SEMESTER I

15FD11 APPLIED GEOMETRY 3 2 0 4

THREE-DIMENSIONAL GEOMETRY: Direction cosines and ratios, equation of planes, straight lines, shortest distance between two skew lines, cylinders, cones, polygons, spheres. (7+5)

INTERACTIVE GRAPHICS: Parametric modeling – 1D, 2D and 3D geometry – transformations — display – points, lines using software (6+4)

CURVES: Types - parametric curves generation - displaying - evaluating points on curves. (6+4)

SURFACES: Types - parametric surface generation - displaying - evaluating points on surfaces. (6+4)

SOLIDS: Platonic and Archimedean solids - inter-relationships and truncations, tessellation, generation of part models using Computer aided geometric modeling software. (6+4)


APPLICATION TO ECONOMICS: Supply and demand curves – elasticities – relation between average and marginal costs – relationship between average and marginal revenues. (7+4)

Total L: 45 + T: 30 = 75

TEXT BOOKS:

REFERENCES:

15FD12 APPLIED SCIENCES 4 0 0 4

APPLIED PHYSICS

FLUID MECHANICS: Viscous force – coefficient of viscosity – Poiseuille’s equation for quantity of liquid flowing – Determination of coefficient of viscosity by Poiseuille’s method. Surface energy, Surface tension, angle of contact, expression and determination of surface tension by capillary rise method. (10)


MECHANICAL PROPERTIES: Elastic and plastic behaviour, stress – strain relationship, Hooke’s law, young’s modulus, bulk modulus, modulus of rigidity, poisson’s ratio, tensile properties, creep, fracture, fatigue. (10)

APPLIED CHEMISTRY

POLYMERIC ASPECTS OF TEXTILES: Study of molecular structure, polymerization – types, requirements of the polymer, polymer suitability for textiles, reactive sites of natural and mammade fibres. Influence of functional groups towards the properties of textiles. (10)

TEXTILE CHEMICALS AND DYES: Use of acids, alkalies, salts, oxidizing agents, reducing agents, enzymes, surfactants, soaps/detergents and resins, Reduction and oxidation type of bleaching agents. Calcium/sodium hypochlorites and hydrogen peroxide, theory of colour and constitution – chromophore and auxochrome – relevance for the different dyes. (10)

WATER CHARACERTISTICS AND ITS APPLICATIONS IN TEXTILE INDUSTRY: Types of water, hardness, determination of hardness, softening of water required for textile wet processing units – boiler feed water, types of pollution and sources, classification of water pollutants, waste water (effluent) treatment, determination of COD, BOD and dissolved salts. (10)

Total L: 60

TEXT BOOKS:
REFERENCES:

15FD13 TEXTILE SCIENCE 3 2 0 4

TEXTILE FIBER: Introduction to fiber, classification – natural and manmade.

NATURAL FIBERS: Origin, production, properties and uses - vegetable, animal and mineral fibers, Fiber Identification – microscopic, solubility, burning test, appearance and handle.

MAN MADE FIBERS: Regenerated and synthetic fibres: properties and uses.

FIBER SPINNING: Types - melt, dry, wet, solution-Manufacturing of viscose rayon, polyester, poly propylene, acrylic and nylon.

NEW GENERATION FIBERS: Origin, production, properties and uses - bamboo, banana, pineapple, corn, milk and modal fiber.

HIGH PERFORMANCE FIBERS: Origin, production, properties and uses - micro, hollow, elastomeric, nano, Kevlar and Nomex.

FIBER BLENDING: Reason, process, requirements, functions and application; spinnability characteristics of fiber.

TUTORIAL PRACTICE:
1. Identification of fiber (natural and manmade fibers)
   a) Physical test
   b) Chemical test
2. Demonstration of measuring various physical properties of textile fibers by using different instruments:
   • length
   • maturity
   • fineness
   • fiber strength
   • diameter

Total L: 45+ P: 30 = 75

TEXT BOOKS:

REFERENCES:

15FD14 ELEMENTS AND PRINCIPLES OF DESIGN 3 2 0 4

INTRODUCTION TO DESIGN: Definition, concepts: design as process - set the goal, examine outside influence, establish criteria, make the plan, carry out the plan, evaluate the plan; design as product – sensory and behavioral aspects.


ELEMENTS OF DESIGN: Definition of space, line, shape, form, texture, pattern and colour; space – cues influencing perception of space and shape, physical and psychological effects, introducing spacial effects in garments; line – aspects, physical and psychological effects, reinforcing and countering effects, line in garments; shape and form - attributes, relationship between 2 dimension and 3 dimension, application in garments; texture - determinants, aspects and their application in garments; pattern – aspects, introducing pattern to fabric, its visual effects, pattern in garments.


PRINCIPLES OF DESIGN: Harmony – unity and its relationship with design elements; balance - symmetrical, asymmetrical and radial; proportion – basic laws of proportion; emphasis – unusual shapes, colour, texture, decoration, plain background; rhythm – repetition, alternation, gradation, radiation and continuous line movement.
TUTORIAL PRACTICE:
1. Selecting a source of inspiration and developing a motif.
2. Creating different types of design - natural, stylized, geometric, historic and abstract, using the above developed motif.
3. Collecting garment designs from magazines/internet and observe, analyse and narrate the application of the following elements of design
   - Line
   - Shape and form
   - Pattern
   - Space
5. Preparing colour scheme (Prang color chart) and analysis of colour dimension – hue, value, intensity.
6. Collecting garment designs from magazines/internet and observe, analyse and narrate the application of the following colour harmony
   a. Monochromatic
   b. Analogous
   c. Direct complementary
   d. Double complementary
   e. Split complementary
   f. Triad
7. Collecting garment designs from magazines/internet and observe, analyse and narrate the application of the following principles of design.
   a. Balance
   b. Harmony
   c. Emphasis
   d. Proportion
   e. Rhythm

TEXT BOOKS:

REFERENCES:

15FD15 ENGLISH FOR PROFESSIONAL SKILLS

READING COMPREHENSION: Developing Reading Skills like Skimming and Scanning for information, Critical Reading, Inferential, Cognition, and analytical Skills- appropriate reading texts to be used from general, scientific, and literary genres. (10)

PRINCIPLES OF CLEARWRITING: The fundamental aspects of formal writing like objectivity, conciseness, clarity, simplicity, coherence, parallelism, unity, cohesion and accuracy to be focused Writing in different ways to create an emphasis – samples from news items, creative articles and reports to be used. (4)

TECHNICALWRITING: Technical Style, Mechanics, Critical Evaluation of different types of technical texts and different genres of technical writing. – Format and different types of formal reports – Technical Papers. (4)

CORRESPONDENCE: Memos, Principles of Official, Social, and E-mail Correspondence to be focused. (4)

FOCUS ON SOFT SKILLS: Intra and Interpersonal Communication, Telephone Etiquette, Body language and Interview Techniques, Presentation Techniques – Group communication for effective team working. (5)

PRACTICALS: Listening exercises using Language Laboratory, Making short speeches, Group Discussions and Role-Plays. (18)

Total L:45

TEXT BOOK:
1. Teaching Material prepared by the Faculty, Department of English, PSG College of Technology, Coimbatore.

REFERENCES:
1. Thickness of Fibres - Air Wedge method.
2. Coefficient of Viscosity - Poiseuille's method.
3. Surface Tension - Capillary rise method.
4. Coefficient of Thermal Conductivity of Bad Conductor - Lee's Disc method.

**APPLIED CHEMISTRY LABORATORY**

1. Analysis of purity of certain chemicals.
2. Determination of available chlorine in Hypochlorites.
4. Estimation of hardness of water.
5. Determination of Chemical Oxygen Demand.

**REFERENCE:**

1. Laboratory Manual prepared by the Department.

**15FD17 TECHNICAL DRAWING**

1. Layout and folding of drawing sheet
2. Lettering Practice
3. Dimensioning
4. Orthographic projection for apparel & accessories.
5. Development of lateral surface(s) for an object
6. Isometric projection of simple objects
7. Drawing using Auto CAD

**REFERENCES:**


**15FD18 BASICS OF DRAWING**

1. Creating lines and strokes in all directions
   a. thick, loose
   b. thin, controlled
   c. thick, tight
   d. long, arcing
2. Creating values by varying the grades of pencil and the pressure applied.
3. Shading techniques –
   a. Stippling.
   b. Hatching
   c. cross hatching
   d. contour hatching.
   e. Scumbling
   f. blending/stumping
4. Understanding light source and its direction – highlight, form shadow, reflected light
5. Drawing Shapes and forms.
6. Understanding the illusions of lines and shapes – static and auto
7. kinetic illusions
8. Application of drawing techniques to convert the 2D images into 3D images
   a. Landscape
   b. Animals
   c. Birds
   d. Portraits
   e. automobiles

**REFERENCE:**

1. Laboratory Manual prepared by Department of Apparel and Fashion Design.
SEMESTER 2

15FD21 TEXTILE MANUFACTURING

YARN MANUFACTURING: Objectives, process sequence and machineries - ginning, blow room, carding, combing, drawing, roving and ring spinning. (8)

SPINNING: Types: compact, rotor, air jet, friction – process, applications and comparison of yarn properties; specialty yarns: textured, fancy, spun and filament yarns - process, properties and applications; yarn numbering systems - direct and indirect. (8)

POST SPINNING PROCESS: Doubling; ring, two-for-one twister and cone winding; yarn characteristics: single, ply, folded and hybrid yarn - process, properties and applications. Yarn quality requirements in weaving and knitting. (8)

WEAVING: Preparatory process - winding, warping, sectional warping, direct beaming, sizing and drawing-in; weaving - primary and secondary motions; loom types - shuttle and shuttle less; dobby and jacquard - process and applications. (8)

KNITTING: Terminologies, needle types, stitches and loop formation; weft knitting machines – single jersey, rib, interlock and purl; jacquard knitting - process and applications; warp knitting machines - tricot and raschel; importance of simplex, milanese and crochet, comparison of woven and knitted fabric properties. (7)

NON WOVENS: Fiber selection, process sequence, types: mechanical bonded, chemical bonded, thermal bonded, spun bonded and melt blown - applications. (6)

TEXT BOOKS:

Woven structural analysis: Design, draft, peg plan and denting plan. (6)

ELEMENTARY WEAVES: Construct and represent the elementary weaves - plain and its derivatives, twill and its derivatives, sateen and satin, honey comb and its types, huck-a-back, mock leno, crepe weaves. (8)

STRIPE AND CHECK WEAVE COMBINATION: Elements of color, simple color and weave effects, construction of line effects, Hound’s tooth pattern, Bird’s eye & spot effects, Hairline effects, step pattern, idea of compound color and weave effects. (8)


TUTORIAL PRACTICE:
1. To analyze the following particulars of woven fabrics
   - Woven structural analysis: Design, draft, peg plan and denting plan
   - Warp particulars: Warp thread density, yarn count, crimp percentage, cover factor
   - Weft particulars: Weft thread density, yarn count, crimp percentage, cover factor

Total L: 45

15FD22 FABRIC STRUCTURE

WOVEN STRUCTURES: Classification -Simple and Compound. Elements of woven design – design, repeat, draft, peg plan and denting plan. (6)

ELEMENTARY WEAVES: Construct and represent the elementary weaves – plain and its derivatives, twill and its derivatives, sateen and satin, honey comb and its types, huck-a-back, mock leno, crepe weaves. (8)

STRIPE AND CHECK WEAVE COMBINATION: Elements of color, simple color and weave effects, construction of line effects, Hound’s tooth pattern, Bird’s eye & spot effects, Hairline effects, step pattern, idea of compound color and weave effects. (8)


WARP KNITTED STRUCTURES: Basic stitches- pillar, blind lap, inlay satin and atlas stitches. Tricot structures - full tricot, lock knit and loop raised fabric - properties and applications. Raschel structures - power nets, curtain net and laces- properties and applications. (7)

TUTORIAL PRACTICE:
1. To analyze the following particulars of woven fabrics
   - Woven structural analysis: Design, draft, peg plan and denting plan
   - Warp particulars: Warp thread density, yarn count, crimp percentage, cover factor
   - Weft particulars: Weft thread density, yarn count, crimp percentage, cover factor
Fabric Particulars: Total cover factor, Weight of the fabric and thickness

1. Plain weave
2. Twill weave
3. Satin/ Sateen weave
4. Honey comb fabric
5. Extra thread figuring fabric
6. Corduroy

II. To analyze the following particulars of knitted fabrics

- Knitted structural analysis: Symbolic representations, thread diagram
- Fabric Particulars: Course per unit length, Wales per unit length, Stitch density, Yarn count, Loop length, Tightness factor, GSM

1. Single jersey
2. Rib
3. Interlock

Total L: 45+ P:30 = 75

TEXT BOOKS:

REFERENCES:
STYLES OF GARMENT COMPONENTS: Sleeves: Set –in, sleeves with bodice styles, sleeveless style; Collar: Flat – one piece and two piece peter pan, scalloped, square, sailors, puritan, ruffled, roll, standing, shirt, shawl; Yoke – simple, with fullness, supporting fullness, releasing fullness and partial.

