Sensitization against drug abuse and other social evils. Emotional, social and spiritual quotient/intelligence. SWOT analysis-self-exploration, self-awareness, self-satisfaction, decision making, motivation and success. Management of stress and anger.

HDFS 102 Childhood and Adolescence

2+1

Sem II

Stages of prenatal development. Issues and scientific concepts associated with conception and pregnancy. Pre-natal care- alternative methods of conception. Importance of prenatal diagnostic techniques. Birth process and types of birth. Postnatal care of mother and child. Characteristics of the new born. Causes and care of premature baby. Neonatal reflexes. Breast feeding, weaning and immunization. Infancy- physical, motor, social, emotional, cognitive and language developmental characteristics. Early Childhood- physical, motor, social, emotional, cognitive and language developmental characteristics. Early stimulation- importance and approaches. Middle childhood- physical, motor, social, emotional, cognitive and language developmental characteristics. Adolescence- physical, motor, social, emotional, cognitive and language developmental characteristics. Puberty. Developmental tasks of adolescence. Factors affecting growth and development during childhood and adolescence. Recent issues of childhood and adolescence.

Practical: Demonstration of techniques of feeding, bathing and dressing of newborns and infants. Monitoring growth and development of infants and toddlers. Case studies of individuals in different stages of development- Infancy, early childhood, school age and adolescence. Critical analysis of case study reports. Preparation of resource files.

HDFS 103 Adulthood and Aging

2+0

Sem II

Concept of adulthood and aging. Characteristics of early adulthood. Physical, social, emotional and mental changes during early adulthood. The family system at the early adulthood stage. Characteristics of middle adulthood years. Understanding midlife crisis or transitions. Physical, social, mental, developmental changes and issues at midlife. Family dynamics during middle-age years. Characteristics of late adulthood years. Developmental tasks of late adulthood. Physical, social, emotional and mental changes during late adulthood. Support system for the ageing family stage, living arrangements and institutionalization. Adjusting to occupational transitions, retirement and leisure. Demographics of ageing. Developmental changes preceding death. Psychological reactions to bereavement and grief. Influence of religiosity and spiritual support on subjective well being during late adulthood. Status of geriatric care in India. Management approaches for better quality of life during old age. Recent issues of adulthood and old age.

HDFS 201 Marriage and Family Dynamics**2+1****Sem I**

Marriage- definition, functions, types of marriage in India, rituals and ceremonies of marriage in different religions of India. Readiness for marriage– definition, importance, areas of readiness and identifying characteristics of readiness for marriage. Mate selection- meaning, methods, ways of mate selection in tribal India. Factors responsible for wrong mate selection. Engagement and its importance. Marital roles-definition, importance and determinants. Marriage as status and role transition. Gender roles - concept, changing gender roles and factors for change. Role conflict. Marital adjustment-definition, areas and factors. Types of marital relations and adjustments, marital adjustment over the family life cycle. Obstacles in marital adjustment, improving marital adjustment and techniques of resolving differences. Marital dissolution- definition, types (Voluntary and Involuntary) and factors responsible for increase in the rate of legal marital dissolution. Factors responsible for refraining from divorce after marriage failure. Separation distress and factors affecting it. No-fault divorce, consequences of divorce, children's response to divorce, children as weapon against divorce and adjustment to divorce. Family- definition, functions and types of family. Family value system in India. Pattern of changes in family structure and relationships in India, familial (education and employment of women) and extra familial factors (technology, peer group, society) responsible for the changes and consequences of these changes on the family life and society. Family life cycle- definition, importance of studying family life cycle, developmental tasks and stages of family life cycle. Typical and alternative forms of families- characteristics of single parent families, female headed families, childless families, adoptive families and dual earner families. Reasons behind alternative form of family and its merits and demerits. Alternatives to marriage- singlehood, heterosexual cohabitation/ consensual union, homosexual union, reasons behind it and its merits and demerits. Family stress – definition, causes, variables affecting family's response to stress and stress coping strategies. Family crises- definition, when does stress becomes a crisis, what happens in a crisis? Stages of a crisis, characteristics of crisis events, effects of crises, factors which affect meeting the crises, adjustment to crises, general things to do in times of crises. Laws and acts regarding marriage, adoption, divorce and inheritance in India. Counselling (premarital, marital and family) - objectives, importance, areas of counselling, types, process and effects.

Practical: Study on motives of marriage, selection of partner; visit to marriage bureau and family counselling center. Comparative study on nuclear and joint families, atypical families and alternative forms of families. Marital roles and adjustments, family crisis and coping; Roles across family life cycle

HDFS 202 Developmental Challenges in Children**2+1****Sem II**

Special needs and special education- definitions, terminology, history, current trends and issues. Labelling- definition and its effects. Mainstreaming- definition, models, problems in implementing and effects. Mental retardation-definition, classification, prevalence, causes, identification & measurement psycho-social characteristics, educational considerations and management. Learning disabilities- definition, classification, prevalence, causes, identification & measurement of psycho-social characteristics, educational considerations and management. Emotional disorders- definition, classification, prevalence, causes, identification, psycho-social characteristics, educational considerations and management. Autism- definition, prevalence, causes, identification, psycho-social characteristics, educational considerations and management. Mechanism of Speech production. Speech and Language disorders- definition, classification, prevalence, causes, identification, psycho-social characteristics, educational considerations and management. Hearing impairment- definition, anatomy and physiology of ear, classification, prevalence, causes, identification & measurement of psycho-social characteristics, educational considerations and management. Visual impairment - definition, classification, prevalence, anatomy and physiology of eye, causes, identification & measurement of psycho-social characteristics, educational considerations and management. Physical impairment- definition, classification, prevalence, causes, identification, psycho-social characteristics, educational considerations and management. Multiple disorders. Giftedness - definition, prevalence, origin, screening and identification, psycho-social characteristics, educational considerations and management of giftedness. Rights and provisions for children with special needs in India. Legislation and litigation. Intervention- concept, need and importance, methods, steps, process. Role of

professionals in intervention.

Practical: Observational visits to institutes for children with special needs. Identification of children with special needs in local community. Selection of a differently abled child and preparation of case study. Planning and organizing education programmes for families of children with special needs. Developing educational material and conducting need based interventions. Presentation of case study reports.

HDFS 301 Family Counselling and Child Welfare

2+1

Sem I

Concept, nature, scope, principles and need of family counselling. Thrust areas of family counselling- educational, vocational, social, personal, premarital and marital. Problems in family counselling and methods of handling. Approaches to evaluate family counselling, Qualities of an effective counselor. Situational analysis of children, women, youth, elderly, differently abled and socially backward classes in India and abroad. Issues and challenges. Determining factors for the present status its impact on the family and society. Child welfare- definition and need. Constitutional provisions, laws, schemes, projects and policies for children and other welfare activities of child welfare. Women welfare- definition and need. Constitutional provisions, laws, schemes, projects, policies and other welfare activities. Youth welfare- definition and need. Constitutional provisions, laws, schemes, projects, policies and activities to combat drug addiction. Elderly welfare- definition and need. Constitutional provisions, laws, schemes, projects and policies for elderly. Differently abled welfare - definition, need, constitutional provisions, laws, schemes, projects and policies for differently abled. Welfare of socially backward- definition, need, constitutional provisions, laws, schemes, projects and policies. National and international organizations and agencies working for the welfare of children, women, youth, elderly and differently abled: UNICEF, WHO, CARE, DWACRA, NIPCCD, CIF, CRY, Helpage India, etc.

