

SEMESTER IX

18FD91 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 blocs – 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 2015 – 2020 EXIM policy, various schemes – duty drawback, duty exemption , duty remission, EOU , free trade zones, SEZ, market access initiative, market development assistance, TUFs, 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, forfeiting, 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)

Total L:60

TEXT BOOKS:

1. Subramanian S, Balagopal T A S, "Export Marketing", Himalayan Publishing House, Mumbai, 2010.
2. Varshney R L, Bhattacharya B, "International marketing management – An Indian perspective", Sultan chand and sons, New Delhi, 2009.

REFERENCES:

1. Warren J Keegan, "Global Marketing Management", 7th edition, Pearson education, New Delhi, 2005.
2. Hearle J W S, Hines T and Suh M, "Global Marketing of Textiles", Journal of Textile Institute, Manchester, 1997.
3. Pradeep Joshi, "Apparel and textile exports strategies of WTO Era", CBS publishers and distributors, New Delhi, 2006.

18FD92 STORE PLANNING AND DISPLAY TECHNIQUES

3 0 0 3

STORE PLANNING AND DESIGN: Functions of a store planner, floor plans – drawing to scale, materials; reading a floor plan – architectural symbols, store planning symbols, dimensional drawing. (8)

POINT OF PURCHASE DISPLAY (POP): POP, application, users. Designing the PoP unit, specialist in PoP design, PoP fixtures and checklist. Signage and graphics - signage – types of signs, sign materials, letter materials, sign layout, key points in creating signs; graphics – development, images, classification. (10)

MATERIALS AND PROPS: Materials – boards, fabric, paper, paint, carpet, wood, other materials. Props – objects, furniture, merchandise used as props, display house props, in-house constructions. (8)

EXHIBIT AND TRADESHOW DISPLAY: Industrial display – types of exhibits, planning the exhibit, graphics lighting, special effects. (9)

EXECUTION OF VISUAL PRESENTATION: Selecting a merchandise, preparing the merchandise, assembly props and materials, preparing the display space, selecting the mannequin and forms, preparing the lighting, installing the display, display sketches, graphic floor plan, developing specific display (10)

Total L: 45

TEXT BOOKS:

1. Diamond,J, "Contemporary visual merchandising and environmental design", Prentice Hall, New Jersey,2006.
2. Martin M.Pegler, "Visual Merchandising and Display", Berg Publishers, UK, 2006.

REFERENCES:

1. Elaine stone, "Fashion Merchandising – An Introduction", New York, 2001.
2. Swati Bhalla and Anuraag S. "Visual Merchandising", Tata McGraw-Hill Education, New Delhi, 2010.

18FD93 ENTREPRENEURSHIP

3 0 0 3

INTRODUCTION TO ENTREPRENEURSHIP: Definition – characteristics and functions of an entrepreneur – common myths about entrepreneurs, importance of entrepreneurship. Creativity and innovation - the role of creativity, the innovation process, sources of new ideas, methods of generating ideas, creative problem solving, entrepreneurial process. (12)

FORMS OF BUSINESS ORGANIZATION: Sole proprietorship, partnership, limited liability partnership, joint stock companies and cooperatives. (5)

APPRAISAL OF PROJECTS: Importance of evaluating various options and future investments- entrepreneurship incentives and subsidies , appraisal techniques. (5)

DEVELOPING AN EFFECTIVE BUSINESS MODEL: The importance of a business model, starting a small-scale industry, component of an effective business model. Financing the new venture - determining financial needs, sources of financing, equity, and debt funding. Case studies in evaluating financial performance. (11)

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. Intellectual property protection and ethics - Patents, copyright, trademark, geographical indications – ethical and social responsibility and challenges. (12)

Total L: 45

TEXT BOOKS:

1. Donald F.Kuratko and Richard M.Hodgetts, "Entrepreneurship", South-Western.
2. The Dynamics of Entrepreneurial Development and Management, Vasant Desai, Himalaya Publishing House, 2010.

REFERENCES:

1. S.L.Gupta and Arun Mittal, Entrepreneurship Development, International Book House, 2012.
2. G. S. Sudha, Management and Entrepreneurship Development, Indus Valley Publication, 2009.
3. V. Badi and N. V. Badi , Business Ethics, R, Vrinda Publication (P) Ltd., 2012.

18FD96 RETAIL PLANNING LABORATORY

0 0 4 2

1. Identify suitable store location and select a site for fashion retail outlet.
2. Develop strategic & tactical plan to retail a fashion product.
3. Develop a HR Plan for retail business.
4. Plan and allocate merchandise and analyze the performance of merchandise. Execute Supply Chain Management.
5. Plan and create promotions for the retail store.
6. Plan and execute visual merchandising for the store.
7. Analyze stock data & consumer data.
8. Develop an estimation for budget and turnover.

Total P: 60

REFERENCE:

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

18FD97 SPECIALITY WEAR LABORATORY

0 0 4 2

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 of garments for the same.
3. Drafting patterns for the designed garments.
4. Constructing garments for the drafted patterns.
5. Analyzing fit and comfort for the developed garments.

Total P:60

REFERENCE:

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

18FD98 PORTFOLIO DEVELOPMENT

0 0 4 2

1. Preparing the resume stating your design philosophy to express your attitude towards fashion.
2. Compiling all the stylized illustrations, surface embellishment, accessory designs, creative graphic work and photography.
3. Presenting the design 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.

Total P:60

SEMESTER X

18FD02 PROJECT WORK II

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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 industry/ research organization shall be jointly supervised by a faculty guide and an expert from the organization.

PROFESSIONAL ELECTIVES

18FDA1 THEATRE AND FILM COSTUMES

3 0 0 3

INDIAN THEATRE: Theatre evolution – ritual to theatre, western, eastern, and Indian theatre - sanskrit theatre and devotional theatres. (12)

THEATRE COSTUMES: Study of regional theatre, modern theatre and dance costumes; theatre practitioners, image-makers. (11)

FILM COSTUMES: Fundamentals of costume design for film, design objectives, costume designer's process, the role of costume designer in film and television. (11)

COSTUME DESIGN: Developing design for film costumes, speciality costumes, accumulating, assembling and fitting the costumes. (11)

Total L:45

TEXT BOOKS:

1. H. S. Shiva Prakash, "Incredible India - Traditional Theatres", Wisdom Tree, New Delhi, 2007.
2. Sonal Mansingh "Incredible India – Classical Dances", Wisdom Tree, New Delhi, 2010.

REFERENCES:

1. Karen Brewster and Melissa Shafer, "Fundamentals of Theatrical Design", Allworth Press, New York, 2011.
2. Milly S. Baranger, "Theatre – a way of seeing", Cengage Learning, USA, 2015.
3. Richard La Motte, "Costume Design 101", Heinemann, Portsmouth, Michael Wiese Productions, USA, 2nd edition, 2010.
4. Holly Colle and Kristin M. Burke, "Costuming for film", Silman James, 1st edition, 2005.

18FDA2 FOOTWEAR DESIGNING

3 0 0 3

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. (9)

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. (6)

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. (9)

SEWING: Seam – types; edge treatments – types and machines used. Binding - materials used and application process. Finishing – types for different parts of footwear. (9)

FITTING AND TESTING: Judging the fit. Care and maintenance of footwear. Testing and quality assessment - Universal testing machines, methods and standards. Packing and marketing. (8)

Total L:45

TEXT BOOKS:

1. Elinor Renfrew and, Colin Renfrew, "Basics Fashion Design: Developing a Collection", AVA publishing , SA, 2009.
2. Tim Skyrme, "Bespoke Shoemaking, A Comprehensive Guide to Handmade Footwear", Artzand Publications , UK,2006.

REFERENCES:

1. Lazlo Vass and Magda Molnar, Handmade Shoes for Men, Hf Ullmann, Germany, 2010.
2. Sue Huey and Rebecca Proctor, "New Shoes: Contemporary Footwear Design", Laurence King Publishers, UK, 2011.
3. Jonathan Walford and Shoes A-Z: Designers, Brands, Manufacturers and Retailers, Thames & Hudson,UK, 2010.