TUTORIAL PRACTICE:

Draft the paper pattern for the following:
1. Basic Bodice, trouser, skirt, and sleeve blocks.
2. Collars – flat, roll, standing, shirt and shawl.
3. Pockets- patch, bound and side seam.
5. Cuffs – basic, two piece, and contoured.
6. Sleeves – set in, with bodice and sleeveless.

TEXT BOOKS:

REFERENCES:

COMMUNICATION: Definition, concepts, Elements and process, models and theories of communication, forms of communication - oral, written, upward, downward, horizontal, intra-personal, inter-personal, group, crowd, public and mass communication. Non-verbal communication, barriers to effective communication – business communication, presenting yourself, starting conversation – safe and unsafe topics, control fear, mind mapping. Essentials of good communication.

TYPOGRAPHY & WRITTEN COMMUNICATION: Definition, need for written communication, the writing process - planing, writing, reviewing and editing. Errors in written communication, challenges in written communication. Typography-Function of type, typographic characteristics, type face selection, designing with type.

GRAPHIC DESIGN: Design categories, elements and principles, principles of composition, graphic design process, strategies for layout, structure organization; grid systems; interaction of visual elements.

MASS COMMUNICATION: Definition, characteristics, scope, functions, theories and tools of mass communication

FASHION JOURNALISM: Fashion media and audiences, fashion industry, ideas, sources and interviewing, writing fashion news and features, reporting – catwalk and trends, styling, photography and video for online, fashion blogging and social media, fashion journalism and public relations, law and ethics.

15FD25 FASHION COMMUNICATION

1. Exploring visual, structural and aesthetic properties and preparing swatch cards for the following:—
   a. Different types of paper
   b. Natural materials - fibre, leaves, stems, shells, sand, stones and flowers
   c. Soft materials - paper pulp, fabric, cords, clay, mud, m-seal, plaster of Paris and terracotta
   d. Hard materials - cardboard, sun board, flute board, acrylic, MDF, wood, metal plate and wires
   e. New materials
2. Designing and developing products based on a theme using materials from the above categories
3. Analyzing the effectiveness of the material used for product development
4. Portfolio development and presentation

REFERENCE:
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.
15FD27 FASHION ILLUSTRATION LABORATORY I 0 0 4 2

1. Understanding the human proportion and drawing normal figure using 7 ½ head theory
2. Drawing fashion croquie using 10 ½ head theory for men and women.
3. Drawing face and facial features – eyes, nose, ear, mouth - men and women.
5. Drawing various poses of arms and legs - men and women.

Stylization and drawing various poses of fashion croquie – men and women.

Total P: 60

REFERENCE:
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.

15FD28 BASIC APPAREL PRODUCTION LABORATORY 0 0 4 2

Preparation of samples for the following garment components:-

1. Stitches – hand and machine stitches
2. Seams – hand, machine and seam neating
3. Hems – single turn, double turn, rolled, faced hem, decorative faced, fused, bias-bound, banding and attaching trims
4. Fullness – darts, tucks, pleats, gathers, shirring, ruffles and godets
5. Yokes – simple, with fullness, releasing fullness, partial and midriff yoke
6. Neckline finishing – shaped facing, bias facing, bias binding and piped neck edge
7. Collars – flat, stand, shawl and shirt collar
8. Sleeves – set in, sleeveless and sleeve with bodice
9. Cuffs – single cuff with placket opening
10. Pockets – patch, paper bag, front hip, in-seam and welt pocket
11. Fastener attachments – zips, buttons, buttonholes, button loops, hooks, eyes, snaps, tape and eyelets

Total P: 60

REFERENCES:

15FD29 INDUSTRIAL VISIT CUM LECTURE I 0 0 2 1

• Minimum of 2 Industry Visits.
• Minimum of 2 Lectures by Industrial Experts.
• Reports are to represent the observations of the students after the visits with their personal comments/suggestions.

SEMESTER III

15FD31 DYEING AND PRINTING OF TEXTILE MATERIALS 3 0 0 3

FABRIC PREPARATORY PROCESSES: Singeing, desizing, scouring, degumming, bleaching and mercerizing – reagents used and their applications; bio processing of cellulosic and protein materials; specific preparatory steps for cotton, wool, silk, nylon, polyester and acrylic fabrics. (8)

DYEING PROCESS: Theory of dyeing - exhaust and continuous; cellulosic materials - principles and application of direct, reactive, vat and sulphur dyes; protein materials - principles and application of acid, basic and metal complex dyes; synthetic materials - principle and application of disperse and cationic dyes; dyeing with natural dyes; dyeing with thermochromic and polychromatic dyes; dyeing of blends; textile design through dyeing - tie & dye, batik, level & cross dyeing; dyeing defects and remedies. (10)

DYEING MACHINERY: Machineries; loose fiber dyeing - yarn and hank; fabric dyeing - padding mangle, jigger, winch, high temperature high pressure, jet and soft flow; garment dyeing - paddle machines, drum, jet and hydro dynamic; dye fastness and grading properties. (10)

STYLES AND METHODS OF PRINTING: Historical development of printing methods; printing pastes – thickening agents and auxiliaries for printing and their suitability to various classes of dyes and fibers; preparation of printing pastes for different dyes and different fibers; styles of printing - direct style, resist style, discharge style and raised style; styles and methods of printing
traditionally used in India; special printing styles - transfer, carpet, flock, pigment, foam, khadi, metallic, rubber, plastic, pearl, digital and 3D printing; finishing and after treatment of printed goods. (12)

PRINTING MACHINERY: Principles - roller, flat bed, rotary, screen, transfer, ink jet and digital printing machines; quality assessment: process and quality control measures in printing, printing defects, causes and remedies. (5)

TEXT BOOKS:

REFERENCES:

15FD32 PROCESS FLOW IN APPAREL INDUSTRY


STITCHES AND SEAMS: Stitch classification and designation, seam classification and designation, selection of right type of stitches and seams for different fabrics and their end uses. Methods of testing seams. Sewing needles and threads: needle parts, types, size and designation, selection and their application; Sewing threads- types, quality specifications, selection and thread consumption. (12)

SEWING: Sewing Machine- parts, functions and bed types, classification –SNLS, DNLS, chain lock, over lock, flat lock, button fixing and button holing. Sewing machine attachments: types and presser foot. Sewing defects: causes and remedies. Sewing problems: slipped stitches, staggered stitching, unbalanced stitches, variable stitch density, needle, bobbin thread breakages. (12)


Total L: 60

TEXT BOOKS:

REFERENCES:

15FD33 HISTORY OF COSTUMES


ENGLISH AND FRENCH COSTUMES: English costume during middle ages, French costumes during renaissance Period (1400-1600)- analysis of historic necklines, collars, sleeves, silhouettes, textiles, headdress and embellishments (6)

AMERICAN COSTUMES: American Costumes from 18th to 20th Centuries- Analysis of momentous styles of clothing, garment design, fabrics, headdress and embellishments (4)
COSTUMES OF ASIAN COUNTRIES: Costumes of Pakistan, Sri Lanka, China, Myanmar, Thailand, Japan. Men's, Women's and kids garment – motifs, designs, color combinations, styles, textiles and accessories. (5)

COSTUMES OF AFRICA: Traditional costumes, textiles, motifs, designs and accessories in various parts of African continent – Egypt, Morocco, Ghana, Nigeria, Kenya, Uganda, South Africa, Zimbabwe. (5)

COSTUMES OF EUROPEAN COUNTRIES: Traditional costumes, textiles, motifs, designs and accessories in Germany, Greece, Portugal, Sweden, Scotland, Italy, Ireland and Hungary. (5)

COSTUMES OF INDIA: History, Traditional costumes, textiles, ornaments and accessories used in different states of India. (12)

TEXT BOOKS:

REFERENCES:

15FD34 TREND AND FASHION FORECASTING 3 2 0 4

FASHION FORECASTING PROCESS: Objectives, trend chasers, forecaster’s toolbox, fashion directions, forecasting in the textile and apparel industries. (10)

FORECASTING FRAMEWORKS: Introducing innovation – objectives, diffusion of innovation, fashion trends, consumer segmentation; fashion movement, direction of fashion change, long-wave phenomenon and fashion cycles; cultural indicators. (10)

FASHION DYNAMICS: Colour forecasting – colour research and colour planning; textile development – researching seasonal trends; the look – trend identification, analysis and synthesis. (8)

MARKETPLACE DYNAMICS: Consumer research – objectives and concepts; sales forecasting – objectives, sales forecasting methods, data mining and real-time marketing. (10)

FORECASTING AT WORK: Competitive analysis – objectives, competitive advantage, key terms and concepts; presenting the forecast – objectives, trend reporting, presentation techniques and avoiding forecasting traps. (7)

Tutorial Practice:
1. Researching and exploring current designers and brands.
2. Identifying a target market, assessing consumer needs and researching the target market for a design solution.
3. Gathering information for forecasting – environmental scanning:
   i. Fashion scan
   ii. Consumer scan
   iii. Fashion analysis
   iv. Social and economic trends
   v. Trend analysis
   vi. Competitive analysis
   vii. Integrated forecasting
4. Analyzing the data and drawing conclusions.
5. Communicating creative concepts effectively through roughs, boards and illustrations.

Total L:45 + T:30 = 75

TEXT BOOKS:

REFERENCES:

15FD35 FASHION DESIGN 3 2 0 4

CREATIVITY IN FASHION DESIGN: Creativity – definition, myths, the creative process – clarify the goals, search and explore, develop preliminary ideas, allow incubation, analyze and refine the design, reach a decision point, implement the decision point. Creativity enhancing exercises. Confluence of traits – cognition and motivation. (8)
TARGET CONSUMER: Fashion versus style, fashion personalities, customized and mass fashion, garment type – high fashion, ready to wear, luxury super brands, mid-level brands, independent designer labels, casual and sportswear brands, high street, supermarkets. Consumer profile – classic fashion images, the research angle, client board.

DESIGNERS’ CONCEPT: inspiration – researching the future, fashion’s inspiring past and present, looking beyond fashion – world art, performing arts, architecture, interiors and landscape design, popular culture, travel; interpreting the inspiration and developing a concept board.

COLOUR, FABRIC AND TEXTURE: Materials used in designing, colouring techniques, the colour story – pantone, working with the colour forecast, communicating the colour specification, preparation of colour board. Fabric and texture rendering, the fabric story – customizing colour and fabrics, communicating the fabric story and preparation of fabric board.

DEVELOPING A COLLECTION: Dressing the body – from flat to three-dimensional clothes, drape of garment. Folds and drapes, studying the silhouette, sketch book-design roughs and range building, flats and specifications drawing. Presentations – planning a presentation, presentation techniques, resizing the figures, cut and paste preparations, design layouts, computer generated presentations.

FASHION PORTFOLIO: Portfolio presentation - Choosing a portfolio, contents and layouts, target your portfolio, layout formats, croqie sketch book, backing up.

TUTORIAL PRACTICE:
1. Exploring various colouring mediums and techniques - drawing papers, brushes, mediums - graphite pencils, pastels, water soluble coloured pencils, felt-tip pens, markers, inks, gouache, acrylics
2. Rendering different types of folds and creases in garment.
3. Rendering fabric textures
   a. Textured fabrics – wool, fur, corduroy, denim
   b. Shiny fabrics – satin, silk, velvets
   c. Sheer fabrics - chiffons, georgette
   d. Knitted fabrics – jersey, rib
   e. Patterns and prints – stripped, motifs, embroidery fabrics and lace.