Practical: Visits to organisations offering counselling to families. Studying the areas of family counselling. Visits to various government and non-government organisations working for the welfare of the children women, youth, elderly, socially backward. Presentation of reports.

HDFS 302 Educational Psychology and Early Childhood Education 2+1

Sem II

Educational psychology- Meaning, nature, scope and importance of educational psychology, history of its evolution, abroad and in India, recent trends and challenges in educational psychology concept of learning- definition, essential features, types of learning, laws of learning, principles of learning, learning traits- sensation, perception, imagination, attention and memory, remembering and forgetting, intelligence-reasoning and thinking, temperament, problem solving, information processing learning environment- reinforcement- definition, types of reinforcements, schedules of reinforcement, importance of reinforcement in learning, punishment- meaning, functions, types, essentials of good punishment, effect of punishment on learning, motivation- definition, types, modes of motivation (contingency contract, token economy) relationship of motivation with learning and performance discipline- meaning, social attitudes towards it, need for discipline, wholesome and unwholesome functions of it, essentials in discipline, techniques of discipline, factors influencing choice of disciplinary techniques, evaluation of disciplinary techniques, theories for classroom teaching and its applicability – learning theories of Jerome Bruner, Robert Gagne, Jean Piaget, Erik Erikson, Lev Vygotsky, Lawrence Kohlberg performance evaluation. Meaning, characteristics and significance of early childhood years. Programme planning in ECE- Steps and types of programme planning, activities to promote all round development of preschool children- cognitive, language, socio-emotional and motor development, role, qualities and responsibilities of an early childhood personnel.

Practical: Planning, implementing and analysing effect of reinforcement, motivation and discipline on learning. Observation and recording of activities in ECE center. Developing and conducting activities to promote all round development –Gross and fine motor skills, cognitive skills, language skills, creativity and socio emotional skills. Preparation of suitable teaching learning material used for preschool children.

HDFS 401 Seminar

1+0

Sem I

HDFS 402 Experiential Learning-I Early Childhood Care and Education**0+8****Sem I**

Conducting tests for Neonatal assessment – APGAR. Neonatal Behavioural Assessment Scale for infants and toddlers, developmental assessment through anthropometry, Developmental Screening Test, Bayley's Scale of Infant Development, Vineland Social Maturity Scale. Screening and assessment of preschool and primary school children- Stanford Binet Intelligence Scale, Wechsler Scale of Intelligence for preschool and primary School Children, Thematic Apperception Test, Children's Apperception Test, Raven's Coloured Progressive Matrices; Ecological assessment of Preschool and primary school children- Home Observation Measurement of the Environment (HOME) . Developing case studies. Assessment of readiness skills of pre-primary school children- auditory perception, visual perception, writing, reading, arithmetic and discriminatory skills. Presentation of reports. Conducting educational programmes for parents on the developmental status of children. Identifying the intervention needs of developmentally delayed children. Planning and implementation of intervention programme. Conducting Post intervention evaluation. Presentation of reports.

HDFS 403 Experiential Learning - II Early Childhood Care and Education 0+12 Sem I

Developing concept and understanding the need, characteristics, functions and types of project planning. Need assessment for early childhood care and education services. Evaluative analysis of the existing early childhood care and education services. Developing skills in infrastructure planning and preparing layout plans for early childhood care and education centers in different settings. Budget Planning. Long-term and short-term curriculum planning. Framing administrative and staff recruitment policies. Record keeping. Diet planning. Hands on experience in operationalization of the early childhood care and education programmes - planning activities for physical, cognitive, language, socio-emotional and moral development. Market survey of available material. Analysis of the existing status of the available material. Designing and development of age appropriate learning material for different concepts. Arranging and equipping the classroom for optimising safety and learning. Conducting activities for furthering all aspects of development. Observing transition of activities during the day. Working with children, parents and their families. Planning and execution of parent education programmes by using different techniques of parent education - lectures, demonstrations, role play, mass communication, panel discussions etc. Learning to address emergencies.

EECM 411 Rural Awareness Work Experience**0+10****Sem II****HDFS 412 Internship-I Entrepreneurial Placement /In plant Training 0+8****Sem II**

Placement with an entrepreneur for studying the organizational structure and activities of the institution. Planning and execution of programme for the beneficiaries. Evaluation of the efficacy of the programme. Development of entrepreneurial and managerial skills.

HDFS 413 Internship-II Project Report and Presentation**0+2****Sem II**

Preparation of project proposal for establishment of early childhood care and education centres including objectives, infrastructure, budgeting working policies, staffing, programme planning, and evaluation. Report writing and presentation.

Postgraduate Courses**HD 501 Theories of Human Development****3+0****Sem I**

Meaning, types and functions of theory. Theoretical perspectives-biological, environmental, interactional and cultural context. Concepts and implications of psychoanalytic theory of Sigmund Freud and neo-Freudians. Psychosocial theory of Erikson. Field theory of Kurt Lewin. Stimulus - Response theory and social learning theories. Cognitive theory of Jean Piaget. Moral development theory of Kohlberg and Piaget. Attachment theory of Bowlby and Ainsworth. Chomsky's theory of language development. Maslow's need hierarchy theory. Ecosystem theory of Bronfrenbrenner. Socio-cultural theory of development by Vygotsky. Comparative analysis of theories and their application. Integrated approach to theory building.

HD 502 Life Span Development**3+0****Sem I**

Life span development- heredity, environment, epigenesis and canalization. Physical and psycho-motor development. Brain development. Perceptual development and its role in cognition. Perception, cognition and metacognition. Models of Intelligence. Language development- components, theories, pre-linguistic development, phonology, semantics and bilingualism. Recent trends in psycho-social and moral development. Impact of psycho-social deprivation on different stages of development. Culture and its impact. Socialization practices and influencing factors. Emotional maturity, stability and catharsis. Vulnerability and resilience. Integrated view of development from a life span perspective. Recent research trends in human development issues. Seminal work of Margaret Mead, Uri Bronfenbrenner, Erikson, Piaget. Design and field work of "Six Cultures Project".

HD 503 Methods and Techniques of Assessment in Human Development**2+1****Sem I**

Assessment- Concept, methods, techniques and their efficacy. Anthropometric evaluation of nutritional status. Psychometrics. Development of psychological tests. Item writing and item analysis. Reliability and validity. Individual and group tests. Measurement of intelligence, aptitude, attitude and personality. Projective techniques. Assessment of environment. Sociometry- socio-economic measurements. Types of scales - nominal, ordinal, interval & ratio scale. Evaluation of scales used for measuring socio-economic status. Parameters of quality of life. Human Development Index. Content analysis of national and international reports on human development. Ethical issues in the assessment of human development.

