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| M.sC.,  textile-apparel-costume-fashion |
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| **SYLLABUS**  **FROM THE ACADEMIC YEAR**  **2023 - 2024** |
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| **TAMILNADU STATE COUNCIL FOR HIGHER EDUCATION,**  **CHENNAI – 600 005** |
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1. **About the Programme**

The PG Programme in Textiles/Apparel/Costume/Fashion related Programsaims to promote students to become competent professionals in the area of Textile, Clothing and Fashion Design. The Programme enhances the students’ skill by providing valuable insights into apparel designing, clothing psychology, garment production techniques, apparel quality standards, textile testing, eco-friendly textile processing, textile finishing and technical textiles. The Programme is structured to provide knowledge on scientific, technological and management concepts to face the challenges of textiles industry and to promote self-employment. The students are upgraded with critical thinking and problem solving skills for management of Textile industry as employees as well as entrepreneurs.

**2. Programme Educational Objectives (PEOs)**

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| PEOs | **Objectives** |
| PEO1 | To provide experience in advance textile fabrication techniques |
| PEO2 | To enable the learners to apply environment friendly techniques in textile production and finishing |
| PEO3 | To motivate the learners to apply knowledge in textile testing and quality control methods |
| PEO4 | To instil knowledge to introduce sustainable practices in textile and apparel industry |
| PEO5 | To cultivate entrepreneurial skills in textile and fashion domains. |

1. **Programme Outcomes (POs)**

**On completion of M.Sc. Program, the students will be able to**

PO1- Have complete knowledge in the field of Textiles and Clothing

PO2- Apply their professional knowledge and their research ideas for developing innovative fashion trends and creative products.

PO3-Acquire dexterity for self-development and competency

PO4- Understand current scenario of fashion and apparel design and adapt themselves to the changes in global fashion and commercial market.

PO5- Understand business relations and apply technical and computer knowledge, statistical analytical skills, soft skills, confidence, ethics and moral values.

PO6- Get qualified for industrial needs and start up units by providing professional skills

PO7- Explore research interest with creative skills towards sustainable environment practices.

**4. Programme Specific Outcomes (PSOs)**

**On completion of M.Sc. program, the students will be able to**

PSO1 – Acquire research knowledge in Textile, Apparel and Fashion production techniques

PSO2 – Gain expertise in areas of fashion and design as to adopt current and future trends

PSO3 – Acquire entrepreneurial skills in the field of textiles, apparel and fashion

PSO4 – Excel in the area of computer and soft skills as per industrial needs and start-ups.

PSO5 – Acquire dexterity in the field of textile, clothing and fashion for employability

**5**. **Eligibility:** Candidates who have qualified in B.Sc. Costume Design and Fashion/Textiles and Apparel Design/Textiles and Fashion Design/Fashion Design/ Textiles and Clothing or any B.Sc./ B.Voc. Degree related to Textiles/Apparel/Costume/Fashion disciplines are eligible to register for the Degree of Master of Science.

**6. General Guidelines for PG Programme:**

**i. Duration:** The Programme shall extend through a period of 4 consecutive semesters and the duration of a semester shall normally be 90 days or 450 hours. Examinations shall be conducted at the end of each semester for the respective subjects.

**ii. Medium of Instruction:**  English

**iii. Evaluation:** Evaluation of the candidates shall be through Internal and External Examinations. The ratio of formative and summative assessment should be 25:75 for both Core and Elective papers.

**M. Sc. Textiles/Apparel/Costume/Fashion Related Programs**

**(For the students admitted during the academic year 2023-2024 onwards)**

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| **Category** | **SEMESTER-I** | | | | | | |
| **Course Code** | **Course Components** | **Credit** | **Hours** | | **CIA** | **ESE** | **Total** |
| **T** | **P** |
| Core-I | Indian Textile and Apparel Industry | 5 | 7 |  | 25 | 75 | 100 |
| Core-II | Technical textiles | 5 | 7 |  | 25 | 75 | 100 |
| Core – III | (Theory/Practical)  Advanced Garment Construction Practical | 4 | 6 |  | 25 | 75 | 100 |
| Elective -I  Discipline Centric | Choose any one from the List of Electives | 3 | 5 |  | 25 | 75 | 100 |
| Elective-II  Generic: | Choose any one from the List of Electives | 3 | 5 |  | 25 | 75 | 100 |
|  |  | **20** | **30** |  | **--** | **--** |  |
|  | **SEMESTER-II** | | | | | | |
| Core-IV | Eco textiles and sustainability | 5 | 6 |  | 25 | 75 | 100 |
| Core-V | Textile Testing | 5 | 6 |  | 25 | 75 | 100 |
| Core – VI | (Theory/Practical)  Eco Textile Processing Practical | 4 | 6 |  | 25 | 75 | 100 |
| Elective – III  Discipline Centric | Choose any one from the List of Electives | 3 | 4 |  | 25 | 75 | 100 |
| Elective -IV Generic: | Choose any one from the List of Electives | 3 | 4 |  | 25 | 75 | 100 |
| NME I | Choose any one from the List of Electives | 2 | 4 |  | 25 | 75 | 100 |
|  |  | **22** | **30** |  | 25 | 75 | 100 |

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| **SEMESTER-III** | | | | | | | |
| Core-VII | Research methodology and statistics | 5 | 6 |  | 25 | 75 | 100 |
| Core-VIII | Textiles and Apparel Quality Standards | 5 | 6 |  | 25 | 75 | 100 |
| Core – IX | (Theory/Practical)  Textile and Apparel Testing Practical | 5 | 6 |  | 25 | 75 | 100 |
| Core – X | CAD for Fashion Digital Communication Practical | 4 | 6 |  | 25 | 75 | 100 |
| Elective – V Discipline Centric | Choose any one from the List of Electives | 3 | 3 |  | 25 | 75 | 100 |
| NME II | Choose any one from the List of Electives | 2 | 3 |  | 25 | 75 | 100 |
| Internship/ Industrial Activity | Internship/Industrial Activity  Term Paper and Seminar Presentation | 2 | - |  | 25 | 75 | 100 |
|  |  | **26** | **30** |  | 25 | 75 | 100 |
|  | **SEMESTER-IV** | | | | | | |
| Core-XI | Apparel Production Technology | 5 | 6 |  | 25 | 75 | 100 |
| Core-XII | Intellectual Property Rights for Textile Industry | 5 | 6 |  | 25 | 75 | 100 |
| Project with viva voce | Project with Viva Voce | 7 | 10 |  | 25 | 75 | 100 |
| Elective - VI | Choose any one from the List of Electives (Industry / Entrepreneurship)  20% Theory 80% Practical | 3 | 4 |  | 25 | 75 | 100 |
| Skill Enhancement course / Professional Competency Skill | Choose any one from the List of Electives | 2 | 4 |  | 25 | 75 | 100 |
| Extension Activities |  | 2 | 2 |  | 25 | 75 | 100 |
|  |  | **23** | **30** |  |  |  |  |
|  | **Total** | **91** |  | |  |  |  |