Total L:45 + T:30 = 75

TEXT BOOKS: 

REFERENCES:

15FD36 COMPUTER AIDED TEXTILE DESIGN LABORATORY

1. Designing of elementary weaves – plain, twill, satin, sateen, basket, mat and diamond.
2. Designing of plaids, checks and stripes.
3. Designing of knits.
4. Designing of floral prints - buds, calico, leaves, tailing floral and vines.
5. Designing of geometric prints - abstract, arabesque, blocks and cubes, bull’s eye, check board, chevron and herringbone, circles, coffee beans, confetti, crescents, eccentric, fleur-de-lis and fret work.
7. Designing of calligraphic prints.
8. Designing of ethnic prints.
10. Developing designs for block, stencil and screen printing.

Total P:60

REFERENCE:
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.

15FD37 DYEING AND PRINTING OF TEXTILE MATERIALS

1. Preparation of different types of material for dyeing and printing:-
   a) Desizing
   b) Scouring

Total P:60
c) Bleaching  
d) Optical whitening

2. Dyeing of cotton, silk, jute, wool, polyester and blended fabrics with suitable dyes:-  
a) Direct  
b) Reactive  
c) Sulphur  
d) Acid  
e) Disperse

3. Dyeing with different types of natural dyes on cotton fabrics.
4. Preparation of screens, stencils and blocks for printing.
5. Developing samples with screen, stencil and block printing on cotton, silk, wool, polyester and blended fabrics using suitable dye classes.
6. Developing samples with tie-dye by using various binding, folding, tying, random and discharge techniques.
7. Developing samples with batik on different fabrics - heating the wax, applying the wax, crackle and special effects and removing the wax.
8. Developing samples with kalamkari technique on different fabrics.
9. Developing samples with flock printing on different fabrics.

Total P: 60

REFERENCE:  
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.

15FD38 SURFACE EMBELLISHMENTS LABORATORY

Preparation of samples and end products applying the following embellishment techniques:

2. Traditional embroidery – Kantha, Kasuti, Chikankari, Phulkari, Kutch.  
3. Metal embroidery – Badla work, Sequins work, zardosi work, shisha embroidery.  
4. Ribbon embroidery  
5. Machine embroidery  
6. Appliqué, patch work  
7. Quilting  
8. Smocking  
9. Crochet  
10. Macramé  
11. Fabric painting

Total P: 60

REFERENCES:  

SEMESTER IV

15FD41 RESEARCH METHODS

RESEARCH: Meaning, Objectives, types, significance, research approaches, research methods versus methodology, research process, defining the research problem, criteria of good research, research design-features, types and principles of experimental design, sampling design- random and complex , Measurements and scaling techniques, methods of data collection. (10)

DESCRIPTIVE STATISTICS: Introduction – Collection of data – classification of data – Class intervals and Frequency Distribution – Pictorial and Tabular methods. (5+4)

MEASURES OF CENTRAL TENDENCY AND DISPERSION: Central tendencies - Mean, Median and Mode (Revision) – measures of dispersion - Range - Quartile deviation - Mean deviation - Standard Deviation – Moments, Skewness, and Kurtosis. (8+4)

CORRELATION AND REGRESSION: Introduction – Bivariate data - Correlation - Karl Pearson's Coefficient of correlation – Rank correlation - Spearman's Rank correlation coefficient – Regression - Regression lines, co-efficient. (10+4)

TESTING OF HYPOTHESIS: Introduction to probability theory, Level of significance - Type I and Type II errors - Large sample and Small sample tests - Tests for mean, standard deviation, and proportion (Tests based on normal, t, F and chi-square distributions) - Test for independence of attributes and Goodness of fit. (10+4)

STATISTICAL QUALITY CONTROL: Introduction- Statistical basis for control charts - control limits - Control charts for variables – Mean charts, Range charts - Control charts for defective - p, np charts – Control charts for defects - c charts. (8+4)
INTERPRETATION AND REPORT WRITING: Technique, significance of report writing, steps in writing report, layout, types, oral presentation, precaution for writing a research report, computer applications in research.  

Total L: 45 + T:30 = 75

TEXT BOOKS:

REFERENCES:

15FD42 TEXTILE & APPAREL QUALITY EVALUATION 3 0 0 3


AESTHETIC AND COMFORT TESTING: Fabric Handle-KES and FAST. Comfort testing - thermal conductivity, air permeability and water vapour permeability.  


TESTING OF ACCESSORIES: Accessories– Interlinings, zippers, sewing threads, buttons and snap fasteners.

INSPECTION: Raw material, in-process and final inspection. Fabric inspection systems- 4 point and 10 point system. Quality parameters and control- shade sorting, pattern making, cutting and sewing, trims and accessories, packing, garment defects. Acceptable Quality Level (AQL) standards- sampling plans, final inspection procedure, tolerances, quality specifications for finished garments-trouser, ladies top, full sleeve shirt, polo neck T-shirt and children’s night wear.

Total L: 45

TEXT BOOKS:

REFERENCES

15FD43 KNITWEAR DESIGN AND MANUFACTURING 3 0 0 3

FUNDAMENTALS OF KNITWEAR: Knitted fabric - Stretch, shrinkage and recovery factor, gauge, direction of stretch, adapting patterns to knits, classification of knitted garments - fully cut, stitch shaped cut, fully fashioned and integral-basic techniques. Whole garment knitting techniques.

INTIMATE APPARELS: Styles - fabric quality specifications and operation sequence. Production techniques - Y front, trapeze, cross over front briefs, lingerie and vest.

FASHIONED SWEATERS: Shape generation, knitting of slipovers and cardigans, production of fully fashioned sleeves on V-bed flat machines. Looping process. Control of defects.

CUT AND SEW SWEATERS: Cutting techniques, cutting machines- operating difficulties and remedies. Sewing of sweater strips-types of stitches and seams used in sweaters, common sewing defects and its remedies- pressing of sweaters.

KNIT FOUNDATION: Dartless stretchy knit, dartless firm top, crop top, body suit, leotard, maillot- tanktop and princess, bikini- high cut leg, bandeau top, all-in-one, bra top with horizontal styleline; Supplies- bra cups and elastic; Attaching straps to swim suit.

Total L: 45

TEXT BOOKS:

REFERENCES:

**15FD44 PATTERN MAKING II**

**SIZING AND STANDARDIZATION:** History of sizing systems and ready-to-wear garments; creating sizing systems; sizing standardization; sizing systems, fit models and target markets. (7)

**STYLES OF GARMENTS:** Bodice – princess line, empire line, surplice, off-shoulder, halter and tent; Bifurcated garments - pleated pant, culottes, trouser, slack, jean, high waist, shorts, capri, jumpsuit; Skirt – flared, gored, pegged, tiered, circular, wrap; Jackets and coats - terminologies, block for jacket, coat, sleeve, lapel designs, double breasted jacket, shawl collar, inter constructions. (10)

**SPECIFICATION SHEET AND PATTERN GRADING:** Creative and technical design, interpretation of style and measurement chart, for men’s apparel - tshirt, formal shirt, formal trouser; women’s apparel – salwar, kameez, skirt, top, night wear; kids apparel – dungaree, shorts, girls frock. Pattern grading – types, principles and method of grading bodice, sleeve, trouser and skirt blocks. (10)

**PATTERN FIT AND ALTERATIONS:** Choosing right pattern size, comparing body and pattern measurements; Fitting problems and remedies in bodice – bust line, waistline, dart, sleeve, shoulder changes; skirt fitting – waist, hip changes; pant fitting - waist, hip, crotch changes. Importance of altering patterns, principles of pattern alterations, alteration of patterns for irregular figures. (10)

**MARKER PLANNING:** Pattern layout: Types – open, lengthwise, crosswise, double layout, combination layout; Principles, Laying various patterns on different types of fabrics. Marker planning: Planning, drawing and reproduction of the marker – the requirements, efficiency, methods of marker planning. (8)

**TUTORIAL PRACTICE:**
1. Flat pattern technique – bodice styles
2. Flat pattern technique – skirt styles
3. Flat pattern technique – trouser styles
4. Drafting jacket and blazer
5. Analysis fitting problems and altering the patterns to overcome the same.
6. Grading the t-shirt, shirt and trouser using industrial specification sheets.
7. Exploring the different types of layout and analysing the best optimum layout for a single style of garment.

Total L:45 + T:30 = 75

**TEXT BOOKS:**

**REFERENCES:**

**15FD45 FASHION BRANDING**

**UNDERSTANDING BRAND:** Brand - logic, entity, ideas, features, value, identity, positioning, innovation, consistency, equity and market valuation; brand issues – types, levels, national versus private brands, categories based on segment, brand life cycle and brands ethics. (9)

**BRANDING PROCESS:** Vision, positioning strategy, brand communication, evaluation, brand audit, growth strategies, brand positioning, relaunching, revitalization and brand failure. (9)

**LUXURY FASHION BRANDS:** Elements of heritage and craftsmanship, luxury brand consumer, luxury brand decisions, economic downturns and traditional marketing principles; case studies of luxury brands. (9)

**MASS-MARKET AND RETAIL BRANDS:** Mass-market versus luxury brands and private labels; retail brand concept - merchandise, price, location, service, store experience, communication, growth and e-tailing. (9)

**BRANDING TRENDS:** Interactive brand, wireless brand – mobile technologies and audio targeting, virtual brand, the power of internet; redesigning the brand – impact of new technology, micro brands and experiential branding. (9)

Total L: 45

**TEXT BOOKS:**

**REFERENCES:**
15FD46 TEXTILE & APPAREL QUALITY EVALUATION LABORATORY

1. Analyzing the fabric defects
2. Determination of fabric strength (knitted and woven)
3. Determination of drapeability
4. Determination of seam strength and seam slippage
5. Determination of dimensional stability and appearance of apparel
6. Determination of Snap pull strength
7. Determination of Button impact strength
8. Determination of zipper pull strength
9. Analyzing the color shades using spectrophotometer
10. Determination of color fastness - laundering, rubbing, perspiration and light
11. Demonstration of Air permeability and Water vapour permeability test.

Total P: 60

REFERENCE:
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.

15FD47 FASHION ILLUSTRATION LABORATORY II

Finding a source of inspiration and preparing inspiration board, colour board, fabric board, accessories board and story board.

1. Designing children’s garments with 2D flats for the following categories.
   a) Casual/Summer wear
   b) Party wear
   c) Winter wear

2. Designing women’s garments with 2D flats for the following categories.
   a) Casual/Summer wear
   b) Winter wear
   c) Party wear
   d) Bridal wear

3. Designing men’s garments with 2D flats for the following categories.
   a) Casual/Summer wear
   b) Formal wear
   c) Winter wear
   d) Party wear
   e) Bridegroom wear

Total P: 60

REFERENCE:
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.

15FD48 APPAREL PRODUCTION LABORATORY I

Pattern drafting, grading, constructing and analyzing the fit for the following kid’s garments:
1. A-line Frock
2. Yoke frock
3. Sun Suit
4. Romper (Knitted)
5. Baba Suit (Knitted T-Shirt and Denim Shorts)

Total P: 60

REFERENCE:
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.

15FD49 INDUSTRIAL VISIT AND LECTURE II

- Minimum of 2 Industry Visits.
- Minimum of 2 Lectures by Industrial Experts.
- Reports are to represent the observations of the students after the visits with their personal comments/suggestions.
FINISHING: Objectives, types, selection of chemicals - cellulosic, protein, synthetic and blended fabrics. (6)

CHEMICAL FINISHING: Principle, sourcing, application & assessment of water repellent/proof, flame retardant, stain resistant, anti-static, soil release finish, UV protective finish, anti microbial finish, anti odour finish, fragrance finish and elastomeric finishes (without compaction). Resin finishing – durable press, wash-n-wear, wrinkle free & silicone finishing. (12)

MECHANICAL FINISHING: Peach finish, raising, calendaring, moiré effect. Plasma treatment, finishing using micro capsules, nano particles and electro chemical treatment of textile materials. (9)

DENIM FINISHING: Process conditions, machineries, chemicals used for special washes - stone wash, acid wash, enzyme wash, bio polishing, ice wash, tie 'n' wash, golf ball wash, marble wash, vintage wash, distress wash, tinted denim, stretch denim, sand blasting, ozone fading and laser fading. (8)

APPAREL CARE: Identification and characteristics of stains, selection and application of stain removing agents. Laundering procedures; Washing- methods and machineries. Application of soaps, detergents, bleaches, optical brighteners, stiffeners, softeners, dry cleaning agents on different fabrics. Pressing – purpose, pressing equipment and methods, pleating. Care labeling. (10)

TEXT BOOKS:

REFERENCES:

FUNDAMENTALS OF CLOTHING COMFORT: Definition, aspects-thermal, sensorial, body movement. Variables- personal and environmental, properties of fibres and fabrics that contribute to human comfort. (6)

HANDLE AND MAKING-UP PERFORMANCE OF FABRICS AND GARMENTS: Fabric objective measurement (FOM) – Kawabata system and FAST system. Effects of fibre, yarn, fabric, dyeing and finishing. (7)


PHYSIOLOGICAL COMFORT: Aspects of clothing physiological comfort, tactile comfort, assessment, thermo physiological comfort, liquid water transport properties of fabrics and clothing, garment fit and ease of body movement, pressure comfort. (10)

PSYCHOLOGICAL COMFORT: -Assessment, factors affecting psychological comfort. Effects of color and surface texture, garment design, sizing and fit. (6)


TEXT BOOKS:
REFERENCES:

15FD53 APPAREL PRODUCTION PLANNING AND CONTROL

PRODUCTIVITY AND PRODUCTION CONTROL: Productivity – concept, measuring productivity, characteristics of low, medium and high productivity manufacturers, causes for low productivity, suggestions for improvement. Production control – objectives, relationship of production control to the functional areas of a manufacturing organization, pre production functions – sampling, marker making, spreading, ticketing, bundling and loading.