Practical: Screening & diagnostic assessment for various developments through different tools and techniques. Anthropometric measurements, psychomotor and psycho-social development. Scales of cognitive development, language development, achievement, interest, aptitude, personality and temperament. Interpretation of assessment and report writing.

HD 504 Gender Issues and Family Relations**2+1****Sem II**

Concept of gender- 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. 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. Working towards family solidarity and social well being. Values and ethics in the promotion of happy family life. 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 and report writing. Case study of three-generation families to identify the differences in the gender oriented roles and responsibilities. Case studies for gender role performance.

HD 505 Parent and Community Education**2+1****Sem II**

Concept and history of parent education with special reference to India. Objectives and theoretical approaches to parent education programmes. Techniques for parent and community education. 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. Teacher as a parent educator. Recent development in communication- computers, electronic media, help lines. Personality traits and competence of parent and community educator. Parent involvement in community programmes. Special target groups for parent education.

Practical: Identification of gaps in knowledge of parents and community regarding care and development of children, adolescents, adults and elderly. Organizing parent and community education programmes and preparing educational materials for parent and community education.

HD 506 Cognitive Development**2+0****Sem I**

Structure of cognition. Models of cognition. Learning processes. Conditioning. Verbal mediation. Recent changes in Learning Theory. Information processing system. Basic capacities. Cognitive strategies. Metacognition and everyday cognition. Ecological factors affecting cognition. Intervention strategies to improve cognitive development. New approaches to intelligence. Language and thought issues. Critical appraisal of research in cognitive development.

HD 507 Children with Developmental Challenges **2+0** **Sem. I**

Current issues, researches and statistics of developmentally challenged. Implications on the quality of life. Recent focus areas- attention deficit hyperactivity disorder, autism spectrum disorders, neurological disorders, communication defects and behaviour disorders- causes, characteristics and remediation. Forms of remedial methods- sensori-motor integration, occupational therapy, cognitive therapy and behaviour therapy. Counselling for parents and children. Guidance for teachers. Policies, government provisions, concessions, facilities and legislations for challenged children.

HD 508 Adolescent Development **2+1** **Sem I**

Adolescence- importance of the stage. Traditional and modern theories of adolescence. Perspectives of adolescent development. Biological development and maturation, consequences of puberty changes, sexual development, early and late maturation and psychological implications. Environmental learning, interactional and cultural context. Interpersonal relationships. Socio- cultural differences in attitudes of adolescents. Intellectual development- formal operations, complexities of adolescent thoughts. Moral development. Integration of self, psycho-sexual resolution and resolving identity crisis. Reorganization of social life relationship with peers and parents. Heterosexual relationships. Vocational preferences, training and work. Transition to adulthood- conflicts with special reference to contemporary socio - cultural changes.

Practical : Conducting case studies. Interviewing early and late adolescents on issues and problems, pubertal changes, friendships, career, aspirations, self and social awareness, political awareness and mass media preferences. Depicting adolescents in mass media- content analysis of media- films, television and literature.

HD 509 Family Ecology **3+0** **Sem I**

Family as a social system. Socialization within the family. Models of parenting. Social class and ethnic variations in child rearing. Family transitions. Impact of social change on family and changing family patterns in India. Religion and family. Contemporary issues related to family. Family disorganization. Family as an institution under stress. Needs and problems of families at different developmental stages. Changing trends in family relationships with special reference to family disruption, sickness, divorce and disability. Impact of consumerism on rural and urban families. Impact of emigration and multiculturalism on families. Two culture children and their psycho-social dilemmas. Marriage and family therapy.

HD 510 Gerontology **2+0** **Sem I**

Socio demographic profile of the aged in Indian context. Theoretical perspectives on ageing. Impact of ageing on physical, psychological and socio-emotional aspects. Elderly abuse. Ageing and health. Ageing and financial status. Stress among the aged and coping strategies. The aged in the family context- family relationships, problems, prospects and support systems. Contemporary socio-cultural changes and their effects on the aged. International scenario of the aged. Research trends in gerontology and methodological issues. Welfare of the aged- policies and programmes.

HD 511 Family Therapy **2+1** **Sem I**

Theoretical developments in marital and family therapy. Schools of family therapy- structured, strategic, experimental and integrated family therapy. Areas and scope of marriage and family therapy. Social learning approach. Psychosomatic symptoms, psychiatric disorders, marital distress, alcoholism, drug dependence, juvenile offences, problems of adolescence, conduct problems and phobias. Qualities of marriage and family therapist. Contemporary marital therapies- psychoanalytic, communicative. Marital, behavioural and system theory approaches. Advanced techniques of marriage and family therapy. Future directions 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 in different areas of marriage and family therapy. Methods and techniques of marriage and family therapy.

HD 512 Cross-Cultural Perspectives in Family Studies **2+0** **Sem I**

Components of culture. Cultural influences on human development. Agents of cultural influences- school, family and other social groups. Interface between culture and family. Family in different cultures- parenthood, gender roles and issues in different cultures, socialization practices, status of women and care of elderly. Interpersonal communication patterns, conflict resolution, family crisis and adaptations. Cross-cultural variations and their impact on families. Legal provisions and emerging cultural trends. Research trends in cross-cultural family studies and methodological issues.

HD 601 Adulthood and Ageing **2+0** **Sem II**

Adulthood- theoretical perspectives in adult development, transition to adulthood, stages of adulthood. Issues and adjustment related to occupation, self and family, supportive services. Theoretical perspectives on developmental changes, biological health, cognitive changes and adjustment. Contemporary issues in ageing. Changing family issues and empty nest stage. Death, dying and bereavement. Attitude towards death, grief and bereavement.

HD 602 Advances in Family Studies **3+0** **Sem II**

Different approaches to family studies- nature and importance of conceptual framework, institutional framework, structural-functional framework, developmental framework and interactional framework. Sociological viewpoint of family by Talcott Parsons. Inter disciplinary approaches to family measurement. Psychological approaches of assessment in family. Psychiatric approach, interactive approach, measurement of marital roles and relationships, ethnographic approach and demographic approach. Ethics in family research. Current issues for research in Indian families. Changing roles of parents in parenting in contemporary society. Disorganized and reorganized families. Marital distress. Alternate family patterns- single parent families, female headed households, dual career families, sibling families etc. Theoretical developments in marital and family therapy, schools for family therapy, structured, strategic, experimental family and integrated family therapy. Critical evaluation of national policies and programmes towards family welfare in India.

HD 603 Ecology of Human Development **2+0** **Sem I**

Bio-ecological model and developmental assessment. Socio-cultural and sub-cultural differences in child's environment and its effect on childrearing practices and development. Terrain, climatic, demographic and economic factors and their effect on human development. 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. Environmental aspects - overcrowding, socio-cultural imbalances and their impact on development. Impact of time factor on development

HD 604 Advances in Mental Health **2+0** **Sem I**

Recent issues and concepts of mental health. Types and etiology of various behavioural disorders and maladjustments- psychosomatic problems, anxiety disorders, mood disorders, schizophrenia and multiple-personality disorders. Models of human nature- biological model, behavioural model, cognitive model, psychoanalytic model and their implications. Strategies of behaviour modification- behaviour therapy, cognitive therapy, psychotherapy and family therapy. Contemporary intervention techniques. Programmes and policies for the promotion of mental health in India.