**List of Electives (Optional)**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No** | **Elective Courses** | **S.No** | **Elective Courses** |
| **Discipline Specific (Job roles/Courses)** | | **Generic Elective** | |
| **Group-A-Designer** | |
|  | Draping, Drafting, Construction and Fit Analysis Practical |  | Fashion Illustration Practical |
|  | Fabric Sourcing and Structure Analysis Practical |  | Advanced Pattern Making Practical - Manual / Computerized |
|  | Garment Styling |  | Hand Embroidery |
|  | Design Research |  | Basic Sewing |
|  | Costumes of the World |  | Design Art and Painting Practical |
|  | Fashion Concepts and Designing |  | Personality Development |
|  | Design Collection Practical |  | Beauty Care Practical |
|  | Professional Design Practical |  | Non-Conventional Natural Fibre |
| **Group B-Entrepreneur** | |  | Standards and Specification for Textiles |
|  | Textile Business Start-up Practical |  | Protective Clothing |
|  | Clothing Boutique Management |  | Functional Apparels and Clothing |
|  | Import Export Management and documentation |  | Intimate Apparels |
|  | Fashion Event Management |  | Clothing Appearance and Fit |
|  | Fashion Retailing |  | Industrial and Clothing Psychology |
|  | Entrepreneurship and Industrial organization |  | Home Textile |
| **Group C-Merchandiser/Industrial Engineer/**  **Quality controller** | |  | Surface ornamentation Practical |
|  | Industrial Engineering |  | Ornaments and Accessory Designing practical |
|  | Quality Control in Apparel Industry Practical |  | Women and Empowerment |
|  | Export Merchandizing Practical |  | Home Science Composite |
|  | Logistics |  | Home Furnishing Practical |
|  | Supply Chain Management |  | Innovative Product Development Practical |
| 18 | Apparel Production and Planning |
| 19 | Textile Industry Management |
| 20 | Apparel Machinery Operations and Maintenance |
| **Group-D-Fashion Communicator** | |
| 21 | Fashion Photography Practical |
| 22 | Visual Merchandizing |
| 23 | Communication for Fashion Business |
| 24 | Fashion Industry and Sustainability |
| 25 | Apparel Brand Management |
| **Group-E-Textile Researcher**  **(Technical Textiles)** | |
| 26 | Textile Biotechnology |
| 27 | Applied Physics and Chemistry for Textiles |
| 28 | Nanotechnology in Textiles |
| 29 | Technical Textiles-1 (Agrotech, Buildtech, Clothtech, Geotech) |
| 30 | Technical Textiles-2 (Hometech, InduTech, Meditech, Mobiltech) |
| 31 | Technical Textiles-3 (Oekotech, Packtech, Protech, Sportech) |

DSE-Discipline Specific Elective

CIM-Core Industrial Module

PCS-Professional Computer Skill

**Discipline Specific / Generic Elective**

The Students should be insisted to choose the Genetic / Discipline Specific Electivesbased on their job role (1 - 4 groups) and it is optional.

**Term Paper and Seminar**

The Students should be insisted to prepare a Paper as a result of in depth study on any recent research title relevant to the respective discipline and should present the same.

**Internship/ Industrial Activity**

The Students should undergo internship/ Industrial Activityat least for a minimum of 15 days after II Semester Examinations.

**Extension Activity**

The Students should be insisted to involve in extension activity for minimum of 15 hours and should report of the activity to the Department.

First year : Semester – I

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| **Course Code** | **1.1** | **INDIAN TEXTILE AND APPAREL INDUSTRY** | **L** | **T** | **P** | **C** |
| **Core** | **I** | **4** | **-** | **-** | **4** |
| **Cognitive Level** | **K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate;** | | | | | |
| **Learning Objectives** | **The Course aims to**   1. The students learn about the recent advancements of Indian Textile and Apparel Industry, Notable Research accomplishments, 2. Understand the position of textile Clusters in India 3. Understand the trends in E-Commerce of textile and apparel business | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Interpret the Current Statistics of cotton, sericulture, jute, woollen, manmade & filament yarn with reference to production and consumption of fibers, yarns and fabrics | K2 |
| CO2 | Review the Non-Woven Product developments and market potential in  India | K2 |
| CO3 | Identify the major initiatives taken by the clusters for the growth of the  Industry | K2 |
| CO4 | Demonstrate the registration process as a vendor in e-com website. | K3 |
| CO5 | Compare the performance of exports and domestic market of Textiles &  Clothing sector | K4 |
| CO6 | Summarize the export opportunities of cotton, sericulture, jute, woollen,  manmade & filament yarn Industries and Textiles & Clothing industry | K5 |

**Unit I Outlook of Indian Textile & Apparel Industry**

**Overview** and Growth of Indian Textile Industry, Current position of textile industry in India, Vision India, Structure of Indian textile industry, India’s major competitors in the world, challenges faced by textile industry in India, Latest government policies and schemes for promotingtextileindustry in India.

**Unit II Recent Progresses of Cotton and Sericulture Industry**

Cotton Textile Industry: Overview of cotton industryin India,keymarketsandexportdestinations,Production,Area and Productivity, Cotton consumption, Cotton Trade, cotton prices, Major cotton producing countries.

Sericulture Industry: Introduction, world silk production, Production and consumption of raw silk, performance of sericulture sector, Research and Development.

**Unit III Recent Progresses of Jute and Woollen Industry**

Jute Industry: Raw jute scenario, production of raw jute goods, Domestic consumption of jute goods, Export performance, Import of Raw jute and jute goods, Regulatory organizations in jute sector, major areas of Research in jute sector, Application of jute in technical textiles.

Woollen Industry: Production and consumption, wool producing states, Import and export of wool, Research and development.