CUT PRODUCTION ANALYSIS: Cut order planning – types of spreads, spreading methods, marker utilization, economic cut quantities. Control forms in cutting department.

WORKSTUDY: Concept, need; method study – concept, objectives, procedure, process chart symbols, flow process chart, string chart, operation analysis, motion analysis; work measurement – concept, objectives, procedures, allowances, standard data calculations.

PLANT LAYOUT AND MATERIAL HANDLING: Layout planning and development, types of layout, characteristics of good work station layout, layout calculations, layout for apparel industry. Material handling: Objectives, classifications of material handling equipments, specialized material handling equipments related to apparel industry.


TEXT BOOKS:

REFERENCES:

15FD54 APPAREL MARKETING

MARKETING: Marketing management, marketing core concepts, marketing organisation, marketing process – analysing marketing opportunities, developing marketing strategies, planning marketing programmes, managing the marketing effort.

SEGMENTATION AND BUYING BEHAVIOUR: Market segmentation - segmentation variables, target marketing strategies – undifferentiated, differentiated and concentrated. Buying behaviour - factors influencing buying behavior, consumer buying process.

MARKET RESEARCH AND FORECASTING: Market research - purpose, procedure and applications. Forecasting and demand measurement - measures of market demand, company demand, company sales forecast, estimating future demand.

MARKETING MIX: Product – hierarchy, product mix, line and brand decisions; Price – objectives, price decisions, procedure; Marketing Channel – nature, functions, marketing systems - direct, vertical, horizontal and multichannel; Promotion – advertising message, media selection, measuring effectiveness and publicity.


TEXT BOOKS:

REFERENCES:

15FD56 COMPUTER AIDED FASHION DESIGN LABORATORY

1. Demonstration of the tools and software used in computer aided fashion design laboratory.
2. Designing croquis and body forms based on the head theories for men, women and children in various poses.
3. Creating technical package (Tec pack) with respect to inspiration board, colour board, fabric board, mood board, story board and concept boards for:-
   a) Men's apparel
   b) Women's apparel
   c) Children's apparel
4. Designing accessories for men, women and children based on latest trends.
5. Development of portfolio and presentation

Total P:60

REFERENCE:
1. Laboratory manual prepared by the Department of Apparel and Fashion Design.

15FD57 APPAREL PRODUCTION LABORATORY II

Pattern drafting, grading, constructing and analyzing the fit for the following women's garments:-
1. Skirt and top
2. Night wear
3. Sari blouse
4. Salwar and kameez
5. Dungarees

Total P: 60

REFERENCE:
1. Laboratory manual prepared by Department of Apparel and Fashion Design.

15FD58 CLUSTER VISIT AND CRAFT DOCUMENTATION

Cluster visit and craft documentation involves the following:-

- Preliminary study of the selected craft
  - To study the evolution of the craft and its various techniques
- Visiting the craft area for two weeks
  - To visit the chosen craft area and study the textile craft and handicrafts of the area in detail
  - To study the technicalities as well as the present status of the craft and role of designers to uplift the craft
  - To study the consumer choice, marketing channels and outlet
- Documentation of the selected craft situation
- Development of a product using the craft skill
- Consolidated report preparation and presentation

15FD59 INDUSTRIAL VISIT AND LECTURE III

VISIT TO INDUSTRIES: Study tour/industrial visit. Reports are to represent the observations of the students after the visits with their personal comments/suggestions.

SEMINAR : Faculty will arrange for lectures by experts preferably from industries to highlight the recent technical and soft skill trends.
PRINCIPLES OF MANAGEMENT: Meaning, definition and significance of management, basic functions of management – planning, organizing, staffing, directing and controlling. (5)

ENGINEERS AND ORGANIZATIONAL ENVIRONMENT: Social, economic, technological and political. Social responsibility of engineers. (3)

MANAGEMENT CONCEPTS: MBO, Theory Z, Kaizen, Six Sigma, Quality Circles and TQM. (Case Study) (5)

BUSINESS PROCESS REENGINEERING: Need for BPR, Various phases of BPR, production and productivity in six sigma and TQM – Factors influencing productivity. (7)

ORGANISATIONAL BEHAVIOUR: Significance of OB, role of leadership, personality and motivation, stress, attitudes, values and perceptions at work. (7)

INDUSTRIAL AND BUSINESS ORGANIZATION: Growth of Industries (Small Scale, Medium Scale and Large Scale Industries). Forms of business organizations, resource management – internal and external sources. (6)

MANAGING INFORMATION: Why information matters, strategic importance of information, cost of useful information- getting and sharing information. (6)

WELFARE IN INDUSTRY: Working condition, service facilities, legal legislation – factories act, 1948 and workmen’s compensation act. (6)

TEXT BOOKS:

REFERENCES:

15FD62 APPAREL COSTING


PROCESS COSTING: Estimation of knitting cost, dyeing cost, printing cost, finishing cost, cutting cost, stitching cost, checking cost, packing cost and estimation of shipping and forwarding cost. (9+6)

MATERIAL ESTIMATION: Cost estimation for a garment order – Calculation of garment weight for each size, total weight for each size, wastage percentage, total yarn requirement, total yarn cost, knitting dyeing and CMT cost, other material cost, sewing thread calculation and its methods, thread requirement based on - stitch type and garment type. Estimation for round neck T-shirt, Polo T-shirt, shorts and trouser. (10+8)

THE BUDGETING PROCESS: Budgeting - elements, advantages, limitations, types of budget, preparation of a budget, pricing methods in a garment industry.

TEXT BOOKS:

REFERENCES:

15FD63 APPAREL MERCHANDISING

PRINCIPLES OF MERCHANDISING: Terminology, significance, scope, role and responsibility of merchandiser in the clothing industry. Merchandising interface with other departments in an apparel organization.

SOURCING AND PRODUCT DEVELOPMENT: Sources of trend information, information gathering and sourcing for colors, raw materials and prevailing fashion trends. Creating a design concept, developing design, fabric and colour palettes, market/customer profiling and product analysis and development. Understanding of various costs and parameters for raw material, processing, CMT, labour, margins, freight elements and garment cost.

MERCHANDISE PLANNING AND ORDER EXECUTION: Elements of planning, calendar planning, order management, buyer contacts and communication, selling and booking of orders, sampling process, yarn and fabric programming, route card drafting, production controlling and follow up, record maintenance and reporting, time management and prioritizing, follow ups of quality assurance procedures, in-house, sub contractor and juniors activities.

SOURCING AND VENDOR MANAGEMENT: Analysis of fibre content, fabric construction, type of print, finishing operation, embellishment technique used. Sourcing of woven fabrics and knits, Global sourcing, fabric and yarn trade fair, sourcing decisions, evaluating vendor reliability, yarn procurement, accessories procurement, order placing and follow-ups, shortage management.


BUSINESS COMMUNICATION: Importance of communication, communication process, presentation skills, barriers to effective communication, communication in organization, information systems and controls, management information system.

15FD64 FASHION RETAIL MANAGEMENT

RETAILING: Characteristics and functions, trends, types, retailing channels, international fashion retailer strategy, types of retailing, Government policies and implementation in retail.

RETAIL LOCATION: Location – types, choice, location and site evaluation. Space planning – location of departments and merchandise, leveraging space.
CONSUMER BEHAVIOR AND MARKET SEGMENTATION: Consumer behavior, factors affecting consumer decision making, stages of consumer decision process, types of consumer decision making, influence of situational variables on shopping behavior. Market segmentation: benefits, segmenting, market targeting, age mixing, positioning, criteria for effective market segmentation, dimensions, kinds of markets. (12)


PROMOTION STRATEGY AND RELATIONSHIP MARKETING IN RETAILING: Promotion mix selection - advertising, media selection, sales promotion, personal selling and publicity, Offsite fashion retailing- e-tailing, catalogs and trends. Ethics, social responsibility and consumerism. (8)

Total L: 60

TEXT BOOKS:

REFERENCES:

15FD66 COMPUTER AIDED APPAREL DESIGN LABORATORY

0 0 4 2

1. Demonstration of the tools and software used in computer aided apparel design laboratory.
2. Creating an avatar using body measurements for men, women and children.
3. Drafting, grading, marker planning and analyzing the fit of the following garments using software:-
   a. Kid’s Wear
   b. Women's Wear
   c. Men's Wear
4. Demonstration on digitizing the flat pattern and plotting the marker plans.

Total P:60

REFERENCE:
1. Laboratory manual prepared by Department of Apparel and Fashion Design.

15FD67 FASHION DRAPING AND STYLING LABORATORY

0 0 4 2

Draping and construction of the following garments

1. Basic Patterns:
   - Bodice
   - Skirt
   - Sleeve
2. Bodice Styles:
   - Bustier designs
   - cowl styles
   - halter styles
   - asymmetric styles
3. Skirt Styles:
   - Skirt with yoke
   - wrap around skirt
   - Peg top skirt with side cowls.

REFERENCE:
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.
Pattern drafting, grading, constructing and analyzing the fit for the following men's garments:
1. Full sleeve shirt
2. T-shirt
3. Trouser
4. SB Vest
5. Kalidhar Kurtha and Pyjama

REFERENCE:
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.

SEMESTER VII

15FD01 PROJECT WORK I

Total P:60

Every student shall undertake the project work I during seventh semester. The project work shall be undertaken in an industry/research organization in consultation with faculty guide and Head of the department. Project work at industrial/research organization shall be jointly supervised by a faculty guide and an expert from the organization.

SEMESTER VIII

15FD81 ERGONOMICS IN CLOTHING DESIGN

Total L: 45

HUMAN BODY STRUCTURE AND ANTHROPOMETRICS: Skeletal system, body growth and somatotypes. Anthropometrics: traditional anthropometry, static and dynamic anthropometry, development of anthropometry, need for Indian anthropometric data. Measuring dimensions - standing and sitting postures, head, neck, hand and foot dimensions, measurements in special postures - cross-legged and squatting. Body scanning – operations, applications

APPAREL SIZING SYSTEMS: Existing sizing system, development of new sizing system, international sizing and principles of sizing system, body shape analysis and identification of key dimensions for apparel sizing system, size categories in men's, women's and children's wear.

ERGONOMICS: Definition- need, requirements, principles, types-physical, cognitive and organizational. Effects of ergonomics, biomechanics, providing mobility in clothing- Human body movement, describing body movement, identifying user needs for movement, notating movement, analyzing movement, applying data on body movement to clothing design, selection of anthropometric data for clothing design, increased mobility in clothing, fit and movement, analyzing the effects of clothing on movement.

CLOTHING: Design requirements, ergonomic design of clothing for medical uniforms, sportswear, swim wear, leisure clothing, intimate wear and military clothing

CLOTHING FOR SPECIAL NEEDS: Design requirements, ergonomic design of clothing for specially abled, elderly men and women, infants, preschool children, school uniforms, maternity women and compressive garments.