HD 605 Advanced Strategies in Developmental Intervention **2+1** **Sem I**

Current orientation towards intervention. Vulnerable groups for intervention and their characteristics. Need assessment for intervention. Contemporary issues and current trends in intervention. Multi disciplinary approach to intervention. Intervention strategies, approaches and methods. Developing network with agencies. Generating resources. Role of family and community in implementation of intervention programmes. Evaluation

of intervention programmes.

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

HD 606 Programme Development for Vulnerable Families **2+1** **Sem II**
Concept of developmental programmes. Types of projects- development and research projects. 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. Developing Programmes- project proposal - steps/ process involved, principles of project design, aspects of appraisal, basic considerations risks and returns. 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. Developing programmes for the 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. Programme Evaluation and Review Technique (PERT). Dissemination / publishing of success stories and popular articles.

HD 607 Socio-Cultural Perspectives in Human Development **2+0** **Sem II**
Socialization and acculturation - socialization, multi-culturalism, social assimilation and issues associated with socialization processes. Prosocial and antisocial behaviour. Morality, aggression and delinquency. Discipline and punishment. Influence of child's micro and macro environment - parent child interactions, changing family forms, child abuse, social discrimination, changes in socio-economic aspects, technological developments, changes in agricultural systems, wars and natural disasters, child and family welfare concerns.

HD 591 Seminar

HD 600 Master' s Research

HD 700 Ph.D Research

SEMESTER-WISE STUDY PROGRAMME OF B.Sc. (Hons) COMMUNITY SCIENCE

4 YEAR DEGREE PROGRAMME

1st year

1 st Semester			2 nd Semester		
ATS 101	Fundamentals of Clothing Construction	3(1+2)	ATS 102	Textile Science and Fabric Care	3(2+1)
FN 101	Principles of Human Nutrition	3(3+0)	FN 102	Fundamentals of Food Science and Processing	3(2+1)
FRM 101	Management of Resources and System Dynamics	2(1+1)	FRM 102	Housing and Space Management	3(2+1)
EECM 101	Extension Education and Rural Development	3(3+0)	HDFS 102	Childhood and Adolescence	3(2+1)
HDFS 101	Fundamentals of Human Development	2(2+0)	HDFS 103	Adulthood and Aging	2(2+0)
CSE 101	Information & Communication Technology in Agriculture	3(1+2)	EECM 102	Diffusion and Adoption of Homestead Technologies	3(2+1)
Bio. 102*/ Math 106**	Introductory Biology / Introductory Mathematics	2(1+1)/ 2(2+0) NC	HDFS 106	Human Values	1(1+0)
Pbi.101 ***/ Pbi. Cul. 101****	Basic Punjabi / Punjabi Culture	2(0+2)/ 2(2+0) NC	Biochem.104	Principles of Biochemistry	3(2+1)
			Eng 101	General English	2(1+1)
	NSS/NSO/NCC	1(0+1) NC		NSS/NSO/NCC	1(0+1) NC
	TOTAL	16(11+5)+ 5*/5**NC		TOTAL	23(16+7) +1NC

* For students admitted after 10+2 Non-Medical stream

** For students admitted after 10+2 Medical stream

*** For undergraduate students who have not studied Punjabi upto Matric or 10+2 level

**** For ICAR Nominees and for foreign students

2nd year

1 st Semester			2 nd Semester		
EECM 201	Women in Agriculture	2(2+0)	ATS 202	Garment and Accessory Designing	3(0+3)
ATS 201	Techniques of Fabric Construction	3(2+1)	FN 203	Community Nutrition and Education	3(2+1)
FN 201	Normal and Therapeutic Nutrition	3(2+1)	FN 204	Clinical Nutrition and Dietetics	3(2+1)
FN 202	Food & Nutrition Policy	2(2+0)	HDFS 202	Developmental	3(2+1)

	and Agriculture			Challenges in Children	
FRM 201	Fundamentals of Art and Interior Enrichment	4(1+3)	EECM 202	Instructional Technology	3(1+2)
HDFS 201	Marriage and Family Dynamics	3(2+1)	FRM 202	Ergonomics in Household and Farm Technologies	3(1+2)
Micro.207	Principles of Food Microbiology	3(2+1)	Mgt. 201	Entrepreneurship Development and Business Management	3(2+1)
Stat.207	Principles of Statistics	3(2+1)	Soc.102	Introduction to Rural Sociology	2(2+0)
	NSS/NSO/NCC	1(0+1) NC		NSS/NSO/NCC	1(0+1) NC
		23(15+8)+1NC		TOTAL	23(12+11)+1NC

3rd year

1 st Semester			2 nd Semester		
ATS 301	Textile Finishes	3(2+1)	ATS 302	Traditional Textiles of India	3(2+1)
FN 301	Fundamentals of Food Hygiene and Sanitation	2(1+1)	ATS 303	Retailing and Merchandising- Textiles and Apparel	2(2+0)
FN 302	Home Scale Food Preservation	2(1+1)	FN 303	Food Standards and Quality Control	3(2+1)
HDFS 301	Family Counselling and Child Welfare	3(2+1)	FN 304	Food Analysis	3(2+1)
FRM 301	Family Finance and Consumer Education	2(2+0)	FN 305	Bakery and Confectionary	2(0+2)
EECM 301	Extension Training Management	3(1+2)	FRM 302	Residential and Commercial Space Design	3(2+1)
Zoo.103	Elementary Human Physiology	3(2+1)	HDFS 302	Educational Psychology and Early Childhood Education	3(2+1)
Econ.201	Economics and Marketing	3(2+1)	EECM 302	Programme Development for Rural Families	3(1+2)
Env 101	Environmental Studies and Disaster Management	2(2+0)	Eng. 201	Communication Skills and Personality Development	2(1+1)
	Educational Tour	1(0+1) NC			
	TOTAL	23(15+ 8)+1NC		TOTAL	24 (14+10)

4th year

1 st Semester			2 nd Semester		
401	Seminar	1(1+0)	EECM 411	Rural Awareness Work Experience	10(0+10)
402	Experiential Learning I	8(0+8)	412	Internship-I Entrepreneurial Placement/ In plant Training	8(0+8)
403	Experiential Learning II	12(0+12)	413	Internship-II Project Report and Presentation	2(0+2)
	TOTAL	21(1+20)		TOTAL	20(0+20)

Total Credit Hours = 173+9 NC = 182

List of Deficiency Courses to be offered

Sr.No.	Course Title	Course No.	Credit Hours
1.	Introductory Biology*	Bio. 102	2(1+1)NC
2.	Introductory Mathematics**	Math. 106	2(2+0) NC
3.	Basic Punjabi***	Pbi. 101	2(0+2) NC
4.	Punjabi Culture****	Pbi.Cul. 101	2(2+0)NC

* For students admitted after 10+2 Non-Medical stream

** For students admitted after 10+2 Medical stream

*** For undergraduate students who have not studied Punjabi upto Matric or 10+2 level

**** For ICAR Nominees and for foreign students

Educational Tour

Visit to Home Science College; large scale Catering or Training Institutes/Hotels (five star), Preservation Units; Textile Mills, NIFT/NITRA/IIT; Ford Foundation Centre/School of Planning and Architecture/National Building Organisation, Furniture Industry; Institute of Mass Communication/ Mass Communication Research Centre, Institute for Non-formal Education.