**Unit IV Recent Progresses of Manmade & filament yarn and Textiles & Clothing Industry. Emerging trends in E-commerce of textile and ApparelBusiness**

Manmade and Filament Yarn Industry: Production, Import and Export,growth.

Textiles and Clothing industry: Recent import scenario and export performance of Textiles and Ready-Made Garments (Woven and Knits)

Emerging Trends in E-Commerce of textile and apparel business, Vendor, how to register as a vendor, how to build own e-com website.

**Unit V Recent Progresses of Non-Woven Industry, Research Associations & Clusters**

Textile Research Associations: ATIRA, BTRA, SITRA, NITRA, MANTRA, SASMIRA, IJIRA, WRA

Nonwoven: Recent Development in India, Global Consumption of Non-woven, Market Potential in India, Growth Drivers of Non-woven and Market Overview

Clusters: Definition, Cluster Concept, Policy framework for clusters in India, Mega Handloom Clusters, Power loom mega clusters, Tirupur Knitwear Clusters, Ludhiana Knitwear and Apparel Clusters and Karur clusters

**REFERENCES:**

1. India’s Textile and Apparel Industry: Growth Potential and Trade and Investment Opportunities, Sundar Shetty, U.S. International Trade Commission.2001
2. An Introduction to Sericulture, 2/E, Ganga and J.sulochanachetty, Oxford and IBH Publishing, 1997
3. The Textile Industry in India: Changing Trends and Employment Challenges, Bindhuoberoi, Oxford University Press,2016
4. Trends in E-Business, E-Services, and E-Commerce: Impact of Technology on Goods, Services, and Business Transactions: Impact of Technology on Goods, Services, and Business Transactions Lee, In IGI Global, 30-Sep-2013
5. The Complete Book on Textile Processing and Silk Reeling Technology: H. Panda Asia Pacific Business Press Inc., Delhi 2010
6. Textile Industry of India and Pakistan Milan Sharma APH Publishing, 2006
7. Ministry of Textiles: texmin.nic.in
8. Fibre2 Fashion - Textile Magazine - August 2017 Fibre2Fashion, 01-Aug-2017
9. Advances in Filament Yarn Spinning of Textiles and Polymers. Dong Zhang Elsevier, 15-Feb-2014

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| **Course Code** | **1.2** | **TECHNICAL TEXTILES** | **L** | **T** | **P** | **C** |
| **Core** | **I** | **4** | **-** | **-** | **4** |
| **Cognitive Level** | **K1 - Remember; K2 - Understand; K4 - Analyze;** | | | | | |
| **Course Objectives** | The main objectives of this course are to:   1. Learn about fibres and methods used for the production of Technical Textiles 2. Learn in detail about the classifications of Technical Textiles 3. Learn about the application of the Technical Textiles in various fields 4. To study the concept and uses of technical textiles | | | | | |

Learning Outcomes

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Recall the scope of Technical Textiles and its Applications in various  fields | K1 |
| CO2 | Discuss the fibres and fabrics used in various applications of technical textiles and the products with their uses. | K2 |
| CO3 | Differentiate the fibres and fabrics that are suitable for Heat and flame  protection and Survival textiles | K4 |
| CO4 | Compare the Conventional and Non-conventional fibres used in technical textiles. | K4 |
| CO5 | Compare the performance of various waterproof breathable fabrics like  densely woven fabrics, membranes and coatings | K4 |

**Unit 1Technical Textiles**

Introduction, definition, Applications and scope of Technical Textiles. Milestones and developments of Technical textiles.

Technical Fibers: High – Strength and high-modulus organic fibers, High chemical and combustion - resistant organic fibers, High performance inorganic fibers, Ultra-fine and novelty fibers.

**Unit 2Medical Textiles and Agro Textiles**

Medical Textiles: Introduction, Fibers used, Properties, Classification- Non – Implantable, Implantable, Health care /Hygiene Products and Applications. Wearable assistants for mobile health monitoring. Recent trends in Medical Textiles.

Agro Textiles – - Introduction, fibers used in agro textiles, Types, functions and properties, role of nonwoven in agro textiles,Applications of in agro Textiles and their uses.

**Unit 3Build Tech and Geo Textiles**

Build Tech: - Introduction, fibers used Types, functions and properties, Characteristics and Applications in Architecture and in Building Construction. Recent Advancement in Build Tech.

Geo textiles: - Introduction, fibers used in geo textiles, functions and properties of ego textiles. Recent developments in Geo Textiles.

**Unit 4Protective Textiles,InduTechand Home Textiles**

Protective Textiles: Introduction, fibers used, functions and properties, textiles for protection-Fire Protective clothing, Heat resistant garments, Water proof materials, Ballistic resistant garments, Biological and chemical protection vests, Military Protective clothing. Recent developments in protective textiles.

InduTech - Introduction, fibers used - types, functions and properties. Applications and latest trends in its field.

Home Textiles - Introduction, fibers used, types, functions andApplications of home textiles.

**Unit 5Sports Textiles, Smart and Intelligent Textiles**

Sports Textiles: Introduction, fibers used, Types, functions, Applications of Sports Tech. Latest trends in Sports Tech.

Smart and Intelligent Textiles – Classification - Active smart, passive smart and ultra-smart textiles and their applications- Phase change materials, shape memory polymers, chromic and conductive Materials and its applications invarious Wearable technology. Latest trends in smart and intelligent textiles.

**REFERENCES:**

1. Hand book of Technical textiles, A. R. Horrocks and S. C. Anand, Wood head publishing ltd, England, 2000
2. Technical Textiles and its Application , Dr.S.Grace Annapoorani, LASER Park Publishing House, India, 2017
3. Textiles for Industrial Applications, R Senthil Kumar, CRC Press, 2013
4. Textile Fibers: Developments and Innovations, Kothari, V., New Delhi: IAFL Publications, 2000.
5. Handbook of Industrial Textiles, SabitAdanur, Wellington Sears CRC Press ,1995
6. Agro Textiles and its Application, Dr.S.GraceAnnapoorani, Wood head publishing ltd, India , 2018

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| **Course Code** | **1.3** | **ADVANCED GARMENT CONSTRUCTION PRACTICAL** | **L** | **T** | **P** | **C** |
| **Core** | **I** | **-** | **-** | **8** | **4** |
| **Cognitive Level** | **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create | | | | | |
| **Learning Objectives** | 1. To study about the theme formulation and garment designing ideas 2. To design garments and develop patterns using flat pattern techniques 3. To develop the knowledge of selecting suitable fabrics 4. To apply construction skill for garment development and enrichment 5. To learn the cost calculation for finished garment | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Developing theme and garment design | K6 |
| CO2 | Application of flat pattern techniques for pattern drafting | K3 |
| CO3 | Analyzation and collection of suitable materials for garment design | K4 |
| CO4 | Application of Garment construction and enrichment techniques | K3 |
| CO5 | Evaluation of cost of finished garment | K5 |

I. Development of garments by incorporating flat pattern techniques.

* Develop a theme, design garments and present flat sketches for Children/ Women’s / Men’s/special garments (any three)
* Develop patterns and drafting instructions for the developed garment design
* Selection of colour and fabrics suitable for developed design
* Construction of garments
* Finish the garments with accessories / embellishments.
* Calculate the cost of the garment.