Text Books:

References:
15FD82 VISUAL MERCHANDISING

VISUAL MERCHANDISING: Definition, history, purpose, basics of display, basics of design - elements and principles. (8)

VISUAL MERCHANDISING ELEMENTS: In-store, façade, sign, marquee, banner, planter, awning; window in store front – straight, the angled front, the arcade front, the corner; display window constructions - closed back, open-back, island, shadow boxes, elevated, deep, tall. (10)

STORE DESIGN AND MERCHANDISE PRESENTATION: Store planning, mannequins – types and handling, fixtures – types and selection of fixtures, circulation plans – meaning and types, planograms – meaning, purpose, implementation and maintenance. Merchandise presentation – basics, principles, categories, dominance factor, cross merchandising. (12)

WINDOW DISPLAY: Meaning and Scope, types of display - one – item, line of goods, related merchandise, assortment, promotional vs institutional; Types of display setting - realistic, environmental, semi-realistic, fantasy, abstract. (10)

LIGHT AND ITS IMPACT ON COLOR: The colour of light, Importance, types - primary lighting and secondary lighting; types of light – fluorescent, incandescent, neon, LED, High intensity discharge, light fixtures; colored lights and filters, planning store lighting. (10)

MERCHANDISE DISPLAY: Display calendar, planning a display, role of visual merchandiser in store promotion, scheduling the promotion, attention drawing devices, technology in visual merchandising. (10)

Total L:60

TEXT BOOKS:

REFERENCES:

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15FD83 FINANCIAL MANAGEMENT

FINANACIAL MANAGEMENT: Meaning, scope, objective, functions of finance manager and importance of financial management. Time value of money – Compounding techniques, annual compounding techniques, present value of cash flow. (8+6)

FINANCIAL STATEMENT ANALYSIS – Types and techniques of financial statement analysis – comparative statement analysis, balance sheet analysis, profit and loss account analysis, trend analysis, common size analysis, fund flow statement, cash flow statement, ratio analysis – liquidity ratio, solvency ratio, activity ratio, profitability ratio. (12+6)

CAPITAL BUDGETING: Capital budgeting process and evaluation – pay-back method, average rate of return, net present value method, Internal rate of return method, profitability index method. (7+6)

WORKING CAPITAL: Sources of finance – Long term – equity shares, debenture, preference shares, long term loans, fixed deposits. Short term – trade credit, bank credit, commercial papers, certificate of deposits, factoring. Planning of working capital – need, types – permanent and temporary working capital, factors determining working capital requirements. (10+6)

WORKING CAPITAL MANAGEMENT: Inventory management – Safety stock, economic order quantity, A-B-C analysis Indian stock market – share market terminology and stock exchange new issues. (8+6)

Total L: 45+T: 30=75

TEXT BOOKS:

REFERENCES:

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15FD86 FASHION ACCESSORIES LABORATORY

• Exploration of materials for the given personal accessories.
• Designing the following fashion accessories by Researching and analyzing the trends.
• Developing the designed product and communicate the concepts visually and verbally.

Personal Accessories:
12. Tote bag
13. Shoulder bag
14. Clutch bag
15. Leather Belt
16. Sports Gloves
17. Felt Hat
18. Scarves
19. Silk Tie
20. Jewellery
21. Footwear (designing)

TEXT BOOKS:

REFERENCES:

15FD87 ETHNIC WEAR LABORATORY

1. Creating Technical Package (Tec pack) with respect to inspiration board, colour board, fabric board, mood board, story board and concept boards for the following garment categories:
   a. Casual Wear for Men, Women and Children
   b. Traditional Wear for Men, Women and Children
2. Drafting/draping, embellishing and constructing the above garments (any two designs in each garment category)
3. Analyzing fit for the developed garments.

REFERENCE:
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.

15FD88 FASHION PHOTOGRAPHY LABORATORY

1. Understanding the basic elements of photography - aperture, shutter speed and ISO.
2. Exploring different types of camera.
4. Studying the lighting techniques and its effects in indoor and outdoor.
5. Analyzing the effects of background in shooting photos.
6. Shooting pictures in Indoors by varying background, light, methods and techniques.
7. Shooting pictures in outdoors at different location, duration, methods and techniques.
8. Analysing the pictures taken while travelling - Street photography.
9. Shooting close up shots - Macro photography.
10. Exploring different textured products and representing them attractively - Product photography.
11. Portraying the subject attractively by varying light, cosmetics and background - Glamour photography.
12. Displaying fashionable clothes and accessories of the subject in exotic locations - Fashion photography.
13. Analysing, inferring and studying the profile and works of eminent photographers – National and international.
14. Portfolio preparation of all the works and presentation of the same.

TEXT BOOKS:

REFERENCES:
SEMESTER IX

15FD91 APPAREL EXPORT MANAGEMENT  4 0 0 4

INTRODUCTION: Need, nature of export management, process, functions of export manager. Organization structure of export firm; WTO, trade blocks – EU, ASEAN and NAFTA regional economic groups. International trade statistics on textiles and apparel, trends in India’s foreign trade, prospects for Indian apparel exports, SWOT analysis. (12)

EXPORT BUSINESS: Setting up of export business, export marketing, product identification for exports, export pricing, incoterms, methods of payment- cash in advance, letter of credit, documentary collection, escrow, open account, consignment. Negotiations for export business. (12)

GOVERNMENT SUPPORT AND INITIATIVES : High lights of 2009 – 2014 EXIM policy, various schemes – duty drawback, duty exemption , duty remission, EOU , free trade zones, SEZ, market access initiative, market development assistance, TUF S, TMTT. Focus of five year plan on apparel and textile sector, analyzing the budget and its implications, trading house, export houses, warehousing zones, foreign exchange management act. Outward and inward FDI regulations. (12)

EXPORT FINANCE: Nature of export finance, Classification-pre-shipment and post- shipment, packing credit and its formalities, post shipment finance – short, medium and long terms financing. Export-Import bank of India, forfaiting, ECGC – purpose, policies and financial guarantees. (12)

EXPORT PROCEDURE AND DOCUMENTATION: Export procedure – receipt of confirmed order, production and clearance of products for exports, shipment negotiation of documents and realisation of export proceeds, obtaining various incentives. Documentation – Aligned Documentation system (ADS), commercial documents, regulatory documents. (12)

TEXT BOOKS:

REFERENCES:

Total L:60

15FD92 LOGISTICS AND SUPPLY CHAIN MANAGEMENT  4 0 0 4

LOGISTICS AND SUPPLY CHAIN MANAGEMENT: Logistics - scope, elements, need, activities, role in the economy and organisation, logistics and competitive performance, interface of logistics with manufacturing and marketing. Supply chain management: evolution, need, customer focus and service, supply chain management issues, efficient consumer response (ECR), quick and accurate consumer response. (10)


STRATEGIC SUPPLY CHAIN MANAGEMENT: Activities, decisions, supply alliances, supplier quality management, supply chain re engineering. Organizing for global markets: Globalization - Stages to global SCM, global tendering and criticalities. International logistics - World class logistics management (WCLM) and world class supply chain management (WCSM). (10)

DISTRIBUTION NETWORK PLANNING: Role of network design, factors influencing distribution network design, Location strategy – plant location, distribution problem, ware house location, retail facility location. Role of IT in network design. (8)

COST AND PERFORMANCE MEASUREMENT IN SUPPLY CHAIN MANAGEMENT: Cost drivers, activity based costing, logistics cost, importance of accurate cost data, customer profitability analysis. Benchmarking – importance, role and methodology, challenges in implementation. Performance measurement systems. (8)

INFORMATION SERVICES IN LOGISTICS AND SUPPLY CHAIN: Importance, applications, information requirements, advanced order processing system in logistics, electronic data interchange, decision support systems in logistics and database management. Intelligence information system – materials requirement planning, manufacturing resource planning and enterprise resource planning. (8)

EMERGING TRENDS IN SUPPLY CHAIN MANAGEMENT: Collaborative strategies, vendor managed inventory (VMI), third and fourth party logistics, green supply chain, reverse logistics. (6)
15FD93 ENTREPRENEURSHIP

INTRODUCTION TO ENTREPRENEURSHIP: Definition – Characteristics and functions of an entrepreneur – Common myths about entrepreneurs, importance or entrepreneurship.
(5)

CREATIVITY AND INNOVATION: The role of creativity, the innovation Process, sources of new ideas, Methods of generating ideas, Creative problem solving, entrepreneurial process.
(6)

DEVELOPING AN EFFECTIVE BUSINESS MODEL: The importance of a business model, starting a small scale industry, component of an effective business model.
(5)

APPRASIAL OF PROJECTS: Importance of evaluating various options and future investments- entrepreneurship incentives and subsidies , appraisal techniques.
(8)

FORMS OF BUSINESS ORGANIZATION: Sole proprietorship, partnership, limited liability partnership, joint stock companies and cooperatives.
(4)

(8)

THE MARKETING FUNCTION: industry analysis, competitor analysis, marketing research for the new venture – defining the purpose or objectives, gathering data from secondary sources, gathering information from primary sources, analyzing and interpreting the results, the marketing process.
(5)

INTELLECTUAL PROPERTY PROTECTION AND ETHICS: Patents, copyright, trademark, geographical indications – ethical and social responsibility and challenges.
(4)

TEXT BOOKS:

REFERENCES:
1. Developing an inspiration board, color board, fabric board, mood board and furnishings/products along with costing for the following lifestyle and social accessories:
   a. Curtains/draperies/swags
   b. Sofa covers/cushion covers/bolster covers/pillow covers
   c. Bed sheet/blanket/comforters/bed skirts/duvets
   d. Wall art/frames/wall hangings
   e. Kitchen linen
   f. Flower arrangement
   g. Curios and corner arrangements
2. Creating concept boards for decorating office/star hotels/marriage hall/fashion stage.
3. Development of portfolio and presentation.

**REFERENCE:**
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.

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**15FD97 SPECIALITY WEAR LABORATORY**

1. Identifying and analyzing the requirements of customer ergonomically for the following categories:
   a. School uniform for boys and girls
   b. Garments for specially-able
   c. Garments for elderly men and women
   d. Maternity wear
   e. Work wear
2. Designing, drafting and constructing the garments for the same.
3. Analyzing fit and comfort for the developed garments.

**REFERENCE:**
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.

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**15FD98 PORTFOLIO DEVELOPMENT**

1. Preparing the resume stating your design philosophy to clarify your attitude towards fashion.
2. Compiling all the stylized illustrations, surface embellishment, accessory designs, creative graphic work and photography.
3. Presenting the garment collection by identifying the target customer, design requirements and pricing.
   - Inspiration sheet/story board.
   - Colour board with fabric swatches.
   - Client profile & indication of the market/country.
   - Design sheets (illustration boards).
   - Flat working drawings, magnification.
   - Specification sheet.
4. Narrating the craft documentation and internship projects.
5. Presenting the publications in newspaper/magazines/competitive shows, freelance assignments.