1. Total package for B.Sc. (Hons) Community Science- 4 year degree programme:

		Credit Hours
Basic Courses		29
Core Courses		103
Specialization/Professional		21
Internship		10*
RAWE		10
NSS and Physical Education	NSS/NSO/NCC for 4 Semesters,	04(NC)
	Educational Tour	01(NC)
<hr/>		
Total		178
<hr/>		

**COURSE CURRICULUM FOR B.Sc. (Hons) COMMUNITY SCIENCE
4-YEAR PROGRAMME AFTER 10+2**

BASIC COURSES

A. Deficiency Courses (Non-Creditable)

a) For students from Non-Medical stream			
1.	Bio. 102	Introductory Biology	1+1
		Total	1+1
b) For students from Medical stream			
1.	Math. 106	Introductory Mathematics	2+0
		Total	2+0
c) For students who have not studied Punjabi upto Matric or +2 level			
1.	Pbi. 101	Basic Punjabi	0+2
		Total	0+2
d) For ICAR Nominees / Foreign students			
1.	Pbi. Cul. 101	Punjabi Culture	2+0
		Total	2+0

(B) REQUIRED COURSES

I Basic Sciences and Humanities

Zoo. 103	Elementary Human Physiology	2+1
Soc.102	Introduction to Rural Sociology	2+0
Biochem. 104	Principles of Biochemistry	2+1
Eng. 101	General English	1+1
Eng. 201	Communication Skills and Personality Development	1+1
Econ.201	Economics and Marketing	2+1
Mgt.201	Entrepreneurship Development and Business Management	2+1
Micro.207	Principles of Food Microbiology	2+1
Stat. 207	Principles of Statistics	2+1
	Total:	16+8
II Agriculture		
Env. 101	Environmental Studies and Disaster Management	2+0
	Total:	2+0
III Agricultural Engineering and Technology		
CSE 101	Information & Communication Technology in Agriculture	1+2
	Total:	1+2

IV. Home Science

A. CORE Courses

ATS 101	Fundamentals of Clothing Construction	1+2	Sem. I
ATS 102	Textile Science and Fabric Care	2+1	Sem. II
ATS 201	Techniques of Fabric Construction	2+1	Sem. I
ATS 202	Garment and Accessory Designing	0+3	Sem. II
ATS 301	Textile Finishes	2+1	Sem. I
ATS 302	Traditional Textiles of India	2+1	Sem II
ATS 303	Retailing and Merchandising- Textiles and Apparel	2+0	Sem II
EECM 101	Extension Education and Rural Development	3+0	Sem. I
EECM 102	Diffusion and Adoption of Homestead Technologies	2+1	Sem. II
EECM 201	Women in Agriculture	2+0	Sem. I
EECM 202	Instructional Technology	1+2	Sem. II
EECM 301	Extension Training Management	1+2	Sem. I
EECM 302	Programme Development for Rural Families	1+2	Sem. II
FRM 101	Management of Resources and System Dynamics	1+1	Sem. I
FRM 102	Housing and Space management	2+1	Sem. II
FRM 201	Fundamentals of Art and Interior Enrichment	1+3	Sem. I
FRM 202	Ergonomics in Household and Farm Technologies	1+2	Sem. II
FRM 301	Family Finance and Consumer Education	2+0	Sem. I
FRM 302	Residential and Commercial Space Designing	2+1	Sem. II
FN 101/ N Diet. 101	Principles of Human Nutrition	3+0	Sem. I
FN 102	Fundamentals of Food Science and Processing	2+1	Sem. II
FN 201	Normal and Therapeutic Nutrition	2+1	Sem. I
FN 202	Food & Nutrition Policy and Agriculture	2+0	Sem. I
FN 203	Community Nutrition and Education	2+1	Sem. II
FN 204	Clinical Nutrition and Dietetics	2+1	Sem. II
FN 301	Fundamentals of Food Hygiene and Sanitation	1+1	Sem. I
FN 302	Home Scale Food Preservation	1+1	Sem. I
FN 303	Food Standards and Quality Control	2+1	Sem. II
FN 304	Food Analysis	2+1	Sem. II
FN 305	Bakery and Confectionary	0+2	Sem. II
HDFS 101	Fundamentals of Human Development	2+0	Sem. I
HDFS 106	Human Values	1+0	Sem. I, II
HDFS 102	Childhood and Adolescence	2+1	Sem. II
HDFS 103	Adulthood and Ageing	2+0	Sem. II
HDFS 201	Marriage and Family Dynamics	2+1	Sem. I
HDFS 202	Developmental Challenges in Children	2+1	Sem. II
HDFS 301	Family Counselling and Child Welfare	2+1	Sem. I
HDFS 302	Educational Psychology and Early Childhood Education	2+1	Sem. II
	Total	103(64+39)	

Total Credit Hour Requirements of B.Sc. (Hons) Community Science 4-Year Programme

a) For students coming from Medical Stream without Punjabi	182
b) For students coming from Medical Stream with Punjabi	180
c) For students coming from Non-Medical Stream without Punjabi	182
d) For students coming from Non-Medical Stream with Punjabi	180
e) For ICAR Nominees / Foreign students from Medical Stream	182
f) For ICAR Nominees / Foreign students from Non-Medical Stream	182

Areas of Specialization in various Elective Programmes and package of courses for each

1. Apparel and Textile Science

(Apparel Manufacturing)

ATS 401	Seminar	1+0	Sem. I
ATS 402	Experiential Learning-I Computer Aided Designing and Pattern Making	0+8	Sem. I
ATS 403	Experiential Learning-II Manufacturing of Lifestyle Products	0+12	Sem. I
ATS 412	Internship-I Entrepreneurial Placement/ Inplant Training	0+8	Sem. II
ATS 413	Internship - II Project Report and Presentation	0+2	Sem. II

2. Extension Education and Communication Management

(Programme development and Entrepreneurship)

EECM 401	Seminar I	1+0	Sem. I
EECM 402	Instructional Video Production	0+9	Sem. I
EECM 403	Public Relation and Social Marketing	0+2	Sem. I
EECM 404	Web Designing and Multimedia Production	0+9	Sem. I
EECM 411	Rural Awareness Work Experience in Home Science (RAWE)	0+10	Sem. II
EECM 412	Internship I -Entrepreneurial Placement/In Plant Training	0+8	Sem. II
EECM 413	Internship II Project Report and Presentation	0+2	Sem. II

3. Family Resource Management

(Artistic Creations)

FRM 401	Seminar	1+0	Sem. I
FRM 402	Experiential Learning I -Art Creations	0+8	Sem. I
FRM 403	Experiential Learning II -Marketing Management of Art Creations	0+12	Sem. I
FRM 412	Internship I - Entrepreneurial Placement/In plant Training	0+8	Sem. II
FRM 413	Internship II - Project Report and Presentation	0+2	Sem. II