**REFERENCES:**

1. Zarapkar System of cutting, Zarapkar Tailoring College, Navneet, 2010.
2. Reader’s Digest Complete Guide to Sewing, Reader’s Digest Association, 1982.
3. Anita Tyagi, Handbook of fashion Technology, Sonali Publications, New Delhi, 2012.
4. Peg Couch, Garment Construction: A Complete course on making clothing for fit and Fashion, Fox Chapel Publishing. USA, 2011.
5. Marie Clayton, Make your own clothes: Twenty custom fit pattern to sew, Collins & Brown, London, 2008.

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| **Course Code** | **1.6** | **DRAPING, DRAFTING, CONSTRUCTION AND FIT ANALYSISPRACTICAL** | **L** | **T** | **P** | **C** |
| **Ability Enhancement Course** | **I** | **-** | **-** | **4** | **2** |
| **Cognitive Level** | **K2** - Understand; **K3** - Apply; **K4** - Analyze;  **K5:** Evaluate;**K6**– Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. The learners could envision three-dimensional view of the creative designs and examine the fit of the garment for customized designs through draping techniques. 2. The learners acquire knowledge on advanced draping skills to perform creatively in appareldesigning. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Developing advanced draping skills for apparel designing | K2 |
| CO2 | Applying draping techniques to create fullness on garments | K3 |
| CO3 | Analyzation and collection of for garment design for draping | K4 |
| CO4 | Evaluation of cost fit of draped garments garment | K5 |
| CO5 | Create garment designs for draping and fit analysis | K6 |

1. The following experiments are to be draped on the dress form, prepare pattern and constructthe sample / garment and check the fit on dress form.
2. **Incorporating Dart Variations in Bodice -** Front bodice with underarm dart /Back bodice with Neckline dart/ Waist line dart/ Dart at waist line and Center front/ The French dart/ Double French dart/ Flange dart/ Neckline dart/ Bust line dart at Center front and Armhole dart.
3. **Incorporating Fullness in Bodice –**Pleats/ darts/ tucks/gathers- variations in Neckline / Armhole /Waistline.
4. **Variations in skirt -** Tapered skirt/ eased skirt/ Dirndl skirt/Dome skirt/ flared skirt / variations in flared skirt/ Peg skirt Sarong skirt /Pleated skirt.
5. **Drape, develop pattern, construct and check fit on the body**

Create garment style of your own for children/men/women

**REFERENCES:**

1. Draping for Fashion Design, Jaffe, Jaffe Hilde, Pearson Education India,2009
2. Draping: The Complete Course, Karolyn Kiisel, Laurence King Publishing,2013
3. Draping for Apparel Design, Helen Joseph-Armstrong, Bloomsbury Academic, 2013
4. Cutting and Draping Party and Eveningwear: Dressmaking and pattern cutting for special occasionclothes Dawn Cloake Pavilion Books, 01-Oct-2016

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| **Course Code** | **1.7** | **FASHION ILLUSTRATIONPRACTICAL** | **L** | **T** | **P** | **C** |
| **Skill Enhancement Course** | **I** | **-** | **-** | **4** | **2** |
| **Cognitive Level** | **K2: Understand, K3: Apply, K4: Analyse, K6: Create** | | | | | |
| **Learning Objectives** | The main objectives of this course are to:   1. To impart practical exposure in fashion sketching 2. To acquaint students with the knowledge on application of colours on garment designing. 3. To impart the knowledge and skills required to become designers. 4. To impart students to analyze and apply different fabrics and accessories on croqui 5. To impart students to design suitable garments for different personalities. | | | | | |

**Learning Outcomes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Perform basic fashion drawing skills: Human body and different kinds of figures and poses | K2 |
| CO2 | Application of colours on garment design | K3 |
| CO3 | Development of two and three dimension human figures | K6 |
| CO4 | Analyze and apply different fabrics and accessories | K4 |
| CO5 | Developing fashion garments for various personalities | K6 |

1. Sketching of different action croqui

2. Rendering various fabric textures on croqui -Silk/denim/checked/satin/velvet

3. Application of Colours on garment designs using different mediums

4. Sketching of Single, two and three dimension figures

5. Application of garments on croqui for different seasons/occasions

6. Application of high fashion garments on croqui with accessories, hair styles, trims/Fullness (pleats, smocking, gathering, ruffles etc.)

7. Sketching of croqui with uniform for a preferable sports game e.g., cricket team.

8. Developing stylized figures looking into photos and Pictures from Magazines

9. Design and apply suitable garments for different personalities-tall/stout/short/thin/special persons.

10. Create new designs for a bride groom (any three) of Tamil Nadu/ Karnataka/ Andhra/ Kerela/ Maharastra/ Madhya Pradesh /Punjab/ Rajasthan/ Nagaland/ Sikkim/ Bihar/west Bengal/ Gujarat/**Arunachal Pradesh**/ Assam/ Haryana with suitable accessories and ornaments.