18FDA3 WORLD ART AND CRAFT

3 0 0 3

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. (12)

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. (11)

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. (11)

ART AND CRAFT OF AFRICA AND MIDDLE EAST: Study of art and craft of Egypt, Kenya, Morocco, South Africa, Saudi Arabia, Jordan, Oman, Yemen, Turkey, Israel and Iran. (11)

Total L: 45

TEXT BOOKS:

1. Marilyn Stokstad and Michael W. Cothren, "Art History", Vol. 1 & 2, Pearson Publishers, New York, 2017.
2. Christina Maranci, "A Survival Guide for Art History Students", Pearson Publishers, New York, 2005.

REFERENCES:

1. Anne D'Alleva, "Methods and Theories of Art History", Laurence King Publishing, 2nd edition, London, 2012.

18FDA4 GARMENT TRIMS AND ACCESSORIES

3 0 0 3

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, thread loops, 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:

1. Jay Diamond and Ellen Diamond, "Fashion Apparel, Accessories and Home Furnishings", Pearson Prentice Hall, New Jersey, 2007.
2. Elaine Stone, "The Dynamics of Fashion", Fairchild Publications, New York, 2001.

REFERENCES:

1. Jennette A. Jarnow, "Inside the Fashion Business", Macmillan publishing, New York, 1999.
2. Gini Stephen Frings, "Fashion Concept to Consumer", Prentice Hall, New Jersey, 2004.
3. Harrold Carr and Barbara Latham, "Technology of Clothing Manufacture", Blackwell Scientific Publications, UK, 2000.
4. Ruth E. Glock and Grace I Kunz, "Apparel Manufacturing Sewn Product Analysis", Prentice Hall, New Jersey, 2004.

18FDA5 ERGONOMICS IN APPAREL INDUSTRY

3 0 0 3

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. (10)

ANTHROPOMETRICS: Designing for a population, statistical essentials, types of anthropometric data, use of anthropometric data, applications of anthropometry in design, anthropometry in ergonomics. (8)

ERGONOMIC PRINCIPLES: Ergonomic conditions of work, ergonomic principles- designing workplace, designing working process, determining working time, handling material, tools and designing environment. (8)

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. (9)

Total L: 45

TEXT BOOKS:

1. Gordana Colovic, Ergonomics in the garment industry, Woodhead Publishing, India, 2014.
2. Bridger R S, Introduction to Ergonomics, CRC press, India, 2009.

REFERENCES:

1. John A., Jr. Roebuck, Anthropometric Methods: Designing to Fit the Human Body (Monographs in Human Factors and Ergonomics), Amazon, 1995.
2. K.H.E. Kroemer, H.B. Kroemer, K.E. Kroemer-Elbert, "Ergonomics: How to Design for Ease and Efficiency (2nd Edition), Prentice hall, 2001.

18FDA6 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. (6)

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. (7)

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. (7)

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. (6)

NIGHT WEAR: Design and development, measurements, drafting procedure and construction sequence - night gown, pajamas', negligee, peignoir and baby doll. (6)

INTIMATE APPAREL ACCESSORIES: Bra wire, hook & eye tape, ring & slider, buckle, plastic bone, elastics and threads. (7)

INTIMATE APPAREL PRODUCTION TECHNOLOGY- Principles, methods, technical aspects and controls of lamination, molding and welding for production of intimate apparels. (6)

Total L:45

TEXT BOOKS:

1. W. Yu, J. Fan, S.C. Harlock and S.P. Ng "Innovation and Technology of Women's Intimate Apparel", Woodhead Publishing Limited, England, 2006.
2. Ann Hagggar, " Pattern Cutting For Lingerie, Beach Wear And Leisure Wear", Black Well Science Limited, France, 2001.

REFERENCES:

1. Lynn Nottage, "Intimate Apparel / Fabulation", Theatre Communications Group, USA, 2006.
2. Stokes Terry, "Intimate Apparel", Brooklyn: Release Press, USA, 1980.

18FDA7 SPORTS WEAR

3 0 0 3

FABRIC SELECTION IN SPORTSWEAR DESIGN: Design considerations in sportswear and advances in sportswear manufacturing techniques, performance requirements of fabrics for sportswear, waterproof fabrics and finishes, wearable electronics, new approaches in corporate social responsibility, elastomeric fibers, yarns and fabrics in sportswear, biomimetic textiles for sportswear. (12)

KNITTING TECHNOLOGY FOR SEAMLESS SPORTSWEAR: Manufacturing pipeline of sports garments, requirements for sports garments, methods of manufacturing knitted sports garments, application of seamless technologies in sportswear, advances in non-traditional fabric joining technologies and future trends. (11)

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. (11)

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. (11)

Total L: 45

TEXT BOOKS:

1. Roshan Shishoo, "Textiles for Sportswear", Woodhead Publishing, Cambridge, 2015.
2. Marie O'Mahony and Sarah E. Braddock, "Sportstech", Thames & Hudson, London, 2002.

REFERENCES:

1. Klaus N. Hang, Sportswear International, "The Sports Bible", DFV Publishing Group, Frankfurt, 2008.
2. Joy McKenzie, "The Best in Sportswear Design", BT Batsford, London, 1997.
3. Susan M. Watkins and Lucy E. Dunne, "Functional Clothing Design", Fairchild Books, London, 2015.

18FDA8 FASHION DENIM WEAR

3 0 0 3

DENIM MANUFACTURING: Overview of denim production. Yarn characteristics, pre- requisites, quality requirements, spinning & yarn dyeing & sizing. Lycra: Properties, yarn parameters, influencing denim manufacturing. Fabric - Characteristics, types, fabric parameters, factors influencing denim manufacturing, fabric faults, manufacture of lycra denim, knit denim. (11)

DENIM PROCESSING AND FINISHING: Dyes: properties, characteristics, conditions, requirements, for dyeing & chemistry of dyeing, Machinery - types, process variable, parameters, factors influencing dyeing. Precautions & developments, assessment of dyed fabrics, processing parameters influencing knitted denims, problems and troubleshooting. Finishing - permanent press, preshrinking, integrated finishing and shrinking range, sanforizing, pre-drying, ammoniation & skewing. (12)

DENIM GARMENTING AND WASHING: Men's wear, children's wear, style variations, construction sequence, sewing parameters, machinery used, special attachments, sewing threads, seam & stitch parameters, trims, accessories, size & fit requirements, care labeling. Washing - process conditions, machines, chemicals used for special effects – pumice stones, acid and enzyme wash, denim bleaching, bio polishing & bio stoning, sand blasting, PP spray, grinding, whiskering, ozone and laser fading. (12)

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. (10)

Total L: 45

TEXT BOOKS:

1. Parmar M.S., Satsangi S.S and Jai Prakash, "Denim – A fabric for all", NITRA Publications, 1996.
2. Li Y, "Denim Apparel Design, Manufacture and Finishing", CRC Press, 2005.

REFERENCES:

1. Roshan Paul, Denim: Manufacture, Finishing and Applications, Elsevier, Woodhead Publishing Ltd. Cambridge, 2015.
2. Michael Harris, "Jeans of the Old West – A History", 2010.
3. Graham Marsh, Paul Trynka and June Marsh, "Denim: From Cowboys to Catwalks: A History of the world's Most Legendary Fabric", Samurai Publications, 2005.

18FDA9 GARMENT SIZE AND FIT ANALYSIS

3 0 0 3

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)

SUBJECTIVE AND OBJECTIVE ASSESSMENT OF CLOTHING APPEARANCE: Assessment of fabric surface smoothness, seam appearance, crease retention and appearance retention of finished garments. Objective evaluation of clothing appearance: Fabric properties related to clothing appearance and fit, objective evaluation of fabric wrinkling, fabric pilling, seam pucker and overall garment appearance. (10)

GARMENT DRAPE: Measurement of fabric drape, empirical relationship of static drape, dynamic fabric drape, seamed fabric drape, modeling fabric and garment drape and drape models in commercial CAD systems. (5)

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)

Total L:45

TEXT BOOKS:

1. FanJ, Yu W and Hunter L, "Clothing Appearance and Fit", Textile Institute, Wood head Publishing Limited, England , 2004.
2. Editors of Creative publishing, "The Perfect Fit- classic guide to alter patterns", Creative publishing international, USA, 2005.