**REFERENCE:**
1. Laboratory Manual prepared by Department of Apparel and Fashion Design.

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**SEMESTER X**

**15FD02 PROJECT WORK II**

Every student shall undertake the project work II during tenth semester. The project work shall be undertaken in an Industry/research organization or in the college in consultation with faculty guide and Head of the department. Project work at industrial/research organization shall be jointly supervised by a faculty guide and an expert from the organization.
**PROFESSIONAL ELECTIVES**

**15FDA1 THEATRE COSTUMES AND DESIGN**

**3003**

**INDIAN THEATRE COSTUMES:** Introduction to the evolution of theatre costumes of India – historical to contemporary costumes  
(8)

**WORLD THEATRE COSTUMES:** Introduction to the evolution of theatre costumes of America, Europe, Japan, Greece, Rome and France - historical to contemporary costumes.  
(10)

**THEATRE ACCESSORIES:** Study of theatre accessories for India, America, Europe, Japan, Greece, Rome and France.  
(8)

**INDIAN FILM COSTUMES:** Introduction to the evolution of film costumes of India – past to present.  
(8)

**WORLD FILM COSTUMES:** Introduction to the evolution of film costumes of America, Europe, Japan, Greece, Rome and France – past to present.  
(10)

**FILM ACCESSORIES:** Study of film accessories for India, America, Europe, Japan, Greece, Rome and France.  
(5)

**TOTAL L: 45**

**TEXT BOOKS:**

**REFERENCES:**

**15FDA2 FOOTWEAR DESIGNING**

**3003**

**FOOT:** Anatomy and movement of foot, methods of feet measurement - length measurement, in-step measurements, joint measurement, long heel measurement etc.  
(4)

**DESIGNING OF FOOTWEAR:** Factors influencing choice of footwear by consumers - age, sex, comfort, aesthetics, profession/occupation, climatic factors, technological factors; Study of colors, chromatic cycle, material, components of footwear, types of footwear; Survey of designs in catalogues, periodicals, shop windows and boutiques.  
(8)

**DEVELOPMENT OF LAST:** Importance of last. Types of last and tools used for lasting; selection of last, preparation of the last. last model making; last modeling points - quality of last materials - proper last fitting. Last profile; making of last (center line, front, back, tread line) chappal and sandal pattern. Preparation of insole and sole pattern, standards and lining standards, section pattern for uppers and lining for various designs. Comparison of foot and last measurement. International sizing systems. Conversion from one scale to another.  
(4)

**PATTERN MAKING AND CUTTING:** Tools, methods and equipments for pattern making. Principles of grading - grading Methods - hand pantograph, geometrical, comparative and radial tools systems and CAD. Cutting based on different materials: manual cutting, machine cutting, die cutting and binding machine; storage of patterns.  
(8)

**SEWING:** Seam - types; edge treatments - types and machines used. Binding - materials used and application process. Finishing - types for different parts of footwear.  
(8)

**FITTING AND TESTING:** Judging the fit. Care and maintenance of footwear. Testing and quality assessment: Universal testing machines, methods and standards. Packing and marketing.  
(5)

**TOTAL L: 45**

**TEXT BOOKS:**

**REFERENCES:**

15FDA3 WORLD ART AND CRAFT

ART AND CRAFT OF ASIA: Study of art and craft of Cambodia, China, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, Philippines, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, Vietnam and Pakistan. (9)

ART AND CRAFT OF EUROPE: Study of art and craft of Albania, Austria, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Hungary, Iceland, England, Germany, Italy, Latvia, Romania, France, Greece, Spain, Sweden and Switzerland. (9)

ART AND CRAFT OF AMERICA: Study of art and craft of North America – Canada, Mexico and USA; Study of art and craft of South America – Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador and Peru. (9)

ART AND CRAFT OF AFRICA: Study of art and craft of Egypt, Kenya, Morocco and South Africa. (9)

ART AND CRAFT OF MIDDLE EAST: Study of art and craft of UAE, Saudi Arabia, Jordan, Oman, Yemen, Turkey, Israel and Iran. (9)

TEXT BOOKS:

REFERENCES:

15FDA4 GARMENT TRIMS AND ACCESSORIES

TRIMS AND ACCESSORIES: Importance and classification. Criteria and factors affecting choice of trims and accessories. (6)

CLOSURES: Buttons and buttonholes, buckles, clips, elastics, grommets, hook and eye, threadloops, eyelets, frogs, metal fasteners, plastic fasteners, rivets, snaps, hook and loop tape and zippers – functions, applications, types, styles and industry trends. (12)

SUPPORT MATERIALS: Interlining, lining, Adhesives, shoulder pads, sleeve headers, tapes, collar stays, corsets, felt, fusible, suspenders, underwire and waistbands – functions, applications, types, styles and industry trends. (13)

GARMENT TRIMS: Bindings, edgings, piping, laces, flat trims – braids, tapes, cords, ribbons and bands, labels, embroidery, appliqué, bows, Inset trims, webbings, screen printing, heat transfer and digital printing – functions, application procedure, types and industry trends. (14)

Total L: 45.

TEXT BOOKS:

REFERENCES:

15FDA5 ERGONOMICS IN APPRAEL INDUSTRY

ERGONOMICS: Definition, Importance, categories, types, micro and macro ergonomics, anatomical and mechanical structure of the human body, how the body does its work, how the mind works, Human senses. Body interaction with the environment, posture and movement, muscular work and nervous control of movements. (10)
HUMAN FACTORS AND ERGONOMICS: Principles, postural stability, body mechanics, musculoskeletal, anatomy of spine and pelvis. Biomechanics of spinal loading, static posture, fundamental aspects of sitting and standing, anatomy – bones, joints, muscles, ligaments, leg and abdominal muscles, physiology of standing, varicose veins, sitting posture, spine problems.

ANTHROPOMETRICS: Designing for a population, statistical essentials, types of anthropometric data, use of anthropometric data, applications of anthropometry in design, Anthropometry in ergonomics.

ERGONOMIC PRINCIPLES: Ergonomic conditions of work, Ergonomic principles- designing workplace, designing working process, determining working time, handling material and tools and designing environment.

ERGONOMIC DESIGN OF WORKPLACE: Storage of textile materials, garment manufacture preparation, cutting room, sewing room, finishing room, garment warehouse and distribution, maintenance workplace and clothing store.

TEXT BOOKS:

REFERENCES:

15FDA6 INTIMATE APPARELS 3 0 0 3

INTIMATE: Types- whole body, upper body and lower body. Classification of kid’s, women’s and men’s intimates. Quality requirements- fibers, fabrics, designs. Physical and physiological health effects of intimate apparel, comfort in intimate apparel.

MEN’S WEAR: Design and development, measurements, drafting procedure and construction sequence – long johns, tank top, tanga, boy shorts, knickers, bikini underwear, thong, boxer briefs, boxer shorts and jockstrap.

WOMEN’S LINGERIE: Design and development, measurements, drafting procedure and construction sequence - waist petticoats, panties, camisoles, spaghetti top, tube top, bikini. Brassiere - technology, innovations, bio-mechanical engineering of bra, basic block of bra pattern. Intimate apparel with special functions - sports bra, panty hose, swimwear, mastectomy bra and maternity underwear.

INNOVATIONS OF GIRDLES - Introduction, historical development of girdles, classification of modern girdles, innovations of shape-up girdles, Inventions of health promoting girdles, materials for girdles, fabric properties in girdle design.

NIGHT WEAR: Design and development, measurements, drafting procedure and construction sequence - night gown, pajamas’, negligee, peignoir and baby doll.

INTIMATE APPAREL ACCESSORIES: Bra wire, hook & eye tape, ring & slider, buckle, plastic bone, elastics and threads.

INTIMATE APPAREL PRODUCTION TECHNOLOGY- Principles, methods, technical aspects and controls of lamination, molding and welding for production of intimate apparels.

TEXT BOOKS:

REFERENCES:

15FDA7 SPORTS WEAR 3 0 0 3

TEXTILES IN SPORTS: Overview, developments in fibres and textile materials for sportswear, design considerations in sportswear, advances in sportswear manufacturing techniques and future trends.

FABRIC SELECTION IN SPORTSWEAR DESIGN: Performance requirements of fabrics for sportswear, waterproof fabrics and finishes, wearable electronics, new approaches in corporate social responsibility, elastomeric fibres, yarns and fabrics in sportswear,
biomimetic textiles for sportswear.

(9)

**KNITTING TECHNOLOGY FOR SEAMLESS SPORTSWEAR:** Manufacturing pipeline of sports garments, requirements for sport garments, methods of manufacturing knitted sports garments, application of seamless technologies in sportswear, advances in non-traditional fabric joining technologies and future trends.

(9)

**SPORTSWEAR FOR PERFORMANCE:** Physiological strain in sports, thermal strain indicators, comfort and discomfort, thermal sensation, sports textiles and clothing in relation to heat loss and sweat; assisting sports performance, requirements for wearable sensors, types of wearable sensors, potential and commercial applications in sportswear, challenges and future trends.

(9)

**SPORTSWEAR FOR PROTECTION:** Heat exchange mechanisms and heat balance, thermal insulation properties of fabrics, overall performance of cold weather sportswear, textiles in recreational and competitive snow sports and designing for future.

(9)

**TEXT BOOKS:**

**REFERENCES:**

**15FDA8 FASHION DENIM WEAR**

**INTRODUCTION:** Overview of denim production, market potential, product ranges, manufactures & brands.

(6)


(8)

**DENIM PROCESSING:** Dyes: properties and characteristics, conditions, requirements, for dyeing & chemistry of dyeing. Machineries: Types of machines, process variables and parameters, factors influencing dyeing. Precautions & developments, assessment of dyed fabrics, processing parameters influencing knitted denims, problems and troubleshooting.

(8)

**DENIM FINISHING & CARE:** Finishing: permanent press, preshrinking, integrated finishing and shrinking range, sanforizing, pre-drying, ammoniation & skewing

(5)

**DENIM GARMENTING:** Men’s wear, children’s wear, style variations, construction sequence, sewing parameters, machineries used, special attachments, sewing threads, seam & stitch parameters, trims, accessories, size & fit requirements, care labeling.

(6)

**DENIM WASHING:** process conditions, machines, chemicals used for special effects – pumice stones, acid and enzyme wash, denim bleaching, biopolishing & biostoning, sand blasting, PP spray, grinding, whiskering, ozone and laser fading

(6)

**UNCONVENTIONAL DENIMS:** Tinted denim, over dyed denim, reverse denim, pseudo denim, stretch denim, peach skin effect, quick wash denim, vintage wash, enzyme – soda wash, dextrose – caustic wash, sueding wash, golf wash, tie ‘n’ wash, marble wash and crush finish.

(6)

**TEXT BOOKS:**

**REFERENCES:**

**15FDA9 GARMENT SIZE AND FIT ANALYSIS**

**ANTHROPOMETRIC DATA SURVEY:** Significance, methodology and statistical compilations, data collection, measuring procedure, accuracy of measurements, subject and sample size selection. Analyzing anthropometric data for developing sizing system, apparel size designation and labeling. International apparel sizing and standardization of sizes.

(8)
SUBJECTIVE AND OBJECTIVE EVALUATION OF CLOTHING FIT: Importance, fit standards, influential factors. Testing methods for dimensional fit, subjective rating scales, subjective fitting guide, algebraic evaluation of clothing fit, clothing waveform, and pressure evaluation of clothing fit and 3D modeling of pressure fit. (10)


GARMENT DESIGN FOR INDIVIDUAL FIT: Pattern alteration for fit, three dimensional apparel design systems for pattern generation and garment fit. Computer design and digital fit of clothing, wearing comfort and body motion analysis. (5)

FITTING SOLUTIONS: Analyzing the causes for poor fit and solving fitting problems in Trouser, sari blouse, skirt, ladies’ top, sherwani. (7)

TEXT BOOKS:

REFERENCES:

15FDAA HUMAN RESOURCE MANAGEMENT

NATURE AND SCOPE OF HUMAN RESOURCE MANAGEMENT: Meaning and Definition of HRM, Objectives and Functions of HRM, Models of HRM, HRM in a changing Environment, Human Resource Management in the wake of Globalization. (4)

TRAINING AND DEVELOPMENT: Principles of Learning, Objectives, Types and Training Methods, Management Development: Its Meaning, Scope and Objectives. (7)

WAGE AND SALARY ADMINISTRATION: Principles and Techniques of Wage Fixation, Job Evaluation, Incentive Schemes. (7)


TEXT BOOKS:

REFERENCES:
15FDAB OPERATIONS MANAGEMENT

INTRODUCTION TO OPERATIONS MANAGEMENT: Operations management – Nature, importance, historical development, transformation processes, differences between services and goods, a system perspective, functions, challenges, current priorities, recent trends - Operations strategy – Strategic fit, framework - Supply chain management

FORECASTING, CAPACITY AND FACILITY DESIGN: Demand forecasting – Need, types, objectives and Steps - Overview of qualitative and quantitative methods, capacity planning – Long range, types, developing capacity alternatives, overview of sales and operations planning, facility location – steps in selection, location models, facility layout – Principles, types, planning tools and techniques.

DESIGN OF PRODUCT, PROCESS AND WORK SYSTEMS: Product design – Influencing factors, approaches, legal, ethical and environmental issues, process – Planning, selection, strategy, major decisions, work study – Objectives, procedure, method study and motion study, work measurement and productivity – Measuring productivity and methods to improve productivity.

MATERIALS MANAGEMENT - Materials management – Objectives, planning, budgeting and control, purchasing – Objectives, functions, policies, vendor rating and value analysis, stores management – Nature, layout, classification and coding, inventory – Objectives, costs and control techniques, overview of JIT.

SCHEDULING AND PROJECT MANAGEMENT - Project management – Scheduling techniques, PERT, CPM, scheduling - Work centers – Nature, importance, priority rules and techniques, shop floor control, flow shop scheduling – Gantt charts, personnel scheduling in services.