**REFERENCES:**

1. Fashion Sketchbook, [Bina Abling,](https://www.bloomsbury.com/us/author/bina-abling)6th Edition Fairchild Books,2012
2. Figure Drawing For Fashion Design Illustrated, Tisiannapaci, Pepin Press; 2nd edition,2010
3. Fashion Illustration: Inspiration and technique, Anna kipper, David and Charles,2011
4. New Fashion Figure Templates, Patrick John Ireland, Batsford, 2017
5. Figure Drawing for Fashion Design, ElisabettaDrudi, Pepin Press, 2010
6. RanjanaSinghal, Kannari Bharat, Fashion Rendering, OM books International, 2010.
7. Raviraj,Pencil Shading, Basic Techniques. New Century Book House Pvt Ltd., Chennai, 2007.
8. Pooja Khurana & Monika Sethi, Introduction to Fashion Technology, Firewall Media Pvt. Ltd., New Delhi 2007.
9. PundalikVaze, Jyotsna Prakashan, Draw and Paint. Pune, I Edition, 2002.
10. Steven Stipelman, Illustrating Fashion Concept to Creation, Fairchild publication, New York,2005.
11. Kathryn Hagen, Fashion illustration for Designers, Pearson education, Inc., New jersey 2005.
12. BinaAbling, Fashion Sketch Book..: Om Books International, New Delhi,2004.
13. Navneetkaur, Comdex Fashion Design: Fashion Concepts, Dream tech Press, New Delhi, Vol-I, 2010.

Semester – II

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| **Course Code** | **2.1** | **ECO TEXTILES AND SUSTAINABILITY** | **L** | **T** | **P** | **C** |
| **Core** | **IV** | **4** | **-** | **-** | **4** |
| **Cognitive Level** | **K2: Understand, K3: Apply, K4: Analyse ;** | | | | | |
| **Learning Objectives** | The main objectives of this course are to:   1. Understand about Eco textiles and sustainable development. 2. Learn about the eco-friendly processing of textiles 3. Gain knowledge about natural fibers, dyes and finishes. 4. Learn about Ethical manufacturing | | | | | |

**Learning Outcomes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Psychomotor** |
| CO1 | Concept of eco-friendlytextileand sustainable development | K2 |
| CO2 | Eco-friendly processing of Textiles | K3 |
| CO3 | Application of natural dyes and fabricfinishes | K3 |
| CO4 | Ethical manufacturing and environmental protection | K2 |
| CO5 | To explore the need for recycling/upcycling of textiles | K4 |

**Unit1An overview of Eco and sustainable development**

Introduction and needs for eco-textiles, importance of eco-textiles. Ecology - Production ecology, Human ecology & Disposal ecology. Structure and stability of the ecosystem. Introduction, Definition, concepts of Sustainable Development, SDG Goals, 7 principles of sustainability Difference between chemical & green process in manufacturing, rules/ recommendations for using chemicals, raw materials & waste management for sustainable textiles & clothing .

**Unit 1I Eco-friendly processing of Textiles**

Modern approaches to eco- friendly wet processing of woven and knitted clothing. Red listed textile chemicals, their sources, and remedies. Eco friendly fibers, Eco- friendly dyes and their method of dyeing; Energy efficient production methods and processing techniques. Enzymes, and natural dyes, Natural mordants for natural colour dye fixation.

**Unit1II Organic and sustainable textiles**

Organic fiber production & Processes; Organic cotton, wool, silk, bamboo, Regenerated fibers- Lyocell, PLA (Polylactic Acid) fibers, Recycled fibers- PET. Fragrance textiles, health and hygiene textile using nano and biomaterials, skin nourishing and vitamin E finishing, mothproofing of woolen products, textiles for yoga and other applications. Reduction of carbon footprints in textile processing and finishing;

**Unit1V Recycling, up cycling of textiles and circular economy**

Recycling- Definition, recycling process, importance of recycling. Upcycling- Definition, importance of upcycling, need for recycling/upcycling of textiles and clothing, disadvantages of recycling/upcycling, sustainability through innovative designs and accessories. Circular economy- Definition, benefits, five pillars of circular economy, steps for achieving circular economy, circular principles for textile and apparel industry, advantages of circular economy, zero liquid discharge in textile industry.

**Unit V Ethical manufacturing and corporate social responsibility**

Seven ethical issues relating to textile and fashion industry, impact of textile and fashion industry on the environment. Ethical, Standard practices for sourcing of sustainable fashion clothing and accessory. Corporate Social responsibility in fashion and apparel industry.

**REFERENCES:**

1. K.Sangeetha, Eco Textiles and Sustainability, Laser Park Publishing House, 2017.

2. Richard Blackburn, Sustainable Textiles: Life Cycle and Environmental Impact, Wood head Pub.Ltd., 2009.

3. Miraftab M. and Horrocks R., Eco Textiles, Wood head Pub.Ltd, Cambridge, 2007.

4. Black S, Sustainable Fashion Handbook, Thames and Hudson, 2013.

5. Rajesh D., Textiles for Sustainable Development, Anandjiwala Nova Publishers, 2007.

6. Miraftab, M Horrocks, A. Richard, Eco textiles: The Way Forward for Sustainable Development in Textiles, Woodhead Publishing, [Elsevier,](https://www.google.com/search?sxsrf=ALeKk02zVdzVWrvpEeCwMMR9MLDjihov5g:1622114821998&q=Ecotextiles:+The+Way+Forward+for+Sustainable+Development+in+Textiles+M+Miraftab,+A.+Richard+Horrocks+%22Elsevier,%22+30-Jan-2007&sa=X&ved=2ahUKEwilqv_N4OnwAhU47HMBHTxhAfcQ5t4CMAJ6BAgDEAo)2007.

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10. Shahid UI-Islam, The Impact and Prospects of Green Chemistry For Textile, Bhupendra Singh Butola, Elsevier, 2018.

11. P. Vinayagamurthi ,S .Kavitha, D.Gopalakrishnan, Textiles finishing –Basic concepts and application, Astral Publications International Pvt.Ltd, New Delhi, 2018.

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| **Course Code** | **2.2** | **TEXTILE TESTING** | **L** | **T** | **P** | **C** |
| **Core** | **V** | **4** | **-** | **-** | **4** |
| **Cognitive Level** | **K2: Understand, K3: Apply, K4** - Analyze; | | | | | |
| **Learning Objectives** | 1. The main objectives of this course are to: 2. Understand the importance of textile testing and its role in quality control. 3. Apply various testing methods and instruments for testingof textiles. 4. Understand the national and international standards fortextile testing. 5. Analyze the properties of textile materials by testing. 6. Evaluate the quality of textile materials based on test results. | | | | | |

**Learning Out comes**

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| **CO1** | Understand the Quality Parameters and standards of textile testing | K2 |
| **CO2** | Outline the methods, procedures and instruments to determine the fibre  length, fibre fineness and fibre strength | K3 |
| **CO3** | Execute the Yarn testing methods forcount, twist, strengthand  unevenness | K4 |
| **CO4** | Understand the suitable testing methods for fabric weight, count, thickness, crease recovery, abrasion, stiffness, strength, drape and pilling | K2 |
| **CO5** | Differentiate the procedures of various Color fastness tests | K3 |
| **CO6** | Understand the comfort related properties such as air permeability, water  and vapor transmission and heat transmission | K2 |

**Unit I An overview of textile testing and humidity**

Textile testing and its objectives: Introduction to standards – Importance, types, International Quality parameters and standards like AATCC, ASTM, BIS etc.