REFERENCES:

1. Lynn Macintyre and Mary Tilton, "Easy Guide to sewing", Taunton press, USA, 2009.
2. Sandra Betzina , "Fast Fit-Easy pattern alterations for every figure", The Taunton Press, Inc., Singapore, 2003

18FDB1 HUMAN RESOURCE MANAGEMENT

3 0 0 3

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. (10)

TRAINING AND DEVELOPMENT: Principles of learning, objectives, types and training methods, management development: Its meaning, scope and objectives. Wage and salary administration: Principles and Techniques of wage fixation, job evaluation, incentive schemes. (10)

PERFORMANCE APPRAISAL: Process, methods, factors that distort appraisal, Case studies in methods to improve performance, role of performance in the performance management process, performance appraisal vs. potential appraisal. (7)

MORALE AND MOTIVATION OF EMPLOYEES: Morale-importance of moral and motivation methods of employees, empowerment – factors affecting empowerment – process – benefits. (8)

WORK ENVIRONMENT AND TERMS AND CONDITIONS OF EMPLOYMENT: Fatigue – safety – accident prevention accident records – factories act of 1948 and pollution legislations. trends in hr: hr outsourcing – HRIS – management of turnover and retention- workforce renationalization- managing separation- case studies in trends in employee engagement and retention. (10)

Total L: 45

TEXT BOOKS:

1. Gary Dessler, "Human Resource Management", Prentice Hall of India, New Delhi, 2009.
2. VSP Rao, "Human Resources Management Text and Cases", Excel Books, 2010.

REFERENCES:

1. Dezenzo A David and Robbins P Robbins, "Human Resource Management", John Wiley and Sons, Inc, MA., 2002.
2. Aswathappa K, "Human Resource and Personnel Management – Text and Cases", Tata McGraw Hill, 2007.
3. Bernardin H, John, "Human Resource Management – An experiential Approach", Tata McGraw Hill, 2004.
4. Cascio H, Wayne, "Managing Human Resources – Productivity, Quality of Work Life and Profits, Tata McGraw, 2009.

18FDB2 OPERATIONS MANAGEMENT**3 0 0 3**

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 . (9)

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. (9)

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. (9)

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. (9)

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. (9)

Total L: 45**TEXT BOOK**

1. Chary S. N, Production and Operations Management, Tata McGraw Hill Publishing Co. Ltd., Noida, 3rd edition, 2009.
2. Pannerselvam R, Production and Operations Management, Prentice Hall India, New Delhi, 2nd edition, 2008.

REFERENCES

1. Richard B. Chase, Ravi Shankar, F. Robert Jacobs and Nicholas J. Aquilano, Operations and Supply Management, Tata McGraw Hill Pub Co., Ltd., Noida, 12th Edition, 2010.
2. William J Stevenson, Operations Management, Tata McGraw Hill Pub Co. Ltd., Noida, 9th Edition, 2011.
3. Kanishka Bedi, Production and Operations Management, Oxford University Press India, New Delhi, 2008.
4. Aswathappa K and Shridhara Bhat K, Production and Operations Management, Himalaya Publishing House, Mumbai, 2nd Edition, 2008.

18FDB3 GLOBAL MARKETING**3 0 0 3**

SCOPE AND CHALLENGES OF INTERNATIONAL MARKETING: Developing global awareness – Strategic orientation – Planning and organizing international marketing: Market entry strategies – Organizational set-up (9)

CONSUMER PRODUCT STRATEGY: Standardizing and adaptation- global brands and national brands- product strategy in services segment. Product strategy for Business: quality and global standards- business services- relationship marketing hours (9)

INTERNATIONAL MARKETING CHANNELS: Channel-of-distribution structures – distribution patterns – alternative choices – selecting, motivating channel members (9)

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 (9)

PRICING STRATEGY: Approaches for international marketing – leasing – counter trade – transfer pricing. Case studies (9)

Total L: 45**TEXT BOOKS:**

1. Czinkota M. and Ronkainan R. 'International Marketing', 10/E, Cengage Learning., 2013
2. Cateora P.R., Graham J.L. and Salwar P., 'International Marketing', Tata Graw – Hill, 2008

REFERENCES:

1. Kotabe M. and Helsen K. Global Marketing Management, Sage publications, 2012.
2. Gillespie G. Jeannet J.P. and Hennessey H.D. 'International Marketing', Cengage Learning, India, 2008
3. Albaum G. and Duerr E., 'International Marketing and Export Management', 7/E, Pearson India, 2012.

18FDB4 STRATEGIC BUSINESS MANAGEMENT

3 0 0 3

STRATEGY: Nature and essence. Strategy Vs policies and tactics, levels of strategy. Process of strategy – steps. Strategic analysis: Environmental analysis – PESTEL frame work, MC Kiney'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. (11)

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. (9)

STRATEGY CONTROL AND EVALUATION: Strategic control process and evaluation, business port folio analysis – BCG Matrix, GE's business planning grid. (7)

Total L: 45

TEXT BOOKS:

1. Petter Gottschalk, "Strategic knowledge management technology", Idea group publishers, Canada, 2010.
2. Ghosh P.K, "Business Policy Strategic Planning and Management", Sultan Chand and Sons, New Delhi, 2008.

REFERENCES:

1. Johnson Gerry and Scholes Kevan. "Exploring Corporate Strategy", Prentice-Hall of India, New Delhi, 2004.
2. Rao, Subba.P, "Business Policy and strategic Management", Himalaya Publishing House, Mumbai, 2004.
3. David R, Fred, "Concepts of Strategic Management", Prentice Hall Incorporation Ltd., New Delhi ,1997.
4. Srivastava, R.M, "Management Policy and Strategic Management (Concepts, skills and practice)", Himalaya Publishing House. Mumbai, 2009.

15FDB5 TOTAL QUALITY MANAGEMENT

3 0 0 3

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). (5)

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. Building blocks of tqm: Kaizen – objectives, Kaizen and Innovation. Total productive maintenance - Failure mode & effect analysis, Eight pillars of TPM. (12)

TOOLS AND TECHNIQUES IN TQM: Statistical quality control – process capability analysis, seven quality improvement tools. Taguchi method. Six sigma methodology. Benchmarking and its types. Quality Function Deployment (QFD), 5 S concept. (9)

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. strategic quality management: Principles of quality management, quality planning road map, strategic planning process. Concept of Customer driven quality. Case study - Implementation of TQM in apparel industry. (11)

Total L:45

TEXT BOOKS:

1. Dale H Besterfield, "Total Quality Management", Pearson education, New Delhi, 2011.
2. Poornima M Charantimath, "Total Quality Management", Pearson education, New Delhi, 2011.

REFERENCES:

1. Logotheics N, "Managing for Total Quality - From Deming to Taguchi and SPC", Prentice Hall Ltd., New Delhi,1997.
2. David H, "ISO 9000 quality system handbook", Butterworth publishing, New Delhi, 2006.

18FDB6 BUSINESS ETHICS & SOCIAL RESPONSIBILITY

3 0 0 3

INTRODUCTION: Definition & nature business ethics, characteristics, ethical theories; causes of unethical behavior; ethical abuses; work ethics; code of conduct; public good. (6)

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. (10)

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 MRTTP & FERA. Social – cultural environment and their impact on business operations, salient features of Indian culture and values. (9)

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. (10)

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. (10)

Total L:45

TEXTBOOKS:

1. S.A. Sherlekar, Ethics in Management, Himalaya Publishing House, 2009.
2. William B. Werther and David B. Chandler, Strategic corporate social responsibility, Sage Publications Inc., 2011

REFERENCES:

1. W.H. Shaw, Business Ethics, Cengage Learning, 2007.
2. Philip Kotler and Nancy Lee, Corporate social responsibility: doing the most good for company and your cause, Wiley, 2005.
3. Subhabrata Bobby Banerjee, Corporate social responsibility: the good, the bad and the ugly, Edward Elgar Publishing, 2007.
4. Robert A.G. Monks and Nell Minow, Corporate governance, John Wiley and Sons, 2011.

18FDB7 INTELLECTUAL PROPERTY RIGHTS

3 0 0 3

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. (9)

NEW DEVELOPMENTS: Procedure for grant of patents, TM, GIs, trade secrets, patenting under PCT, administration of patent system in India, patenting in foreign countries. (9)

INTERNATIONAL TREATIES AND CONVENTIONS: The TRIPs Agreement, PCT Agreement, the patent act of India, patent amendment Act (2005), design Act, trademark Act, geographical indication act, Bayh- dole act and issues of academic entrepreneurship. (9)

NATIONAL CONVENTIONS: Strategies for investing in R&D, patent Information and databases, IPR strength in India, traditional knowledge, case studies. (9)

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)

Total L: 45

TEXT BOOKS:

1. V. Sople Vinod, Managing Intellectual Property by (Prentice hall of India Pvt.Ltd), 2006.
2. Satarkar,S P, Intellectual Property rights and copyrights , Ess Ess Publications, 2003.