15FDAC GLOBAL MARKETING

SCOPE AND CHALLENGES OF INTERNATIONAL MARKETING: Developing global awareness – Strategic orientation – Planning and organizing international marketing: Market entry strategies – Organizational set – up


INTERNATIONAL MARKETING CHANNELS: Channel-of-distribution structures – distribution patterns – alternative choices – selecting, motivating channel members

INTEGRATED MARKETING COMMUNICATIONS AND ADVERTISING: Standardization and adaptation –legal and linguistic limitations – Personal selling and sales management: recruiting, training and motivating sales force – evaluating and controlling

PRICING STRATEGY: Approaches for international marketing – leasing – counter trade – transfer pricing

TEXT BOOKS:

REFERENCES:

STRATEGIC ANALYSIS: Environmental analysis – PESTEL frame work, MC Kinney’s 7S framework, organisation’s strategy with respect to environment. Competitive forces – porter’s five forces framework Internal analysis – Resources, critical success factor (CSF), quantitative and qualitative assessments, SWOT analysis and bench marking. (9)

BUSINESS LEVEL STRATEGY: Cost analysis – causes and effects of high costs, influence of market conditions on cost, Experienced curve: Causes of experience curve effect, experience curve and competitive strategy and limitations of experience curve. Differentiation and focus strategies. (9)

CORPORATE LEVEL STRATEGY: Growth strategies – Expansion: Expansion through intensification and integration, international expansion. Diversification – concentric, conglomerate, alternate routes of diversification: mergers and acquisitions strategic partnering. (9)

STRATEGIC IMPLEMENTATION: Structural dimensions – matching organisation structure to strategy, determinants of organisation structure. Forms of organizations, strategy related benefits and limitations. Behavioral dimensions – role of leadership, functions of leadership, leadership styles. (8)

STRATEGY CONTROL AND EVALUATION: Strategic control process and evaluation, business port folio analysis – BCG Matrix, GE’s business planning grid. (6)

TEXT BOOKS:

REFERENCES:

TOTAL QUALITY MANAGEMENT: Quality, quality planning, quality control, quality assurance, total quality management. TQM axioms – commitment, scientific knowledge, involvement. Consequences of total quality, total quality management excellence model (TQMEX). (6)

DEMING AND JURAN APPROACH TO TQM: Deming’s fourteen points for quality management, five deadly sins and diseases, Implementing Deming’s philosophy, Deming’s cycle, opinions of Deming. Juran Approach - habit of quality, quality trilogy, universal break through sequence, Comparison of Juran and Deming approaches. (8)

CROSBY AND QUALITY TREATMENT: Crosby's quality vaccine, Crosby's absolutes for quality management, fourteen steps for quality improvement. (5)

BUILDING BLOCKS OF TQM: Kaizen – objectives, Kaizen and Innovation. Total productive maintenance - Failure mode & effect analysis, Eight pillars of TPM. (5)


MANAGEMENT SYSTEMS FOR TQM: ISO 9000 system – concepts, classifications and benefits. ISO 9001 - requirements and implementation in apparel industry. ISO 14001 – triggers for adopting environment management system, implementation. (6)

15FDAF BUSINESS ETHICS & SOCIAL RESPONSIBILITY

INTRODUCTION: Definition & nature Business ethics, Characteristics, Ethical theories; Causes of unethical behavior; Ethical abuses; Work ethics; Code of conduct; Public good.

ETHICS THEORY AND BEYOND: Management of Ethics - Ethics analysis [Hosmer model]; Ethical dilemma; Ethics in practice ethics for managers; Role and function of ethical managers- Comparative ethical behaviour of managers; Code of ethics; Competitiveness, organizational size, profitability and ethics; Cost of 30 ethics in Corporate ethics evaluation. Business and ecological / environmental issues in the Indian context and case studies.

LEGAL ASPECTS OF ETHICS: Political – legal environment; Provisions of the Indian constitution pertaining to Business; Political setup – major characteristics and their implications for business; Prominent features of MRTP & FERA. Social – cultural environment and their impact on business operations, Salient features of Indian culture and values.

ENVIRONMENTAL ETHICS: Economic Environment; Philosophy of economic grow and its implications for business, Main features of Economic Planning with respect to business; Industrial policy and framework of government contract over Business; Role of chamber of commerce and confederation of Indian Industries.

CORPORATE SOCIAL RESPONSIBILITY AND GOVERNANCE: Definition- Evolution- Need for CSR; Theoretical perspectives; Corporate citizenship; Business practices; Strategies for CSR; Challenges and implementation; Evolution of corporate governance; Governance practices and regulation; Structure and development of boards; Role of capital market and government; Governance ratings; Future of governance- innovative practices; Case studies with lessons learnt.

Total L:45

TEXTBOOKS:

REFERENCES:
2. Philip Kotler and Nancy Lee, Corporate social responsibility: doing the most good for company and your cause, Wiley, 2005.

15FDAG INTELLECTUAL PROPERTY RIGHTS

INTRODUCTION TO INTELLECTUAL PROPERTY RIGHTS: Basic concepts of Intellectual Property- Patents Copyrights, Geographic Indicators, History of IPRs the way from WTO to WIPO- TRIPS, Nature of Intellectual Property, Industrial Property, Technological Research, Inventions and Innovations.

NEW DEVELOPMENTS: Procedure for grant of Patents, TM, GIs, Trade Secrets, Patenting under PCT, Administration of Patent system in India, Patenting in foreign countries.


NATIONAL CONVENTIONS: Strategies for investing in R&D, Patent Information and databases, IPR strength in India, Traditional Knowledge, Case studies.

Total L:45
INTELLECTUAL PROPERTY VALUATION: The technologies, Know how, concept of ownership, Significance of IP in Value Creation, IP Valuation and IP Valuation Models, Application of Real Option Model in Strategic Decision Making, Transfer and Licensing. (9)

TEXT BOOKS:
2. Intellectual Property rights and copyrights , Ess Ess Publications.

REFERENCES:

15FDAH FASHION JOURNALISM 3 0 0 3


REPORTING AND EDITING: Definition, scope, concept & principles of news reporting, types of reporting: Investigative, Cultural, Political, Seminar and civic issues, functions of reporting - interview, collection of data, research. Types and techniques of news reporting. Qualities and responsibilities of a reporter. Editing - Theories and principles of Editing, Preparing good copies for Newspaper, Magazine & others. Introduction to editing symbol, proof reading symbols and copy desk. Role, functions and responsibilities of Copy editor. (10)


FASHION NEWSWRITING: Media analysis, fashion and contemporary culture, interviewing, photography and styling, fashion journalism for internet and broadcast media research, theoretical studies, fashion criticism, feature and fashion writing, producing a publication, design history, cultural gender studies. (8)

TEXT BOOKS:

REFERENCES:

15FDAI FASHION ADVERTISING AND PROMOTION 3 0 0 3

ADVERTISING: Concept, objectives, functions, principles of advertisement, social, economic and legal implications of advertisements, setting advertisement objectives, advertisement agencies – Selection and remuneration, advertisement campaigns – case studies. (9)

ADVERTISEMENT MEDIA: Media plan – Type and choice criteria – Reach and frequency of advertisements – Cost of advertisements - related to sales – Media strategy and scheduling, design and execution of advertisements -Message development – Different types of advertisements – Layout – Design appeal – Copy structure – Advertisement production – Print – Radio. T.V. and

SALES PROMOTION: Scope and role of sale promotion – Definition – Objectives of sales promotion - sales promotion techniques – Trade oriented and consumer oriented. Sales promotion – Requirement identification – Designing of sales promotion campaign – Involvement of salesmen and dealers – Out sourcing sales promotion national and international promotion strategies – Integrated promotion – Coordination within the various promotion techniques – Online sales promotions- case studies.


TEXTBOOKS

REFERENCES

15FDAJ ORGANIZATIONAL BEHAVIOR

INTRODUCTION TO ORGANIZATIONAL BEHAVIOR: Meaning & Importance, Hawthome studies, Basic organisational behaviour model, different approaches to organisational behaviour, significance of organisational behaviour.

PERSONALITY AND PERCEPTION: Personality - Personality and its determinants, Big Five Personality Traits, Personality Types & Attributes, Myers – Briggs Type Indicator and other primary traits, Major Personality attributes influencing organisational behaviour. Perception: Meaning, Perceptual Process, Selective attention (Sensory Perception), Perceptual Barriers, Overcoming Perceptual distortion, Social Identity theory, Attribution Theory, Values and Attitudes.

EMOTIONAL INTELLIGENCE AND MOTIVATION: Emotional intelligence - Definition, Categories of emotions, EI Dimensions, organisational behaviour applications of emotions. Motivation: Definition, characteristics, process, theories and proorganisational behaviourlems.

LEADERSHIP and GROUP DYNAMICS: Leadership - Foundations, Theories of Leadership styles and Effectiveness, Recent Approaches. Group Dynamics: Difference between Group and team, Types of Groups, Model for team effectiveness, Troubles with team and social loaing.

ORGANIZATIONAL CULTURE: Introduction, Characteristics of an Organizational Culture, Elements of Organizational Culture, Importance of Sub - culture, Dimensions of culture, Artifacts, Adaptive culture and bi-culture audit, Changing and Strengthening culture,


TEXT BOOKS:

REFERENCE
OPEN ELECTIVES
DEPARTMENT OF PHYSICS
15QH27 COLOUR SCIENCE 3 0 0 3


COLOUR PERCEPTION: The nature of colour-The physical basis of colour, The human colour vision system. Theories of colour vision, Hue, Luminosity, Lightness, Saturation, Reducing power and Opacity. (7)

COLOUR DESCRIPTION: Arrangement of colour, visual attribution of colour, Beer-Lambert’s law, colour primaries and colour mixing, additive and subtractive colour mixing, colour specification, colour order systems – Munsel colour order system and Ostwald colour order system. (8)

COLOUR MEASUREMENT: Principles of colour measurement, Tristimulus values, CIE diagram, standard Illuminant, standard observer, spectral reflectance, graphic representation, numeric representation. (8)


COMPUTER COLOUR MATCHING: Concept of computer colour matching (CCM) system. Application of CCM system to Textile processing. Advantages of CCM system. Limitations of CCM system. Colour constancy and materialism. (8)

Total L: 45

TEXT BOOKS:

REFERENCES:

15QH28 PLASMA AND PROCESSING OF TEXTILES 3 0 0 3

BASICS OF GASES: Masses and Number of atoms, kinetic energy and temperature, mean speed , pressure, Avogadro’s Laws, number density of gases, impingement flux, monolayer formation time, mean free path, probability of collision, energy transfer and collision frequency. Gas flow types. (9)

COLLISION PROCESS: Ionization, excitation, relaxation, recombination, dissociation, electron attachment, Ion-neutral collisions, metastable collisions.

(9)


PLASMA DIAGNOSTICS: Plasma diagnostics: Electrical probe techniques, spectroscopic methods, Optical emission Spectroscopy, Magnetic diagnostics. (9)

SURFACE INTERACTION OF TEXTILE WITH PLASMA: Etching effects of Plasma on Substrate Surface, Radical Formation on Substrate Surface, Chain Scission of Surface Molecules on Polymer Substrate, Cross-linking Formation, Functionalization on Polymer Surface by Gas Plasma Treatment, Plasma Polymerization (Deposition) (9)

Total L: 45

ECOSYSTEM AND BIODIVERSITY: Concept of ecosystem – food chain and food web – energy flow –characteristic features, structure and function of the forest, grassland and aquatic ecosystem. Biodiversity – types, values and threats to biodiversity – conservation of biodiversity. (9)


Total L : 45
TEXT BOOKS:

REFERENCES:


GOING GREEN: Green dyeing – building the green house – eating green – drinking green – green office – green resources. Global environmental issues and green computing methods. (9)

TEXT BOOKS:

REFERENCES:

15QH44 INDUSTRIAL CHEMISTRY 3 0 0 3


CORROSION AND ITS CONTROL: Chemical and electrochemical corrosion – mechanisms. Galvanic corrosion, concentration cell corrosion - atmospheric corrosion, pitting corrosion and crevice corrosion. Stress corrosion, corrosion fatigue, fretting and cavitation. Factors influencing corrosion. Corrosion prevention and control - material selection and design - cathodic protection - use of inhibitors. (11)


TEXT BOOKS:

REFERENCES:

Total L: 45
DEPARTMENT OF ENGLISH

15QF10 CORPORATE COMMUNICATION

MANAGERIAL SKILLS THROUGH COMMUNICATION: Self – Management through Intrapersonal Communication- Interpersonal Skills-Negotiation and Persuasion Skills  
(6)

LEADERSHIP SKILLS: Team Building- Team Maintenance Roles - Decision Making- Conflict Management- Case Analysis  
(9)

INTER CULTURAL COMMUNICATION: Understanding diverse social contexts-managing cultural differences- Social Etiquette  
(3)

PROFESSIONAL WRITING: Principles of Business Correspondence - Business Letters, Memos, Reports and Proposals  
(8)

LANGUAGE FOCUS: Preparation for International Language Proficiency Tests  
(6)

ORAL SKILLS: Public Speaking-Project/ Case Presentation –Using Visual Aids professionally - Telephone Etiquette  
(4)

INTERVIEWS: Principles and Practices- Mock Interviews- Telephone Interviews  
(5)

PROFESSIONAL ETHICS: Focus on ethical practices and human values drawn from literary works of inspiring personalities  
(4)

Total L: 45

TEXTBOOK:
1. Monograph prepared by the Faculty, Department of English, 2015.