4. Food & Nutrition

(Nutrition and Dietetics)

FN 401	Seminar	1+0	Sem. I
FN 402	Experiential Learning I - Bakery and Confectionary	0+8	Sem. I
FN 403	Experiential Learning II - Bakery and Confectionary	0+12	Sem. I
FN 412	Internship-I Entrepreneurial Placement/ Inplant Training	0+8	Sem. II
FN 413	Internship-II Project Report and Presentation	0+2	Sem. II

5. Human Development and Family Studies

(Organization and Management of ECCE Programme)

HDFS 401	Seminar	1+0	Sem. I
HDFS 402	Experiential Learning-I Early Childhood Care and Education	0+8	Sem. I
HDFS 403	Experiential Learning-II Early Childhood Care and Education	0+12	Sem. I
HDFS 412	Internship-I Entrepreneurial Placement/In plant Training	0+8	Sem. II
HDFS 413	Internship-II Project Report and Presentation	0+2	Sem. II

**SEMESTERWISE STUDY PROGRAMME FOR B.Sc. (Hons)
FASHION DESIGNING-4 YEAR PROGRAMME AFTER 10+2**

FIRST YEAR

SEM I		SEM II	
FD 101	3(1+2)	FD 111	2(0+2)
FD 102	2(0+2)	FD 112	2(2+0)
FD 103	3(2+1)	FD 113	3(0+3)
FD 104	3(0+3)	FD 114	3(1+2)
FD 105	2(2+0)	FD 115	3(1+2)
FD 106	2(2+0)	FD 116	3(1+2)
CSE 103	2(0+2)	Eng.301	3(1+2)
NSS/NSO/NC C	0+1(NC)	HDFS 106	1(1+0)
		NSS/NSO/NC C	0+1(NC)
Total	7+10=17+1 (NC)	Total	7+13=20+(1NC)

SECOND YEAR

SEM I		SEM II	
FD 201	3(0+3)	FD 211	3(1+2)
FD 202	4(2+2)	FD 212	4(0+4)
FD 203	3(2+1)	FD 213	3(0+3)
FD 204	2(0+2)	FD 214	2(0+2)
FD 205	2(0+2)	FD 215	3(2+1)
FD 206	3(2+1)	FD 216	2(1+1)
FD 207	2(0+2)	HECM 211	3(2+1)
Env 301	3(3+0)	NSS/NSO/NC C	0+1(NC)
NSS/NSO/NC C	0+1(NC)		
Total	9+13=22+1NC	Total	6+14=20+1(NC)

THIRD YEAR

SEM I		SEM II	
FD 301	3(2+1)	FD 311	2(1+1)
FD 302	4(2+2)	FD 312	2(2+0)
FD 303	3(0+3)	FD 313	2(2+0)
FD 304	2(0+2)	FD 314	2(1+1)
FD 305	3(1+2)	FD 315	6(2+4)
FD 306	3(1+2)	HECM 312	3(1+2)
FD 307	2(2+0)	Mgt 301	2(2+0)
Mgt 302	2(2+0)		
Educational Tour	1(0+1) (NC)		
Total	10+12=22+1 NC	Total	11+8=19

FOURTH YEAR

SEM I		SEM II	
FD 401	2(2+0)	FD 411	6(0+6)
FD 402	12(0+12)	FD 419/Internship-I	12(NC)
FD 410	2(0+2)	FD 420/Internship-I I	4(0+4)
Total	2+14=16	Total	0+10=10+12 NC

1. Educational Tour

Visit to Home Science Colleges; Designer Houses, Export Houses and Buying Houses; Textile units, NIFT/NITRA/NID.

**COURSE CURRICULUM FOR B.Sc. (Hons)
FASHION DESIGNING-4 YEAR PROGRAMME AFTER 10+2**

(A) REQUIRED COURSES

I Basic Sciences and Humanities

			Cr Hrs
1.	Eng. 301	Communication Skills and Technical Writing	1+2
2.	Mgt. 301	Fundamentals of Entrepreneurship	2+0
3.	Mgt. 302	Accounting and Inventory Management	2+0

II Home Science

a Apparel and Textile Science

1.	FD 101	Basics of Design Composition	1+2
2.	FD 102	Visual Studies and Appreciation	0+2
3.	FD 103	Introductory Textiles	2+1
4.	FD 104	Introductory Sewing Techniques	0+3
5.	FD 105	Dynamics of Fashion	2+0
6.	FD 106	Introduction to Apparel Industry	2+0
7.	FD 111	Fashion Drawing- I	0+2
8.	FD 112	Fashion Studies	2+0
9.	FD 113	Textile Decorations	0+3
10.	FD 114	Pattern Making and Garment Construction-I	1+2
11.	FD 115	Introduction to Knitwear Technology	1+2
12.	FD 116	Woven Structures	1+2
13.	FD 201	Fashion Drawing- II	0+3
14.	FD 202	Merchandising Fashion	2+2
15.	FD 203	Traditional Textiles	2+1
16.	FD 204	Pattern Making and Garment Construction-II	0+2
17.	FD 205	Knitwear Designing	0+2
18.	FD 206	Costumes of the World	2+1
19.	FD 207	Computer Aided Fashion Illustrations	0+2
20.	FD 211	Apparel Production Technology	1+2
21.	FD 212	Computer Aided Designing and Pattern Making	0+4
22.	FD 213	Draping and Flat Pattern Making	0+3
23.	FD 214	Basics of Grading	0+2
24.	FD 215	Indian Costumes	2+1
25.	FD 216	Garment Production Machinery and Equipment	1+1
26.	FD 301	Retail Fashion Merchandising and Marketing	2+1
27.	FD 302	Quality Control	2+2
28.	FD 303	Commercial Product Designing	0+3
29.	FD 304	Graphic Design	0+2

30.	FD 305	Dyeing Studies	1+2
31.	FD 306	Textile Printing	1+2
32.	FD 307	Trims and Accessories	2+0
33.	FD 311	Fashion Communication	1+1
34.	FD 312	Sociological, Psychological and Ethical Aspects of Fashion	2+0
35.	FD 313	Apparel Supply Chain Management	2+0
36.	FD 314	Visual Merchandising	1+1
37.	FD 315	Craft Documentation	2+4
38.	FD 401	Green Technologies in Apparel Manufacturing	2+0
39.	FD 402	Experiential Learning in Fashion and Life Style Products	0+12
40.	FD 410	Seminar	0+2
41.	FD 411	Product Line Development / Presentation	0+6
42.	FD 419	Internship-I	0+12 (NC)
43.	FD 420	Internship-II	0+4

b Extension Education & Communication Management

1.	HECM 211	Interpersonal and Organisational Skills	2+1
2.	HECM 312	Fashion Photography	1+2

c Human Development and Family Studies

1.	HDFS 106	Human Values	1+0
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III College of Agriculture

1.	Env. 301	Introduction to Environmental Sciences	3+0
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IV College of Agricultural Engineering & Technology

1.	CSE 103	Introduction to Computer Use	0+2
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Total Credit Hours requirement for B.Sc. (Hons) Fashion Designing 4 year Programme = 164