REFERENCES:

1. A. Primer, R. Anita Rao and Bhanoji Rao, Intelluctual Property Rights, Lastain Book company.
2. Edited by Derek Bosworth and Elizabeth Webster, The Management of Intelluctual Property, Edward Elgar Publishing Ltd., 2006.
3. WIPO Intellectual Property Hand book, WIPO publication,2004.

18FDB8 FASHION JOURNALISM

3 0 0 3

JOURNALISM AND MEDIA: History and evolution, scope and functions of journalism, kinds and principles of journalism. Fashion industry – Brands, seasons, designers, market, design process, branding – extensions and collaborations. Fashion media and audiences – Print media, broadcast, online, fashion and media. Importance of brand, audiences and advertising agencies. (11)

NEWS WRITING: Ideas, sources and interviewing. Writing fashion news and features – ground rules for writing, writing news – online, e-tail and audience. Developing the news content. (12)

REPORTING: The shows, catwalk, trends – spotting, reporting and critical analysis. Fashion photography – product, ideas for shoot, planning a shoot, photography for different media and fashion video. (11)

SOCIAL MEDIA AND PR: Fashion blogging and social media – benefits and appeal of blogs, brands, impact on journalism, ethics and transparency. Public Relations – Introduction, importance, PR and fashion journalist, law and ethics. (11)

Total L:45

TEXT BOOKS:

1. Julie Bradford, "Fashion Journalism", Routledge Taylor & Francis group, 2015.
2. Wheeler, S. "Feature Writing for Journalists", Routledge (1st Edition), 2009

REFERENCES:

1. Schuman, S. "The sartorialist: Closer", Particular Books, London, 2012
2. Quinn, F. "Law of Journalists" Pearson, London, 2013.

18FDB9 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 Web advertisements – media research – testing validity and reliability of ads – measuring impact of advertisements – case studies. (9)

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. (9)

PUBLIC RELATIONS: Objectives, scope, functions, integrating PR in to promotional mix- marketing public relation function-process of public relations-advantages and disadvantages of PR - measuring the effectiveness of PR- PR tools and techniques. PR and media relations, - PR consultancy: Pros and cons. - discussion on opinion survey of PR in public and private enterprises. PR-research, evaluation, counseling- marketing public realtions (MPR)- structure of public relations department. Budgeting of PR. PR agencies. (9)

PUBLICITY: Introduction – meaning – objectives - tools – goals of Publicity – scope of publicity – importance of publicity – difference between marketing, PR and publicity - social publicity – web publicity and social media – publicity campaigns. (9)

Total L: 45

TEXTBOOKS

1. George E Belch and Michel A Belch, Advertising & Promotion, Tata McGraw Hill, 7th edition, 2010.
2. Wells, Moriarty and Burnett, Advertising, Principles & Practice, Pearson Education, 7th Edition, 2007.

REFERENCES

1. S. H. H. Kazmi and Satish K Batra, Advertising & Sales Promotion, Excel Books, New Delhi, 2001.
2. Julian Cummings, Sales Promotion, Kogan Page, London 1998.
3. E.Betch and Michael, Advertising and Promotion, McGraw Hill, 2003.
4. Kenneth Clow and Donald Baack, Integrated Advertisements, Promotion and Marketing communication, Prentice Hall of India, New Delhi, 2003.

18FDC1 ORGANIZATIONAL BEHAVIOR

3 0 0 3

INTRODUCTION TO ORGANIZATIONAL BEHAVIOR: Meaning & importance, Hawthome studies, basic organisational behavior model, different approaches to organisational behavior, significance of organisational behavior. (5)

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 behavior. **Perception:** Meaning, perceptual process, selective attention (sensory perception), perceptual barriers, overcoming perceptual distortion, social identity theory, attribution theory, values and attitudes. (9)

EMOTIONAL INTELLIGENCE AND MOTIVATION: Emotional intelligence - Definition, categories of emotions, EI dimensions, organisational behaviour applications of emotions. **Motivation:** Definition, characteristics, process, theories and prorganisational behaviours. (9)

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 loafing. (9)

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. (5)

EMPLOYMENT RELATIONSHIP AND PSYCHOLOGICAL CONTRACT: Concepts, types of psychological contracts, employability, trust and psychological contract, socialization process psychological contracting, organizational careers. Work Stress - understanding stress at workplace, causes and consequences, stress coping Strategies. (8)

Total L: 45

TEXT BOOKS:

1. McShane L. Steven, Von Glinow Mary Ann and Sharma R.Radha , 'Organizational Behavior', 15/E, Tata McGraw Hill, 2015
2. Stephen P.R and Timothy A. Judge and Seema Sanghi M), 'Organizational Behavior', 13/E, Pearson Education, 2009.

REFERENCE

1. Hellriegel D. and Slocum J.W., 'Organizational Behavior', 10/E, Mason OH: Q South – Western, 2005.
2. Rao V.S.P., 'Organizational Behavior', 1/E, Excel Publications., 2009.
3. Nelson L. Debra and James Campbell Quick, 'Organizational Behavior', 3/E, Thomson Publishing, 2006.

18FDC2 FASHION CONSUMER BEHAVIOR

3 0 0 3

CONSUMER BEHAVIOR IN FASHION: Introduction to consumer behavior, consumer behavior and marketing mix, fashion purchases, consumer requirements, satisfying consumers. (10)

INTERNAL INFLUENCES: Perceive, learn, remember, motivation, attitude, personality, and life style. (12)

EXTERNAL INFLUENCES: Diffusion of innovation, age, family, lifecycle, social, demographic, psychographic, social media, and communication. (8)

CONSUMER DECISION PROCESS: Decision making process, types of consumer decisions, online decision process, consumer neuroscience. (10)

ETHICS AND SOCIAL RESPONSIBILITY IN CONSUMER BEHAVIOR: Consumer theft, shoplifting, counterfeiting, fur and animal testing, labor practices, consumer product safety. (5)

Total L: 45

TEXT BOOKS:

1. Patricia Mink Rath, Stefani Bay, Richard Petrizzi, Penny Gill, "The Why of the Buy Consumer Behavior and Fashion Marketing", Bloomsbury Publishing , New York ,2014.
2. Frank Kardes, Maria Cronley, Thomas Cline, "Consumer Behavior", Cengage Learning , USA, 2010.

REFERENCES:

1. J. Paul Peter, Jerry Olso, "Consumer Behavior & Marketing Strategy", McGraw Hill, London, 2010.
2. Michael R Solomon, Nancy J Rabolt," Consumer Behavior in Fashion", Pearson education, New Delhi , 2006.

18FDC3 NEW PRODUCT DESIGN

3 0 0 3

INTRODUCTION TO PRODUCT DESIGN: Characteristics of successful product development. The Designer and his team, duration and cost, challenges of product development. Development Process – generic development process. Concept development: The front-end process, adaptation of generic product development process, product development process flows, the AMF development process. Product development organizations – choosing an organizational structure and AMF organization. (12)

PRODUCT PLANNING: Types of project development projects, the product planning process – identify opportunities, evaluate and prioritize projects, allocate resources and plan timing, complete pre-project planning, reflect on the results and the process. (8)

PRODUCT SPECIFICATION AND CONCEPT GENERATION, SELECTION AND TESTING: Identifying the customer needs – interpreting and organizing the customer needs into hierarchy. Product specification – establishing target specifications, setting the final specifications. Concept generation – steps in concept generation, concept selection methods, steps in concept screening and scoring, concept testing. (9)

PRODUCT ARCHITECTURE: Types of modularity, implications of architecture, establishing the architecture, delayed differentiation, platform planning, and related system level design issues. (8)

COSTING AND PROTOTYPING: Estimation of manufacturing costs, reducing component costs, assembly cost and supporting production cost. Prototyping – basics, principles, prototyping technologies, plan for prototypes. (8)

Total L: 45

TEXT BOOKS:

1. Karl T. Ulrich & Steven D. Eppinger, "Product Design and Development", Irwin/McGraw-Hill. New York, 2011.
2. Karl T. Ulrich, "Design Creation of Artifacts in Society" Published by University of Pennsylvania, Philadelphia, 2011.