REFERENCES:

DEPARTMENT OF APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCES

15QH82 OPTIMIZATION TECHNIQUES

LINEAR PROGRAMMING: Graphical method for two dimensional problems – Central problems of Linear Programming – Definitions – Simplex Algorithm – Phase I and Phase II of Simplex Method.  
(8)

CONVEX OPTIMIZATION: Convex sets and cones- Convex functions- Convex optimization problems- linear and quadratic programs; second-order cone and semi-definite programs; quasi-convex optimization problems; vector and multi-criterion optimization.  
(5)

(7)

INTEGER PROGRAMMING: Gomory cutting plane methods for all integer and mixed integer programming problems - Branch and Bound method (Land – Dolg and Dakin algorithms) – Zero-One Implicit enumeration Algorithm.  
(5)

(5)

TUTORIAL PRACTICE:
1. Solving inequalities using Simplex, Two-phase, Dual simplex methods, Revised simplex method.
2. Finding initial basic feasible solution using (i) North-West corner rule(ii) Matrix minimum and (iii) Vogel's approximation method and also perform optimality test using MODI method.
4. Gomory's cutting plane methods for all IPP and mixed IPP.
6. Critical path for the given PERT and CPM networks.

**TEXT BOOK:**

**REFERENCES:**

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**15QH91 DATABASE MANAGEMENT SYSTEM**


(7)

**DATA MODELING:** Introduction – Data associations – Entities, attributes, relationships – Type role and structural constraints – Weak and Strong entity types – Design of Entity Relationship data models (ERD) – Generalization – Aggregation – Conversion of ERD into tables – Applications.

(3)

**FILE ORGANIZATION:** Storage device characteristics – Constituents of a file – Operations on file – Serial files – Sequential files – Index sequential files – Direct files – Primary and Secondary Key Retrieval – Types of indexes - Indexing using Tree Structures.

(6)

**RELATIONAL MODEL:** Introduction to Relational Data Model – Basic concepts – Enforcing Data Integrity constraints – Relational Algebra Operations – Extended Relational Algebra Operations

(3)


(8)


(3)

**TUTORIAL PRACTICE:**
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1. Working with DDL and DML commands of SQL for creation and manipulation of single, multiple tables.
2. Working with triggers and stored procedures.
3. Developing a package using a database.
   Note: Problem sheets will be provided.

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**TEXT BOOKS:**

**REFERENCES:**

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**15QH92 C PROGRAMMING**

**PROBLEM SOLVING:** Introduction to Problem Solving- Program development- Analyzing and Defining the Problem- Modular Design – Algorithm - Flow Chart - What is a programming language-Types of programming language- Program Development Environment.
C LANGUAGE: Introduction to C Language - C character set - Identifiers and Keywords - Data Types - Constants - Variables - Arrays - Declarations - Expressions - Statements - Symbolic constants - Operators and Expressions - Library Functions - Data Input and Output Functions.


FUNCTIONS: Defining Function - Accessing a Function - Passing Arguments to Functions - Specifying Arguments Data Types - Function Prototypes - Storage Classes - Auto - Static -Extern and Register Variables.

ARRAYS: Defining Array – Processing array - Passing array to a function - Multi dimensional array - Array and strings.

POINTEERS: Declarations - Pointers to a function - Pointers and one dimensional arrays - Operating a pointer - Pointer and multi-dimensional arrays - arrays of pointers.

Enumerated Data Type – Typedef - Preprocessor Directives - Command Line Arguments.

TUTORIAL PRACTICE:
1. Simple programs to understand the concepts of data types.
2. Familiarizing conditional, control and repetition statements.
3. Usage of single and double dimensional arrays including storage operation.
4. Implementation of functions, recursive functions.
5. Implementation of pointers, operation on pointers and dynamic storage allocation.

Total L: 30+T: 30 = 60

TEXT BOOKS:

REFERENCES:

15QH93 WEB DESIGNING

INTRODUCTION: WWW – presentation / business logic layer-Browser architecture – HTTP architecture, Methods.


TUTORIAL PRACTICE:
1. Explore the purpose of various HTML tags.
2. Create a simple website using html.
3. Create a website using CSS.
4. Design HTML forms and validate using JavaScript.
5. Create and upload a website to the web using FTP.

Total L: 30+T: 30 = 60

TEXT BOOKS:

REFERENCES:
15QH94 COMPUTER GRAPHICS FOR VIRTUAL REALITY


OpenGL GRAPHICS PROGRAMMING: The OpenGL API, Primitives and Attributes, Color, Control functions, Adding Interaction. VIEWING: Positioning of the Camera, Parallel Projections, Perspective Projections, OpenGL Projection Matrices. (4)


TRANSFORMATIONS: Affine Transformations - Translation, Rotation, and Scaling, Transformations in Homogeneous Coordinates, Concatenation of Transformations, Transformation Matrices in OpenGL, Interfaces to Three-Dimensional Applications. (5)

VERTICES TO FRAGMENTS: Basic Implementation Strategies, Four Major Tasks, Clipping - Line Clipping, Polygon Clipping, Clipping of Other Primitives, Clipping in Three Dimensions, Polygon Rasterization, Hidden-Surface Removal, Antialiasing, and Display Considerations. (5)


TUTORIAL COMPONENT:
1. rawing basic 2D and 3D primitives in OpenGL.
2. onstruct the primitives with different color models and simulate the conversion from one model to another.
3. mplementation of 2D transformations: Translation, Scaling, Rotation and Shearing.
4. mplementation of 3D transformations: Translation, Scaling, and Rotation.
5. ine clipping and polygon clipping using algorithms.
7. eneration of fractal curves and landscapes using algorithms
8. evelop an animation sequence to illustrate the concepts of motion specification, kinematics and dynamics.

Total L: 30+T:30 = 60

TEXT BOOKS:

REFERENCES:

DEPARTMENT OF FASHION TECHNOLOGY
15HH04 INDUSTRIAL ENGINEERING
INDUSTRIAL ENGINEERING: Definition, scope, role of industrial engineer, functions and concepts. (4)

PRODUCTIVITY: Definition, measurement methods, basic work content and added work content, reduction of work content and ineffective time. Causes for low productivity in apparel industry, suggestions for productivity improvement. Manufacturing productivity solutions. Work study- Definition, techniques, procedure. Work study and productivity. (6)

METHOD STUDY: Definition, procedure, process chart and symbols. Charts indicating process sequence- outline process chart, flow process charts (man type, material and equipment type); charts using time scale –multiple activity chart; Diagrams indicating movement – flow diagram, string diagram, cycle graph, chrono cycle graph, travel chart. Illustrated examples from apparel industry. (8)

MOTION STUDY: Operation analysis, motion analysis, motion economy, two handed process chart, micro motion analysis – SIMO Chart. Examples from apparel Industry. (6)

WORK MEASUREMENT: Definition, procedure, techniques - time study: equipments, forms, procedure, rating, allowances and calculation of standard allowable minutes (SAM). Predetermined motion time standards (PMTS), Work sampling, Standard data-General Sewing Data (GSD). Latest developments in work measurement. Examples from apparel industry. (9)

WORK ENVIRONMENT & SERVICES: Work Environment: Lighting, ventilation, climatic condition – temperature control, humidity control, noise control, safety and ergonomics. Services- physical plant, production, personnel, administration, convenience related. (5)

PLANT LAYOUT & MATERIAL HANDLING: Layout: Layout planning and development, types of layout – fixed, process, product, group and combination. Layout for apparel industry. Material Handling: Objectives, classifications of material handling equipments, descriptions and characteristics of material handling equipments, specialized material handling equipments related to apparel industry. (7)

TEXT BOOKS:

REFERENCES:

15HH05 LEAN MANUFACTURING OF APPARELS

LEAN MANUFACTURE: Objectives, key principles and implications, traditional manufacturing Vs lean manufacturing, benefits. (4)

CONCEPTS: Value creation and waste elimination - major kinds of waste, pull production, continuous improvement. Group Technology: Production flow analysis, cellular manufacturing system. (10)

TOOLS & METHODOLOGIES: Standard work - communication of standard work to employees, visual controls, 5S principles, preventive maintenance, total quality management, total productive maintenance. Case studies. (10)

VALUE STREAM MAPPING: The as-is diagram, the future state map, line balancing, poke yoke, kanban, overall equipment effectiveness. (7)

JUST IN TIME MANUFACTURING: Concept, elements, implementation. Case studies. (6)

IMPLEMENTATION: Road map, senior management involvement, barriers, challenges, creation of lean culture, best practices in apparel industry. Case studies. (8)

TEXT BOOKS:

REFERENCES:
DEPARTMENT OF TEXTILE TECHNOLOGY

15TH06 TECHNICAL TEXTILES

INTRODUCTION: Definition, Classification of Technical Textiles. Market potential, Application of Technical textiles, fiber consumption, fiber requirements and properties.

INDUSTRIAL TEXTILE: Tyres - Tire Cord Yarns and Fabrics - Quality requirements - Fibre properties - Manufacturing techniques. Belts - Conveyor and power transmission, Composition of belts, Carcass cords, fabrics. Hose fabrics - Definition and characteristics of hoses, reinforcement, Construction and types


PROTECTIVE TEXTILES: Definition. Basic requirements. Applications - Mechanical, thermal, electrical, radiation, insect protection. Military and defence clothing.

MEDICAL TEXTILES: Introduction, fibers - stricture and property requirements, non-implantable materials, extracorporeal devices, Implantable materials, Healthcare and hygiene products


TEXT BOOKS:

REFERENCES:

15TH07 INDUSTRIAL TEXTILES

INTRODUCTION TO INDUSTRIAL TEXTILES: Definition, classification, market overview and growth projections of industrial textiles.


OTHER INDUSTRIAL TEXTILE PRODUCTS: Cords, ropes, belts and their types, method of production, characteristics and applications. Manufacture and properties of textiles used in scrub pads, waddings, battery separators, computer ribbons and coated
abrasives.

(9)

**TRANSPORTATION TEXTILES:** Automotive textiles: Requirement and design for pneumatic tyres, airbags, belts, carpets, sound absorption pads and car interiors. Methods of production and properties of textiles used in these applications. Other Transportation applications: Properties of textiles used in rail and aircrafts.

(9)

**TEXTILES IN CIVIL ENGINEERING:** Geotextiles: Functions and application areas of geotextiles. Fibres and fabric selection criteria for geotextile applications. Manufacture of woven and nonwoven geotextiles. Evaluation of geotextiles. Other Civil Engineering Applications: Properties of textiles used in civil construction, architectural and ocean engineering application

(9)

**TEXTILES IN AGRICULTURE:** Requirement and properties of textiles used in crop covers, bird netting, shade fabrics, soil mats, sacks and silos. **Textiles in Packaging:** Requirement and properties of textiles used in food packaging, bags and luggage.

(6)

**REFERENCES:**


(5)


(8)


(8)

**FINISHING OF NONWOVENS:** Mechanical finishing – shrinking, compacting and creping, calendaring, pressing, perforating, slitting, breaking, raising, shearing, singeing, sewing. Chemical finishing – washing, dyeing, printing, finishing, softening, special effects, coating, laminating and flocking.

(8)


(8)


(8)

**TEXT BOOKS:**


**REFERENCES:**