**SEMESTER-WISE STUDY PROGRAMME FOR B.Sc. (Hons) NUTRITION AND DIETETICS -
4 YEAR PROGRAMME**

		FIRST YEAR	
SEM I			SEM II
N Diet.. 101/FN 101	3(3+0)		N Diet..104
N Diet.. 102	3(2+1)		N Diet..105
N Diet.. 103	3(2+1)		N Diet. 106
Zoo. 103	3(2+1)		Biochem. 103
Biochem. 102	3(2+1)		Eng. 101
Env. 101	2(2+0)		Soc. 102
Math. 106*/Bio. 102**	2(2+0) (NC) / 2(1+1)(NC)		HDFS 106
Pbi. 101***/Pbi.Cult.****	2(0+2) (NC)/ 2(2+0) (NC)		Eng. 201
NSS/NSO/NCC	1(0+1)(NC)		CSE 101
			NSS/NSO/NCC
Total	13+4=17+5NC/3 NC/1NC		Total
			15+7=22+1NC
		SECOND YEAR	
SEM I			SEM II
N Diet. 201	4(3+1)		N Diet. 205
N Diet. 202	3(3+0)		N Diet. 206
N Diet. 203	3(2+1)		N Diet. 207
N Diet. 204	4(2+2)		N Diet. 208
Micro. 207	3(2+1)		N Diet. 209
Stat. 207	3(2+1)		N Diet. 210
Econ. 201	3(2+1)		N Diet. 211
NSS/NSO/NCC	1(0+1)(NC)		NSS/NSO/NCC
Total	16+7=23+1 NC		Total
			16+7=23+1 NC

		THIRD YEAR			
SEM I				SEM II	
N Diet. 301	3(2+1)			N Diet. 307	3(3+0)
N Diet. 302	4(3+1)			N Diet. 308	3(1+2)
N Diet. 303	3(2+1)			N Diet. 309	2(2+0)
N Diet. 304	4(3+1)			N Diet. 310	2(2+0)
N Diet. 305	3(3+0)			N Diet. 311	3(2+1)
N Diet. 306	3(2+1)			N Diet. 312	4(3+1)
Biotech. 311	3(2+1)			N Diet. 313	4(2+2)
Educational Tour	1(0+1) (NC)			Mgt. 201	3(2+1)
Total	17+6=23+1 NC			Total	17+7=24

FOURTH YEAR

SEM I		SEM II	
N Diet. 401	16(0+16)	N Diet. 403	1(1+0)
Diet. 402	4(0+4)	N Diet. 404	8(0+8)
		N Diet. 405	
12(0+12)			
Total	0+20=20	Total	1+20=21

* For students admitted after 10+2 Medical stream

** For students admitted after 10+2 Non- Medical stream

*** For UG students who have not studied Punjabi upto Matric or 10+2 level

****For ICAR nominees and for foreign students

Educational Tour

Visit to large scale catering institutes/training institutes/hotels (five star)/food craft institutes/Home Science Colleges and Dietary department of various hospitals.

**COURSE CURRICULUM FOR B.Sc. (Hons) NUTRITION
AND DIETETICS - 4 YEAR PROGRAMME**

1. Basic Sciences and Humanities

(a) Deficiency Course (Non Creditable)

Cr Hrs

For students from medical stream

1. Math. 106 Introductory Mathematics 2+0(NC)

For students from Non-medical stream

1. Bio. 102 Introductory Biology 1+1(NC)

For undergraduate students who have not studied Punjabi upto Matric or 10+2 level

1. Pbi.101 Basic Punjabi 0+2 (NC)

For ICAR Nominees / Foreign students

1. Pbi. Cult. Punjabi Culture 2+0(NC)

(b) Required courses

1.	Zoo. 103	Elementary Human Physiology	2+1
2.	Biochem. 102	Nutritional Biochemistry-I	2+1
3.	Biochem. 103	Nutritional Biochemistry-II	3+0
4.	Eng. 101	General English	1+1
5.	Soc. 102	Introduction to Rural Sociology	2+0
6.	Eng. 201	Communication skills and Personality Development	1+1
7.	Micro. 207	Principles of Food Microbiology	2+1
8.	Stat. 207	Introductory Statistics	2+1
9.	Econ.201	Economics and Marketing	2+1
10.	Mgt. 201	Entrepreneurship Development and Business management	2+1
			19+8
2. Agriculture			
1.	Biotech. 311	Nutrigenomics	2+1
2.	Env. 101	Environmental Studies and Disaster Management	2+0
			4+1
3. Agricultural Engineering			
1.	CSE 101	Information and Communication Technology in Agriculture	1+2
			1+2
4. Home Science			
I Food and Nutrition			
1.	N Diet. 101/FN 101	Principles of Human Nutrition	3+0

2.	N Diet. 102	Fundamentals of Food Science	2+1
3.	N Diet. 103	Food Hygiene and Sanitation	2+1
4.	N Diet. 104	Methods of Cookery	2+1
5.	N Diet. 105	Food Processing and Packaging	2+1
6.	N Diet.106	Food Preservation and Storage	2+1
7.	N Diet. 201	Normal Nutrition and Meal Planning	3+1
8.	N Diet. 202	Nutrition and Immunity	3+0
9.	N Diet. 203	Food Product Formulations and Development	2+1
10.	N Diet. 204	Cereals, Pulses and Oilseeds: Preparation and Utilization	2+2
11.	N Diet. 205	Nutrition through Life Cycle	2+0
12.	N Diet. 206	Community Nutrition	2+2
13.	N Diet. 207	Public Health Nutrition	3+1
14.	N Diet. 208	Introduction to Clinical Nutrition	2+1
15.	N Diet. 209	Therapeutic Nutrition-I	2+2
16.	N Diet. 210	Fruits and Vegetables: Preparation and Utilization	2+1
17.	N Diet. 211	Sports Nutrition and Physical Fitness	3+0
18.	N Diet. 301	Therapeutic Nutrition-II	2+1
19.	N Diet. 302	Food Chemistry	3+1
20.	N Diet. 303	Milk and Milk Products: Preparation and Utilization	2+1
21.	N Diet. 304	Food Safety Standards and Quality Assurance	3+1
22.	N Diet. 305	Nutrition in Disaster Management	3+0
23.	N Diet. 306	Nutritional Strategies in ICU	2+1
24.	N Diet. 307	Fundamentals of Nutraceuticals and Health Foods	3+0
25.	N Diet. 308	Food Service Management	1+2
26.	N Diet. 309	Drug Nutrient Interaction	2+0
27.	N Diet. 310	Food Toxicology	2+0
28.	N Diet. 311	Meat and Meat Products: Preparation and Utilization	2+1
29.	N Diet. 312	Food Analysis	3+1
30.	N Diet. 313	Fundamentals of bakery and Confectionary	2+2
31.	N Diet. 401	In-Plant Training	0+16
32.	N Diet. 402	Report Writing and Presentation	0+4
33.	N Diet. 403	Seminar	1+0
34.	N Diet. 404	Experiential Learning-I Diet and Nutrition Counselling	0+8
35.	N Diet. 405	Experiential Learning-II Diet and Nutrition Counselling	0+12
			70+67