REFERENCES:

1. Harold Carr and John Pomeroy, "Fashion Design and Product Development", Willey publisher, 1993
2. Linda Gorchels, "The Product Manager's Handbook", McGraw-Hill publishing Company, 2000.

18FDC4 THREADS AND NEEDLES FOR SEWING

3 0 0 3

THREADS : Requirements and characteristics of sewing threads, types-spun, core spun, continuous filament and its application. Technical sewing threads- aramid, polyetheretherketone, ceramic, polypropylene, PTFE, fibre glass, polyethylene, tencel, acrylic, linen, elastic and soluble threads. (12)

NEEDLES : Needle-anatomy size and numbering, characteristics, types and their application. Seam and stitch types. OEKO-TEX standards. Use and application of different types of threads and expected sizes of needles. (6)

THREADS FOR SPECIFIC PURPOSE: Introduction, embroidery, high temperature and geo textiles applications. Ticket numbering, determining thread requirement and its cost. Sewing of touch-me-not fabric- selection of sewing thread, stitch structure, needle and other parameters. (10)

CONSTRUCTION AND CHARACTERISTICS OF THREADS: Construction- methods, fiber types, twist and its direction, ply and cord, size, colour and colour matching, finish. Characteristics: Stresses generated during sewing and their impact, performance during sewing-bulk properties, mechanical properties of threads, heat stability. Seam performance- compatibility, seam appearance, seam serviceability. (10)

TESTING AND QUALITY CONTROL : Sew ability, bulk properties of threads, mechanical and colour properties, yellowing, seam – quality analysis, performance of sewing thread, testing of sewing thread for resistance of UV degradation, sewing problems, damages and seam puckering. (7)

Total L:45

TEXT BOOKS:

1. J.V.Rao and Rajendra Kr.Gaur, Sewing Threads , Northern Indian Textile Research Association, Raj Nagar, Ghaziabad, India, April 2006.
2. Glock R E and Kunz G I, "Apparel Manufacturing: Sewn Product Analysis", Prentice Hall, New Jersey, 1995.

REFERENCES:

1. J.O.Ukponmwan, A.Mukhopadhyay and K.N.Chatterjee, Sewing Threads, The Textile Institute International, Oxford, UK, 2000.
2. Ukponmwan J O, Chatterjee K N and Mukhopadhyay A, Sewing Threads, The Textile Institute, Manchester, 2001.

18FDC5 FINANCIAL MANAGEMENT

2 2 0 3

FINANCIAL 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. (6+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. (6+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. (6+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. (6+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. (6+6)

Total L: 30 +T: 30=60

TEXT BOOKS:

1. I.M.Pandey, "Essentials of Financial Management", Fourth Edition, Vikas publishing house Pvt. Ltd, 2015.
2. Prasanna Chandra, "Financial Management theory and practice" Eight edition, Tata McGraw Hill Education Pvt. Ltd, 2011.

REFERENCES:

1. Khan M.Y., Jain P.K., "Financial Management texts, problems and cases", Tata McGraw Hill Publishing company Ltd., 2007.
2. James C., Van Horne, John Martin Wachowicz "Fundamentals of Financial Management", 13th Edition, Prentice Hall, 2008

18FDC6 LOGISTICS AND SUPPLY CHAIN MANAGEMENT

3 0 0 3

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. **Design and management-** Logistics management - Inbound and outbound, design, management, domain, integration and perspectives. Supply chain management: phases, integrated supply chain, strategy – pull, push and push-pull strategy. Demand management - demand forecasting and shaping. Bull whip effect- Influencing factors, control measures. (9)

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 (WCSCM). (9)

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. 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. (9)

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. (9)

EMERGING TRENDS IN SUPPLY CHAIN MANAGEMENT: Collaborative strategies, vendor managed inventory (VMI), third and fourth party logistics, green supply chain, reverse logistics and case studies. (9)

Total L:45

TEXT BOOKS:

1. Sunil Chopra and Peter Meindl, "Supply Chain Management - Strategy, Planning and Operations", Pearson Prentice Hall, New Jersey, 2007.
2. Douglas M Lambert, James R Stock, Lisa and M Ellram, "Fundamentals of Logistics Management", McGraw Hill, Boston, 1998.

REFERENCES:

1. Benjamin S Blanchard, "Logistics Engineering and Management", Prentice Hall India, New Delhi, 2005.
2. D K Agrawal, "Textbook of Logistics and Supply Chain Management", Macmillan Publishers India limited, Kolkata, 2010.
3. Janat Shah, "Supply Chain Management" Pearson education India, 2009.

DEPARTMENT OF APPLIED SCIENCES

18QH27 COLOUR SCIENCE

3 0 0 3

LIGHT AND COLOUR: Sources of light. Colour rendering, reflection, refraction, transmission, absorption and scattering. Colour attributes assessment of colour appearance. (7)

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. Metamerism (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. (10)

COLOUR MEASUREMENT: Principles of colour measurement, Tristimulus values, CIE diagram, standard Illuminant, standard observer, spectral reflectance, graphic representation, numeric representation. (10)

COLOUR MATCHING: Single constant(K/S) Kubelka – Munk theory, spectral match, tristimulus match. 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. (11)

Total L: 45

TEXT BOOKS:

1. Gulrajani M L,"Colour Measurement: Principles, Advances and Industrial Applications", Woodhead Publishing Ltd, Cambridge, 2010.
2. Xin J, "Total Colour Management inTextiles", Woodhead Publishing Limited, Cambridge, 2006.

REFERENCES:

1. Volz H G. "Industrial Colour Testing – Fundamentals and Techniques", VCH, 1994.
2. Lucas.J., "Colour Measurement – Fundamentals – Vol. I" Eurotex, 1996.
3. McDonald R," Colour Physics for Industry", Woodhead Publishing Limited, Cambridge,1997.

18QH28 PLASMA TECHNOLOGY IN TEXTILE INDUSTRY

3 0 0 3

GASES AND COLLISION PROCESS: 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. Ionization, excitation, relaxation, recombination, dissociation, electron attachment, Ion-neutral collisions, Metastable collisions. (10)

GLOW DISCHARGE: Plasma species, Electron and Ion temperature, plasma potential. Glow discharges: DC discharges, RF discharges, Microwave discharges, Dielectric barrier discharges. Low temperature plasma generation sources. (10)

PLASMA DIAGNOSTICS: Plasma diagnostics: Electrical probe techniques, spectroscopic methods, Optical emission Spectroscopy, Magnetic diagnostics. (10)

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, (10)

PLASMA ASSISTED DEPOSITION TECHNIQUES FOR FUNCTIONAL TEXTILE: Physical vapor deposition. Plasma enhanced chemical vapor deposition. Process optimization. (5)

Total L: 45

TEXT BOOK:

1. Brian Chapman, "Glow Discharge Processes: Sputtering and Plasma Etching", John Wiley and Sons, 1980.
2. Ian Hutchinson, "Principles of Plasma Diagnostics", Cambridge University Press, 2nd edition, 2003.