Moisture and Humidity – its importance and relationship to textiles, Standard atmospheric conditions, Measurement of humidity – Wet and Dry bulb hygrometer, Sling hygrometer, Measurement of moisture regain and content by Conditioning oven and Shirley moisture meter

**Unit II Testing of fibre properties**

Fibre testing – Fibre length and its importance; Methods of measuring fibre length - Baer sorter; Fibre fineness – Sheffield method and ATIRA fibre fineness tester; Fibre Maturity – Caustic soda swelling method; Fibre strength – Measurement of strength using Pressley tester and Stelometer,Fibre Quality Index; Analysis of trash and lint content in cotton by Shirley trash analyser

**Unit III Determination of yarnproperties**

Yarn testing – Determination of yarn count, Instruments used for determination of count by Quadrant balance Twist and its significance – Estimation of twist by Twist contraction method and Take – up twist tester; Measurement of yarn strength using CRL, CRT and CRE principles, CSP determination, Study of instruments – Single thread strength tester and Lea strength tester; Yarn evenness – Random and periodic variations, Index of irregularity, Yarn appearance board and ASTM standards, Uster Evenness tester, Influence of yarn hairiness on fabric quality

**Unit IV Determination of fabric and garment properties**

Fabric testing – Determination of fabric weight; Count determination; Importance of cover factor; Crimp properties – Shirley crimp tester; Measurement of thickness by Shirley thickness gauge; Fabric stiffness tester, Measurement of crease recovery – Shirley crease recovery tester; Abrasion resistance – serviceability, wear and measurement by Martindale abrasion tester; Fabric strength – Tensile, Tearing and Bursting strength testers; Assessment of pilling in fabric, Measurement of fabric drape; Objective measurement of fabric handle – Kawabata Evaluation Systems for Fabric (KESF), FTT - Fabric Touch Tester and Fabric Assurance by SimpleTesting(FAST) testers.

Garment testing -Seam testing- seam strength, seam slippage.Accessories Testing- Zipper, Buttons, Sewing thread.

**Unit VTesting of fabric comfort and colour fastness**

Clothing comfort – Classification, Thermal comfort- water and vapour permeability, Thermal conductivity, thermal resistance and air permeability. Colour Fastness– Importance and factors affecting colour fastness, Colour fastness to Washing, Sunlight, Crocking, Pressing and Perspiration, Grey scales and ratings.

**REFERENCES:**

1. A Practical Guide to Textile Testing, Amutha.K, CRC Press, 2016
2. Textile Testing, Raul Jewel, APH Publishing Corporation,2005
3. Advanced Textile Testing Techniques, Sheraz Ahmad et al., CRC Press, 2017.
4. Fabric Testing, Ed. Jinlian Hu, Woodhead Publishing Ltd., 2008.
5. Principles of Textile Testing, J.E.Booth, 3rd Edition1986, CBS Publishers & Distributors, 1996
6. Textile Testing, P.Angappan and R.Gopalakrishnan, 4th revised edition, SSMITT Students Co-operativeStores, Komaraplayam.
7. Hand Book of Textile Testing and Quality Control, E.B.Groover and D.S.Hamby, 1st U.S. Edition,1960, Wiley Eastern Reprint 1988, Published by Mohinder Singh Sejwal (for Wiley Eastern Limited), New Delhi, India
8. Hand Book of methods of test for cotton fibers, yarns and fabrics, V.S.Sundaram and R.L.N.Iyengar,CTRL, Mumbai, 1969
9. Fabric testing by Jinlian Hu, first edition, Woodhead publishing, 2008
10. Physical testing of textiles by B.P.Saville, Woodhead publishing series in textiles, Elsevier,1999

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| **Course Code** | **2.3** | **ECO TEXTILE PROCESSING PRACTICAL** | **L** | **T** | **P** | **C** |
| **Core** | **V** | **-** | **-** | **8** | **4** |
| **Cognitive Level** | **K2: Understand, K3: Apply, K4** - Analyze; **K6** - Create | | | | | |
| **Learning Objectives** | The main objectives of this course are to:   1. Inculcate students the practical knowledge on different types of eco processing and finishing methods. 2. To explore practical skills on fiber and dye extraction from natural sources | | | | | |

**Learning Out comes**

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| **CO1** | Sourcing and analyzing natural fibers for extraction | K4 |
| **CO2** | Understanding the fiber and dye extraction methods | K2 |
| **CO3** | Application of natural dye and finishes on fabric/yarn/fiber | K3 |
| **CO4** | Creating print designs for application of natural dye | K6 |
| **CO5** | Development of eco-friendly finished samples | K3 |

1. Prepare samples / develop product for the following using environment friendly process
2. Extraction of fiberfrom naturalsources
3. Preparation and processing of fabric/yarn/fiber for dyeing /printing
4. Extraction of dye from natural sources
5. Dyeing / Printing of processed fabric using extracted natural dye – tie and dye/batik/Screen/stencil/block
6. Develop sustainable textile finished(special / functional)sample / Product using natural ingredients.

**REFERENCES:**

1. K.Sangeetha, Eco Textiles and Sustainability, Laser Park Publishing House, 2017.

2. Richard Blackburn, Sustainable Textiles: Life Cycle and Environmental Impact, Wood head Pub.Ltd., 2009.

3. Miraftab M. and Horrocks R., Eco Textiles, Wood head Pub.Ltd, Cambridge, 2007.

4. P. Vinayagamurthi ,S .Kavitha, D. Gopalakrishnan, Textiles finishing –Basic concepts and application, Astral Publications International Pvt. Ltd, New Delhi, 2018.

5. Black S, Sustainable Fashion Handbook, Thames and Hudson, 2013.

6. Rajesh D., Textiles for Sustainable Development, Anandjiwala Nova Publishers, 2007.

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8. Richard S. Blackburn, Sustainable Textiles: Life Cycle and Environmental Impact, Woodhead Publishing; 2009.