II Human Development and Family Studies

1. HDFS 106 Human Values

1+0

1+0

Total Credit Hours requirement of B.Sc. (Hons) Nutrition and Dietetics 4-Year Programme

- a) For students coming from Medical Stream 173+2*
- b) For students coming from Non-Medical Stream 173+2*
- c) For undergraduate students who have not studied Punjabi upto Matric or 10+2 level/ICAR nominees/Foreign students from Medical Stream 173+4*
- d) For undergraduate students who have not studied Punjabi upto Matric or 10+2 level/ICAR nominees/Foreign students from Non-Medical Stream 173+4*

SEMESTER-WISE STUDY PROGRAMME OF B.Sc. (Hons) INTERIOR DESIGN

4 YEAR PROGRAMME

FIRST YEAR

SEM I		SEM II	
ID 101	2+0	ID 111	2+1
ID 102	2+1	ID 112	2+1
ID 103	1+2	ID 113	2+0
ID 104	3+0	ID 114	0+2
ID 105	2+1	ID 115	2+1
FD 103	2+1	ID 116	3+0
CSE 101	1+2	Eng. 102	1+2
NSS/NSO	0+1 NC	HDFS 106	1+0
		NSS/NSO	0+1 NC
Total	13+7=20+1NC	Total	13+7=20+1NC

SECOND YEAR

SEM III		SEM IV	
ID 201	3+0	ID 211/ FRM 302	2+1
ID 202	2+1	ID 212/ FRM 305	1+3
ID 203	2+1	ID 213	1+2
ID 204 / FRM 306	1+3	ID 214 / FRM 303	2+1
ID 205	0+2	ID 215	2+1
ID 206	2+1	HECM 211	2+1
ID 207	0+2	HECM 304	1+2
NSS/NSO	0+1 NC	NSS/NSO	0+1 NC
Total	10+10=20+1NC	Total	11+11=22+1NC

THIRD YEAR

SEM V		SEM VI	
ID 301	1+2	ID 311	2+0
ID 302	1+2	ID 312	2+1
ID 303	1+1	ID 313	0+3
ID 304/ FRM 405	1+1	ID 314	0+3
ID 305	0+2	ID 315	1+1
Mgt. 302	2+0	ID 316	2+0
Eng. 301	1+2	Flori. 301	1+1
Env. 301	3+0	Mgt. 421	2+0
Educational Tour	0+1		
Total	10+10=20+1NC	Total	10+9=19

FOURTH YEAR

SEM VII		SEM VIII	
ID 401	0+1	ID 421	0+8
ID 402	0+3	ID 422	0+8
ID 403	1+1	ID 423	0+4
ID 404	2+0		
ID 405	0+2		
ID 406	2+1		
ID 407 / FRM 403	1+2		
Total	6+10=16	Total	0+20=20

Educational Tour

Visit to Home Science College; Hotels (three / four / five star), Resorts; Textile Mills; School of Planning and Architecture/National Building Organisation, Furniture Industry; Handloom Industry.

**COURSE CURRICULUM FOR B.Sc. (Hons) INTERIOR
DESIGN - 4 YEAR PROGRAMME**

(A) REQUIRED COURSES

I Basic Sciences and Humanities

		Cr Hrs
1.	Eng. 102 Comprehension and Communication Skills in English.	1+2
2.	Eng. 301 Communication Skills and Technical Writing	1+2
3.	Mgt. 302 Accounting and Inventory Management	2+0
4.	Mgt. 421 Introduction to Management and Marketing	2+0

6+4

II Home Science

a Apparel and Textile Science

1.	FD 103 Introductory Textiles	2+1
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2+1

b Family Resource Management

1.	ID 101 History of Interior Design	2+0
2.	ID 102 Elements of Design	2+1
3.	ID 103 Basics of Drawings and Graphics	1+2
4.	ID 104 Soft Furnishings for Interiors	3+0
5.	ID 105 Elements of Building Services	2+1
6.	ID 111 Building Materials and Construction Practices	2+1
7.	ID 112 Walls and Ceilings	2+1
8.	ID 113 Interior Landscaping	2+0
9.	ID 114 Arts and Crafts	0+2
10.	ID 115 Colour and its Application in Interiors	2+1
11.	ID 116 Introduction to Interior Spaces	3+0
12.	ID 201 Building Bye Laws and Protection	3+0
13.	ID 202 Windows and Window Treatments	2+1
14.	ID 203 Building Technology	2+1
15.	ID 204/ FRM 306 Interior Design Drawings	1+3
16.	ID 205 Computer Applications in Interior Designing - I	0+2
17.	ID 206 Residential Interior Space Design	2+1
18.	ID 207 Rendering and Presentation Techniques	0+2
19.	ID 211/ FRM 302 Furniture Design and Arrangement	2+1
20.	ID 212/ FRM 305 Floral Creations	1+3
21.	ID 213 Interior Design Detailing	1+2
22.	ID 214/ FRM 303 Floor and Floor Coverings	2+1
23.	ID 215 Lighting in Interiors	2+1
24.	ID 301 Kitchen and Bathroom Designing	1+2
25.	ID 302 Sculpture and Modelling	1+2

26.	ID 303	Furniture Design Detailing	1+1
27.	ID 304/ FRM 405	Functional Interiors for Special Needs	1+1
28.	ID 305	Computer Applications in Interior Designing - II	0+2
29.	ID 311	Vaastu in Interiors	2+0
30.	ID 312	Advanced Building Services	2+1
31.	ID 313	Computer Applications in Perspective Drawings and Rendering	0+3
32.	ID 314	Wall Units and Cabinets	0+3
33.	ID 315	Fittings and Fixtures for Interiors	1+1
34.	ID 316	Special Spaces and Public Interiors	2+0
35.	ID 401	Seminar	0+1
36.	ID 402	Interior Design Studio	0+3
37.	ID 403	Non-residential Interior Space Design	1+1
38.	ID 404	Professional Applications in Interior Design	2+0
39.	ID 405	Advances in Materials for Interior Design	0+2
40.	ID 406	Landscape Design	2+1
41.	ID 407/ FRM 403	Accessories for Interior Enrichment	1+2
42.	ID 421	Internship - I: Inplant Training	0+8 (NC)
43.	ID 422	Internship -II: Inplant Training	0+8
44.	ID 423	Internship - III: Project Report and Presentation	0+4

56+73

c Extension Education & Communication Management

1.	HECM 211	Interpersonal and Organisational Skills	2+1
2.	HECM 304	Photography	1+2

3+3

d Human Development and Family Studies

1.	HDFS 106	Human Values	1+0
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1+0

III College of Agriculture

1.	Env. 301	Introduction to Environmental Sciences	3+0
2.	Flori. 301	Flower Cultivation and Landscape Gardening	1+1

4+1

IV College of Agricultural Engineering & Technology

1.	CSE 101	Information and Communication Technology in Agriculture	1+2
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0+2

Total Credit Hours requirement for B.Sc. (Hons) Interior Design 4 year Programme = 162