REFERENCES:

1. Milton Ohring, "Materials Science of Thin films", Academic Press, 2nd edition, 2006.
2. "Antimicrobial Textiles", Edited by Gang Sun, Woodhead Publishing in association with The Textile Institute, 2016

18QH42 ENVIRONMENTAL SCIENCE

3 0 0 3

INTRODUCTION TO ENVIRONMENTAL STUDIES AND NATURAL RESOURCES: Definition of environment-scope and importance of environmental studies. Forest resources: Uses and overexploitation of forest – deforestation. Water resources: water footprint -use and over utilization of surface and ground water – conflicts over water – dams-benefits and problems. Land resource: Land degradation – soil erosion – desertification -waste land reclamation. Energy resources: Growing energy needs – renewable and non renewable energy resources – alternate energy resources .Role of an individual in conservation of natural resources. (9)

ECOSYSTEM: Concept of ecosystem - food chain and food web – Ecological pyramids – energy flow in ecosystems –characteristic features, structure and functions of the forest, grassland and aquatic ecosystems. (9)

BIODIVERSITY: Biodiversity – types – values of biodiversity – Global biodiversity – India as a mega diversity nation- threats to biodiversity – conservation of biodiversity. (9)

ENVIRONMENTAL POLLUTION: Definition – causes, types and effects of air pollutants on materials, plants, animals and humans-control methods. Water pollution - sources - classification of pollutants - effects of water pollution. Composition of domestic and industrial waste water. Waste water analysis – Self purification of rivers – Standards for discharge of effluents into water bodies – Waste water treatment methods. Thermal pollution – causes and control methods. Soil pollution – causes, effects and control methods. Solid waste Management – types, causes and effects. Solid waste disposal methods. Definition – causes, effects and control methods of noise and marine pollution. (9)

SOCIAL ISSUES AND THE ENVIRONMENT: Population growth, variation among nations – population explosion. From unsustainable to sustainable development – Urban problem related to energy - water conservation, rain water harvesting –water shed management. Environmental ethics – issues and possible solutions. Global warming, green house effects, ozone layer depletion, climate change and acid rain. Human health and environment. Process of EIA - ISO 14000 - environment protection act. (9)

Total L: 45

TEXT BOOKS:

1. Girrad, J., "Principles of environmental chemistry", Jones & Bartlett learning, 2014.
2. Deswal. S. and Deswal. A., "An introduction to environmental science", Dhanpat Rai & Co Pvt. Ltd.2006.

REFERENCES:

1. Sethi M. S., "Environmental chemistry", Shri sai printographers, New Delhi, 2012.
2. De, A.K., "Environmental chemistry", New age publications (Academic), India. 2010.
3. Rao, M.V.R.K., "Energy resources: conventional & non-conventional "BSP publications, 2006.
3. Masters. G.M., "Introduction to environmental engineering and science", Prentice hall of India, 2004

18QH43 GREEN CHEMISTRY

3 0 0 3

INTRODUCTION TO GREEN CHEMISTRY: Definition – principles and concepts of green chemistry – green chemistry and sustainable developments. Atom economy: atom economic reactions, rearrangement reactions and addition reactions - atom un-economic reactions, substitution reactions, elimination reactions and Witting reactions. Reducing toxicity – measuring toxicity. Need of green chemistry for day today life. Design and development of environmentally friendly chemical pathways. (9)

MEASURING AND CONTROLLING ENVIRONMENTAL PERFORMANCE OF GREENER PRODUCTS: Importance of measurement – lactic acid production, safer gasoline. Introduction to life cycle assessment (LCA) – carbon footprint - green processes metrics – environmental management systems – ISO 14001 – eco labels – legislation – integrated pollution prevention and control (IPPC). Catalysis – environmental friendly catalysts - bio-catalysts, biodegradable polymers, alternative solvents and ionic liquids. (9)

RENEWABLE RESOURCES: Renewable feedstocks – applications of renewable materials: biodegradable plastics – compostable chemicals. Biomass energy: production of ethanol from biomass – production of biodiesel. Bio refinery chemicals from fatty acids - polymer from renewable resources – some other natural chemical resources. Hydrogen generation from algae biological pathways – storage and transportation. (9)

GREEN TECHNOLOGY FOR ENERGY PRODUCTION: Green and brown energy resources – solar energy – wind energy – hydropower energy – tidal energy – ocean thermal energy – geothermal energy. Fuel cells - hydrogen as a fuel. (9)

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

Total L: 45

TEXT BOOKS:

1. Lancaster M, "Green chemistry: An introductory text", The Royal Society of Chemistry, 2016.

- Marteel-Parrish E A, Abraham M A, "Green chemistry and engineering: A pathway to sustainability", John Wiley & Sons, Inc., Hoboken, New Jersey, 2013.

REFERENCES:

- Mcdilda M G, "The everything green living book", Adams media, 2007.
- Sethi M. S., "Environmental chemistry", Shri sai printographers, New Delhi, 2012.
- Deswal S, Deswal A, "An introduction to environmental science", Dhanpat Rai & co pvt. Ltd.2012.
- Rao M V, "Energy resources: conventional & non-conventional" BSP publications, 2010.

18QH44 INDUSTRIAL CHEMISTRY

3 0 0 3

HIGH POLYMERS: Classification – polymerization reactions –synthesis of high polymers–physical and mechanical properties of polymers – glass transition temperature and factors affecting the glass transition temperature. Molecular weight of the polymers: Number and weight average. Fibre forming polymers- elastomeric material. Thermosetting and thermoplastic materials. Elastomers: natural rubber and synthetic rubber – Buna - N, Buna-S and neoprene. Vulcanisation of rubber – foamed polymers. Compounding of polymers. Polymer processing techniques: compression, extrusion, injection, blow molding and calendering. (9)

PIGMENTS & PAINTS: Inorganic and organic pigments, dyes, metallic and pearl pigments, testing of pigments, latent solvents and non-solvents. Binder ratio, dilution ratio and dilutability. Classification of paints, constituents and properties of paints. Additives: definition, types of additives. Special paints – fire retardant paints, water repellent paints, temperature indicating paints - composition and applications. (9)

WATER FOR INDUSTRIES: Water quality parameters– hardness – units - estimation of hardness by EDTA method – alkalinity– DO– BOD and COD –causes and consequences. Requisites of water for various industries. Water treatment methods: external conditioning – zeolite and demineralization process. Internal conditioning of boiler feed water. Requisites of potable water – water treatment for municipal supply -screening, sedimentation with coagulation and filtration (principles only) –break point chlorination - desalination process. Waste water treatment for pollution control and reuse. (9)

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. (9)

LUBRICANTS: Lubricants – mechanism of lubrication – viscosity, viscosity index, flash and fire points – oiliness – cloud and pour points – aniline point (determination not included) – additives for lubricants. Greases – types and uses, solid lubricants – graphite and MoS₂. Synthetic lubricants – silicone oil and fluorinated lubricants. (9)

Total L: 45

TEXT BOOKS:

- Fried J.R, 'Polymer science and technology' Pearson Education, 2014.
- Roussak, O.V and Gesser, H.D., "Applied chemistry: A textbook for engineers and technologists", Springer, 2013.

REFERENCES:

- Kuriacose J.C and Rajaram J, "Chemistry in engineering and technology", Vol I & II, Tata McGraw hill, 2012.
- Gowarikar V.R, Viswanathan N.V and Sreedhar. J., "Polymer science", New age international (p) Ltd., New Delhi, 2003.
- Sharma,B.K, "Industrial chemistry", Goel publishing house, Meerut. 2009.
- Jain P.C., and Monica, "Engineering chemistry", Dhanpat rai publishing company, New Delhi, 2012.
- Chawla. S., "A text book of engineering chemistry", Dhanpat rai & co, 2005.

DEPARTMENT OF ENGLISH

18QF10 ENGLISH AND SOFT SKILLS FOR EMPLOYABILITY

3 0 0 3

SELF MANAGEMENT AND ATTITUDES: Self Concept, Stress management, Positive attitude, Influential Skills, Initiative, Empathy, Social Etiquette (5)

COMMUNICATION STYLES : Presentation Skills, Interpersonal Communication Skills, Interviewing Skills, Verbal and Nonverbal (body language) skills, Active Listening, Professional Writing, Effective email writing (16)

TEAM WORK: Inter team cooperation, Intra team cooperation, Diversity, Productivity, Goal Setting and action (4)

LEADERSHIP SKILLS: Empowerment, Planning, Establishing Credibility, Vision & direction, Supervision, Mentoring, Decision-making, Creativity, Flexibility, Team problem solving (5)

MANAGING TIME AND PRESSURES: Managing Change, Time management, Effective meetings (5)

EFFECTIVE AND EXCELLENT CUSTOMER SERVICE: Communication with the customer- telephonic and online services, Managing conflicts or Challenging communication, Setting and resetting customer expectations, Building customer confidence, Growing customer relationship, Opportunity management, Developing team approach to meet customer needs. (10)

Total: 45

TEXTBOOK

REFERENCES

1. Charles J and Stewart William B Cash, "Interviewing: Principles and Practices", Tata Mc-Graw Hill, New Delhi, 2010.
2. Rao M S, "Soft Skills –Enhancing Employability- Connecting Campus with Corporate", IK International Publishing House, New Delhi, 2010.
3. Simon Sweeney, "English for Business Communication", Cambridge University Press, New Delhi, 2012.
4. Jean Naterop, B and Rod Revell, " Telephoning in English", Cambridge University Press, Cambridge, 2011.