9. Marion I Tobler-Rohr, Handbook of Sustainable Textile Production, Woodhead Publishing, Elsevier,2011.

10. Charis M. Galanakis, Biobased Products and Industries, Elsevier, 2020.

11. Shahid UI-Islam, The Impact and Prospects of Green Chemistry For Textile, Bhupendra Singh Butola, Elsevier, 2018.

12. M W King, B S Gupta, R Guidoin, Bio-Textiles as Medical Implants, Woodhead Publishing, 2013.

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **Course Code** | **2.6** | **FABRIC SOURCING AND STRUCTURE ANALYSIS PRACTICAL** | **L** | **T** | **P** | **C** |
| **Ability Enhancement Course** | **II** | **-** | **-** | **4** | **2** |
| **Cognitive Level** | **K3: Apply, K4 - Analyze; K5 - Evaluate** | | | | | |
| **Learning Objectives** | The main objectives of this course are to:   1. Students acquire knowledge on identification of fabrics structure, design draft of different Woven and knitted fabrics 2. Students acquire skills in textile designing through exploration of different fabric structures and its applications. | | | | | |

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | To source the fabrics with different structural design | K4 |
| CO2 | To apply the knowledge and identification of fabric structure and its details | K3 |
| CO3 | To evaluate the woven and knitted fabric structure | K5 |

1. Analyze the given fabric swatch and furnish the details of Design, Draft, Peg-plan, Ends and Picks per inch, Count of warp andweft for

Elementary Weaves - Plain weave, Mat weave, Twill weave, Herring-bone twill weave, pointed twill weave, Satin weave and Sateen weave.

1. Analyze the given fabric swatch and furnish the details of Design, Draft, Peg-plan, Ends and Picks per inch, Count of warp andweft for

Decorative/Fancy weaves **-**Honeycomb weave, Huckaback weave, Crepe weave, Terry weave, Leno weave, Backed cloth, Double cloth, Extra warp figuring weave and Simple dobby designs.

1. Analyze the given fabric swatch and furnish the details of Design, Needle set-out, Loop length, Courses and Wales per inch and Count of yarn for

Knitted fabrics - Grams/ Sq.Mt, Single jerseyPlain, 1 X 1 Rib, Interlock, Pique, Honeycomb, Flat backrib, Cardigan, Derbyrib.

1. Analyze the given fabric swatch and furnish the details of Design, Needle set-out, Loop length, Courses and Wales per inch and Count of yarn for three-way techniques of knit fabrics

a) Single jersey (3-way technique- Knit, Tuck, Float)

b)Interlock (3-way technique- Knit, Tuck, Float)

**REFERENCES:**

1. Fabric Structure and Analysis, Gokernesan, N, New Age International Publishers, New Delhi,2004
2. “Watson’s Textile Design and Colour”, Vol.1, Grosicki Z. J., Woodhead Publications, CambridgeEngland, 2004.
3. “Knitting Technology”, Spencer D.J., III Edition ., Textile Institute, Manchester, 2001.
4. “Knitting Technology”, Ajgaonkar D.B.,Universal Publishing Corporation, Mumbai, 1998

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| **Course Code** | **2.7** | **ADVANCED PATTERN MAKING PRACTICAL (MANUAL / COMPUTERIZED)** | **L** | **T** | **P** | **C** |
| **Skill Enhancement Course** | **II** | **-** | **-** | **4** | **2** |
| **Cognitive Level** | **K3: Apply, K4: Analyze, K6: Create** | | | | | |
| **Learning Objectives** | The main objectives of this course are   1. To study about pattern making 2. To understand about the pattern making techniques 3. To learn about the pattern manipulation techniques 4. To study the flat pattern techniques 5. To develop pattern for creative designs | | | | | |

**Learning Outcomes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Apply the concepts of pattern making | K3 |
| CO2 | Analyze pattern making techniques | K4 |
| CO3 | Application of pattern manipulation techniques | K3 |
| CO4 | Relate the process flat pattern techniques for pattern modification | K4 |
| CO5 | Modify and develop patterns for creative designs | K6 |

1. **Develop creative patterns using following pattern making techniques and principles**

* Sketch the basic/original design and modified /creative design for pattern development
* Select a garment, list the measurements required, develop drafting instructions and draft the basic/original pattern.
* Apply drafting principles on original pattern, modify the basic pattern for new/creative design
* Present the original pattern and modified /creative pattern with their respective designs.
* Check the original pattern and modified /creative pattern for same measurements.
* Construct one garment using any one of the basic and creative pattern.

1. Draft a basic pattern (any garment components /garments) and apply dart manipulation technique to shift darts from one location to another location to create designs.

2. Draft a basic pattern (any children garments) and apply Flat pattern techniques to add fullness at top and bottom edges of the garment to create designs.

3. Draft a basic pattern (any women’s garment) and apply Flat pattern techniques to convert darts into seams of the garment.

4. Draft a basic pattern (any women’s /Men’s garment) and apply Flat pattern techniques to convert darts into seams forming yokes of the garment.

5. Draft a basic pattern (any garment components /garments) and apply pattern alternations methods to increase and decrease the fullness from the original size of basic pattern.

**REFERENCES:**

1.Suzanne G. Marshall, HazelO. Jackson M. Sue Stanley, Mary Kefgen, IndividualityinclothingSelectionandPersonalAppearance, PhullisTouchieSpecnt, 2000.

2.Harriet T, McJimsey,“Art andfashionin clothing selection”,The LowaStateUniversity Press,Ames,Lowa , 2016.

3. HilaryCampbell, “DesigningPatterns” , Om BookServices,NewDelhi,2003.

4.HelenJoseph, PatternMakingforFashionDesign,Armstrong PearsonEducation, Delhi.2000.

5. KittyG.Dickerson, InsidetheFashionBusiness,Pearson Publications, NewJersey, Sixth Edition, 2002.

4.MaryMathews,PracticalClothingConstruction,Designing,Draftingandtailoring,BhattaramsReprographics(P)Ltd.,Chennai,PartII, 1991.

5. ZarapkarK.R,Systemof Cutting, NavneetPublications, India, 2005.

Semester – III

**Learning Outcomes**

On successful completion of the course, the students will be able to

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| **S.No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Recall the Concepts of Research | K1 |
| CO2 | Techniques of research problem hypothesis | K2 |
| CO3 | Analyze the process of collecting data’s. | K4 |
| CO4 | Effective Research presentation and report preparation | K3 |
| CO5 | Efficient usage of different statistical tools and interpretation of data | K5 |
| CO6 | Select the right and proper method for data collection | K5 |

**Unit I Fundamental Concepts of Research**

Research: Meaning, definition, Objectives, types of research, Steps in research process.