DEPARTMENT OF APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCES

18QH01 OPTIMIZATION TECHNIQUES

3 0 0 3

LINEAR PROGRAMMING: Introduction to Operations Research – Modeling with linear programming - Graphical method for two dimensional problems – Simplex Algorithm – Two Phase Simplex Method – Special cases of Simplex Method. (12)

SIMPLEX MULTIPLIERS : Dual and Primal – Dual Simplex Method – Post Optimal Analysis – Transportation problem and its solution – Assignment problem and its solution by Hungarian method. (12)

DECISION THEORY: Decision Analysis – Decision making under certainty, uncertainty and risk. (6)

DYNAMIC PROGRAMMING: Introduction – multistage decision processes – Principles of optimality – Computation procedures. (8)

CPM AND PERT: Critical path network model – CPM computations – PERT calculations. (7)

Total L: 45

TEXT BOOKS:

1. Hamdy A Taha, "Operations Research – An introduction", Pearson, 2016
2. Hillier and Lieberman, "Introduction to Operations Research", McGraw Hill , 2017.

REFERENCES:

1. Richard W. Cottle and Mukund N. Thapa , "Linear and Non linear optimization", Springer-Verlag, 2017.
2. Wayne L. Winston, "Operations Research: Applications and Algorithms", Duxbery press, 2003.

18QH02 DATA BASE MANAGEMENT SYSTEMS

2 2 0 3

BASIC CONCEPTS: Introduction to databases - purpose of database system - characteristics of database approach - advantages of using DBMS - database concept and architecture - data abstraction - data models instances and schema - data independence - schema architecture - components of a DBMS - database languages - database manager - database administrator - database users. (6)

DATA MODELING: Introduction - data associations - entities, attributes, relationships - structural constraints - weak and strong entity types - design of entity relationship data model (ERD) - conversion of ERD into tables – applications. (7)

RELATIONAL MODEL: Introduction to relational data model - basic concepts - enforcing data integrity constraints - relational algebra operations - extended relational algebra operations (4)

RELATIONAL DATABASE MANIPULATION: Introduction to Structured Query Language (SQL) - SQL Commands for Defining Database, Constructing Database, Manipulations on Database - Basic Data Retrieval Operations - Advanced Queries in SQL - Functions in SQL - Aggregation - Categorization - Updates in SQL - Views in SQL. (8)

DATA BASE DESIGN THEORY: Database Design Process – Relational database Design – Anomalies in a database - Functional dependencies – axioms – Normal forms based on primary keys – First, Second and Third Normal form - Boyce_Codd Normal form – examples (5)

TUTORIAL COMPONENT

Implement the following using ORACLE SQL Plus

1. Defining and creating database structures such as tables, constraints, indexes and views using DDL
2. Manipulating and retrieving information from single and multiple tables using DML
3. Working with SQL complex queries to retrieve data from a database with multiple tables
4. List of experiments (Problem Sheets) will be given
5. Students will develop any RDBMS application with appropriate Front-End.

Total L: 30 + P: 30 = 60

TEXT BOOKS:

1. Elmasri R and Navathe SB, "Fundamentals of Database Systems", Pearson Education, 2016.
2. Silberschatz A, Korth H and Sudarshan S, "Database System Concepts", McGraw Hill, 2011.
3. Raghu Ramakrishnan and Johannes Gehrke, "Database Management System", McGraw Hill, 2014.

18QH03 WEB DESIGNING

2 2 0 3

INTRODUCTION: WWW – presentation / business logic layer-Browser architecture – HTTP architecture, Methods, Web Server Architecture. (4)

HTML: Basic Structure – HTML tags – Tables – Forms – Links – Frames – DOM – Styling Tags – Images. (6)

CSS: Introduction – Types (Where to place CSS) – Rules – Selectors – Styling Fonts – Layouts – Positioning – Bootstrap. (8)

JAVASCRIPT: Scripting Languages – Syntax – Variables – Data Types – Operators – Expressions – Conditional Statements – Loops – Arrays – Functions – Event Handling – Enhancing HTML Documents with JavaScript – JQuery. (8)

WEB PUBLISHING / HOSTING: Host Registration – Domain Registering – Server FTP Upload – AJAX - JSON. (4)

EXERCISES:

1. Create a simple website using html.
2. Create a website using CSS and JavaScript.
3. Create a simple php page to get the name of the user.
4. Create and upload a website to the web using FTP.

Total L: 30 P: 30 = 60

TEXT BOOKS:

1. Elizabeth Castro and Bruce Hyslop, "Visual Quickstart Guide: HTML5 and CSS3", Peachpit Press, 2013.
2. David Flanagan, "JavaScript: The Definitive Guide", O'Reilly Media, 2011.

REFERENCES:

1. Larry Ullman, "PHP for the Web", Peachpit Press, 2016.
2. Luke Welling, "PHP and Web Development", Addison Wesley, 2008.

18QH04 PYTHON PROGRAMMING

2 2 0 3

INTRODUCTION: Python Interpreter – Program execution – Interactive prompt – IDLE User Interface. (3)

TYPES AND OPERATIONS: Python object types – Numeric types – Dynamic typing – String fundamentals – Lists – Dictionaries - Tuples – Type objects. (4)

STATEMENTS AND SYNTAX: Python statements - Assignments – Expressions – if Tests – while Loops - for Loops – Iterations – Comprehensions. (3)

FUNCTIONS AND GENERATORS: Function basics – Scopes – Arguments – Recursive functions – Anonymous functions – lambda – Generator functions - (5)

MODULES AND PACKAGES: Python program structure – Module Imports – Standard library modules – Packages – Namespaces. (5)

CLASSES AND OOP: OOP concepts - Classes – Instances – Inheritance – Overloading operators. (3)

EXCEPTIONS: Exception basics – try – except – raise. (2)

FILES: Opening files – Using files – Text files – Binary files. (5)

Implement the following:

1. Data types, assignments, expressions.
2. Branching and Iterations.
3. Lists, tuples and dictionaries.
4. Decomposing into functions.
5. Classes, objects, inheritance.
6. Modules, package and namespaces.
7. Exceptions.
8. Text files and binary files.

Total L: 30 P: 30 =60

TEXT BOOKS:

1. Mark Lutz, "Learning Python", O'Reilly Media, 2013.
2. Allen Downey, "Think Python", O'Reilly Media, 2012.

REFERENCES:

1. Zed Shaw, "Learn Python the Hard way", Addison-Wesley Professional, 2013.
2. Luciano Ramalho, "Fluent Python: Clear, Concise, and Effective Programming", O'Reilly Media, 2015.

DEPARTMENT OF TEXTILE TECHNOLOGY

18TH01 TECHNICAL TEXTILES

3 0 0 3

INTRODUCTION: Definition, Classification, Market potential, fiber requirements and properties. Industrial Textiles – Quality requirements for tire cord yarns and fabrics, manufacturing techniques. Belts - Conveyor and power transmission, Composition of belts, Carcass cords, fabrics. Types of hose fabrics. (11)

FILTER FABRICS: Introduction, selection considerations - fiber, fabric, design. Principle, mechanism and types of filtration. Textiles in dry filtration, wet filtration, Filtration equipment- design and factors consideration, Fibres used in paper manufacturing. Manufacturing techniques in paper making machines (11)

PROTECTIVE TEXTILES: Definition. Basic fibre and fabric requirements for ballistic protection. Basics for extreme cold and hot protective fabrics. Conducting materials for electromagnetic shielding. Medical Textiles: Introduction, fibers – Structure and property requirements, non-implantable materials, extracorporeal devices, Implantable materials, Healthcare and hygiene products. (12)

COATED FABRICS AND GEO-TEXTILES: Fibre and fabric requirements for coated fabrics. Comparison of coated and laminated fabrics. Methods of coating and lamination. Application of coated fabrics. Geotextile - Material requirements, Functions of Geotextile, Structure comparison, Properties and characterization of geotextiles, Uses of natural fibers in geo textiles. (11)

Total L: 45

TEXT BOOKS:

1. Sabit Adanur, "Wellington Sears Handbook of Industrial Textiles", Technomic publishing company Inc., USA, 1995.
2. Horrocks A R & Anand S C, "Handbook of Technical Textiles", Woodhead Publishing and Textile Institute, 2000.

REFERENCES:

1. Jarmila Svedova, "Industrial Textiles", Elsevier Science Publishing Co in, ISBN – 0444- 98754-1, New York, 1990.
2. Harrison P W, "The Design of Textiles for Industrial Applications", Textile Institute, Manchester, 1998.
3. Pushpa B and Sengupta A K, "Industrial Application of Textiles for Filtration and Coated fabrics", Textile progress Vol.14, 1992.

18TH02 INDUSTRIAL TEXTILES

3 0 0 3

INDUSTRIAL TEXTILES: Classification, market overview and growth projections of industrial textiles. Technical fibers, yarns and fabrics. Coloration, finishing and coating of technical textiles. Filtration textiles - Filter fabric requirements, Types-dry and wet filtration. Filtration mechanism. Fibers, yarn and fabric structures used for filtration. Design of Filter fabrics. Finishing treatments.. evaluation & standards. (12)

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, aircrafts and marine. (11)

GEO AND AGRICULTURE TEXTILES: Geotextiles- Functions and application areas of geotextiles. Fibres and fabric selection criteria for geotextile applications. Manufacture of woven and nonwoven geotextiles. Textiles in agriculture-Requirement and properties of textiles used in crop covers, bird netting, shade fabrics, soil mats and sacks. (11)

PACKAGING AND OTHER INDUSTRIAL TEXTILES: Requirement and properties of textiles used in food packaging and transport bags. Ropes, nets, belts, hose and their types, method of production, characteristics and applications. Manufacture and properties of textiles used in scrub pads and coated abrasives. (11)

Total L: 45

REFERENCES:

1. Sabit Adanur and Wellington Sears, "Handbook of Industrial Textiles", Technomic Publishing Co., USA, 1995.
2. Horrocks A R and Anand S C, "Handbook of Technical Textiles", Woodhead Publishers and Textile Institute, England, 2000.
3. Shishoo R, "Textile Advances in the Automotive Industry", Woodhead Publishers, Cambridge, England, 2008.
4. Alagirusamy R and Das A, "Technical Textile Yarns", Woodhead Publishers, Cambridge, England, 2010.
5. Deopura B L, Alagirusamy R, Joshi M and Gupta B, "Polyesters and polyamides", Woodhead Publishers, England, 2008.

18TH03 NON WOVENS

3 0 0 3

RAW MATERIAL AND WEB FORMATION: Classification of nonwovens. Development of the nonwovens industry. Raw material. binders. Nonwoven manufacturing processes- dry lay process, wet-lay process - raw materials and fibre preparation - process variables – properties. Extrusion lay process – types – process variables – properties. Web drafter. (11)

WEB BONDING: Needling – principle. Loop formation processes – types. Hydroentanglement process – principle. Thermal bonding – Hot air bonding – calender bonding – Ultrasound bonding. Chemical bonding – saturation bonding, print bonding, foam bonding and spray bonding. Spun bonding, melt blown processes. (11)

FINISHING AND TESTING 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. Testing of nonwoven fabrics. (11)

NONWOVEN PRODUCT DEVELOPMENT AND APPLICATIONS: Nonwovens for hygiene applications – use of nonwovens in medicine – safety nonwovens for cleaning and household products, home textiles – apparels and technical applications. Re-utilization of nonwovens. Nonwoven product development for garments, decorative fabrics, home textiles and technical textiles.

(12)

Total L: 45

REFERENCES:

1. Wilhelm Albrecht, "Nonwoven Fabrics", Wiley – VCH, Verlag Gmbh and Company, 2003.
2. Krcma R, "Manual of Nonwovens", Textile Trade Press, 1993.
3. Russel.S, "Handbook of Nonwovens", Textile Institute Publication, UK, 2004.
4. Irsak O, "Nonwoven Textiles", Textile Institute, UK, 1999.
5. Mrstina V and Feigl F, "Needle Punching Technology", Elsevier Science Publishers, India, 1990.

DEPARTMENT OF FASHION TECHNOLOGY

18HH01 INDUSTRIAL ENGINEERINGTECHNIQUES FOR APPAREL INDUSTRY

3 0 0 3

INDUSTRIAL ENGINEERING & PRODUCTIVITY: Industrial Engineering - Definition, scope, techniques, roles and functions of industrial engineer in apparel industry. Productivity - Definition, measurement methods, causes for low productivity in apparel industry, suggestions for productivity improvement. Work study- Definition, techniques, procedure. (9)

METHODS ENGINEERING–Method study - Definition, procedure, process charts and symbols. Charts indicating process sequence- outline process chart, flow process charts, charts using time scale –multiple activity chart; Diagrams indicating movement – flow diagram, string diagram, travel chart, examples. (9)

MOTION ANALYSIS: Operation analysis –Objectives, procedure, examples. Motion Analysis: Objectives, procedure, principles of motion economy, two handed process chart, micro motion analysis–Procedure, SIMO Chart, examples. (9)

WORK MEASUREMENT: Definition, procedure, techniques - time study: procedure, rating, allowances and standard time. Predetermined motion time standards (PMTS), Standard data- General Sewing Data (GSD), examples. Standard allowed minute (SAM) range for various styles of garments .Applications. (9)

WORK ENVIRONMENT& PLANT LAYOUT: Work Environment: Lighting, ventilation, climatic condition – temperature control, humidity control, noise control, safety and ergonomics. Services- physical plant, production, personnel, administration, convenience related. Layout: Objectives, types of layout – fixed, process, product, group and combination. Layouts for apparel industry.(9)

Total L: 45

TEXT BOOKS:

1. George Kanawaty, ILO, "Introduction to Work study", Universal Publishing Corporation, Mumbai, 2005.
2. Kiell B.Zandin, Maynard's "Industrial Engineering Hand Book", Mc Graw Hill, Inc. New York, 2001.

REFERENCES:

1. Chuter A J "Introduction to Clothing Production Management", Blackwell Publishing, Oxford, UK, 2007.
2. Colovic.G. "Management of Technology Systems in Garment Industry" Woodhead publishing India Pvt Ltd, New Delhi, 2010.
3. Rajesh Bheda, "Managing Productivity of Apparel industry" CBI publishers and Distributors, New Delhi 2002.
4. Ramesh Babu V, "Industrial engineering in apparel production", Woodhead publishing India Pvt Ltd, New Delhi 2011.

18HH02 LEAN MANUFACTURING FOR APPAREL INDUSTRY

3 0 0 3

LEAN MANUFACTURING: Objectives, traditional manufacturing Vs lean manufacturing, Concepts: Value creation and waste elimination - major kinds of waste, pull production, continuous improvement (Kaizen), standard work, group technology -cellular manufacturing system, Benefits. (9)

LEAN TOOLS: Visual controls, 5S principles, total quality management (TQM), total productive maintenance (TPM),poka yoke ,root cause analysis – Fishbone diagram,5 whys technique. Quick changeover/Set-up time reduction, line balancing. Case studies. (9)

VALUE STREAM MAPPING: Definition, purpose, principles, mapping symbols, takt time, steps- current state map, future state map. Case studies from apparel manufacture. (9)

JUST IN TIME MANUFACTURING: Concept, elements, traditional systems vs. Just in time manufacturing system, implementation of JIT manufacturing in apparel manufacture, case studies. (9)

IMPLEMENTATION: Road map, senior management involvement, barriers, challenges, creation of lean culture, best practices in apparel industry. Case studies. (9)

Total L: 45

TEXT BOOKS:

1. Askin R G and Goldberg J B, "Design and Analysis of Lean Production Systems", John Wiley and Sons Inc., US, 2003.
2. Micheal Wader, "Lean Tools: A Pocket guide to Implementing Lean Practices", Second Edition, Productivity and Quality Publishing Pvt Ltd, Chennai, 2017.

REFERENCES:

1. Lonnie Wilson "How to implement lean manufacturing", Second Edition, McGraw-Hill, New York, 2015.
2. Colovic.G. "Management of Technology Systems in Garment Industry" Woodhead Publishing, India, Pvt Ltd, New Delhi, 2010.
3. John.W.Davis, "Lean manufacturing: implementation strategies that work: a roadmap to quick and lasting success" Industrial Press Inc., New York, 2009.
4. Bill Carreira "Lean Manufacturing That Works: Power Tools For Dramatically Reducing Waste and Maximizing Profits", Prentice Hall of India, New Delhi, 2007.