Research Problem: Formulating Research Problem, Defining the research problem, Selection of Research Problem and Technique involved in defining a problem.

Review of Literature: Understanding and completing Literature review,preparing a Literature review.

**Unit II Research Approach Design and strategy**

Understanding Variables: Definition and Types of Variables Research Design/Proposal - Research Design – Meaning, Types of Research Design, Basic principles of experimental designs, developing a research Plan. Sampling – Census and sample survey, steps in sampling design, criteria for selecting a sampling procedure, characteristics of a good sample design, different types of sample design.

**Unit III Data Collection and Data Presentation**

Definition of Primary and Secondary data, Sources of Primary and Secondary data

Data Collection Methods: Quantitative Data collection methods: Interviews and Types of Interviews (Face to face Interviews, Telephone Interviews, Computer Assisted Personal Interviewing) Questionnaires (Paper-pencil questionnaires, web based questionnaires) Scientific Experiments and Laboratory testmethods

Qualitative Data Collection Methods: In depth Interview, Focus Group, Observation method, Document review, Ethnography

Data Processing – Steps in Data processing for Quantitative Studies and Qualitative studies

Data Presentation: Textual, Tabular (Components of table,features of a good table, kind of tables, classification of data and tabular presentation) andGraphical

**Unit IV Generalisation and Write Up**

Report Writing - Research Report – Format of research report, main body of the report, references and appendices, style of writing, typing the report, pagination, tables and figures, bibliography, footnotes, margins, quotations, evaluating thereport.

**Unit V Statistics**

Meaning and scope of statistics, role of statistics in research, measures of central tendency and dispersion. Co- efficient of Correlation and its Interpretation, Rank Correlation, Regression equation, Application of Chi – Square test, ANOVA test.

**REFERENCES:**

1. Research Methodology: Methods and Techniques, C R Kothari, New Age International (P) Ltd, Delhi,2011.
2. Introduction to Research in Education, Donald Ary, Lucy Jacobs, Asghar Razavieh, ChristineSorensen, Cengage Learning, 2009
3. Research Methodology: A Step By Step Guide For Beginners, 2/E, Ranjit Kumar,Pearson Education India, 2018
4. An Introduction to Statistical Methods, S P Gupta, Vikas publishing House, Delhi,2009.
5. Research Methodology: An Introduction, Wayne Goddard, Stuart Melville, Jut and Company Ltd, 2004
6. Research Methodology and Statistical Techniques, Santosh Gupta,Deep and Deep Publications, 1999

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| **Course Code** | **3.2** | **TEXTILES AND APPAREL QUALITY STANDARDS** | **L** | **T** | **P** | **C** |
| **Core** | **VIII** | **4** | **-** | **-** | **4** |
| **Cognitive Level** | **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; | | | | | |
| **Learning Objectives** | The main objectives of this course are to   1. Study about national and international standards pertaining to textile industry. 2. Demonstrate Eco standards pertaining to fabric and apparel. 3. Study about quality management of apparel industry. | | | | | |

**Learning Outcomes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Adopting quality and standards in apparels | K3 |
| CO2 | Application of apparel testing methods | K2 |
| CO3 | Applying Eco standards | K3 |
| CO4 | Evaluation of total quality management in industry | K5 |
| CO5 | Analyze garment quality test methods | K4 |

**UNIT I - Standards and Test Methods**

Introduction to Quality and Standards- Quality management system (QMS) – ISO, ASTM, AATCC, BS, BIS, DIN- ISO –ASTM Standards for Apparel, ASTM Standards for Body Measurement for Apparel Sizing, chemical and thermal properties for textiles, ASTM Cotton Fiber Standards, ASTM Flammability tests, ASTM Standards for yarn and fiber. AATCC Testing methods for color fastness to Acids, Alkalis, Crocking, Perspiration, Light, dye and pigment migration.

**UNIT II – Social Accountability International**

Social Accountability International (SAI) – SA8000 – Elements of SA8000 Standard – Child labor, Forced or Compulsory labor, Health and Safety, Freedom of Association and Right to Collective Bargaining, Discrimination, Disciplinary Actions, Working Hours, Remuneration, SA8000 Management System.

**UNIT III - Eco standards and Eco Specifications**

Eco Standards and Certification – ISO 14000, Eco Mark, OekoTex 100 Standards, Global Organic Textile Standard (GOTS) – Requirements for Organic Fiber Production under GOTS, General Requirements for Chemical Inputs under GOTS, Occupational Health and Safety Assessment Series  (OHSAS) -Eco Specifications and restrictions in Apparel and Textiles – Sensitizing dye stuffs, Allergic dyes, Carcinogenic amines, red listed as per eco specifications.

**UNIT IV – Total Quality Management and Accepted Quality level**

TQM – Implementation phases of TQM – 5’S, Daily Work Management (DWM), Six Sigma – SIPOC flow at garment industry, Lean Six Sigma. Accepted Quality Level (AQL) – AQL 1.5, AQL 2.5, AQL 4.0 - Manufacturing of Readymade Garments (RMGs) – Defect analysis – Zero Defect, Stage wise defect occurrence in RMG Production.

**UNIT V - Garment Quality test and Labelling Parameters**

Garment Quality tests for dimensions – Stitch quality, Seam quality. Durability characteristics of Trims – Resistance of Zippers, Buttons, Snaps, Buckles to abrasion, bursting and corrosion. Labelling: Labelling parameters, Eco – labelling.

**REFERENCES:**

1.David Hoyle, ISO 9000 Quality Systems Handbook - updated for the ISO 9001:2008 standard, Routledge, 2009.

2.Joseph M. Juran, Quality Planning and Analysis, Tata McGraw-Hill Higher Education Publisher, 2014.

3.Pradip V. Mehta, Satish K.Bhardwaj, Managing Quality in the Apparel Industry, Nift Publication, New Delhi, 1998.4.Sara J. Kadolph, Quality Assurance for Textiles and Apparel, Bloomsbury Academic, 2nd Edition, 2007.

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6.M Miraftab, A. RichardHorrocks, Eco textiles: The Way Forward for Sustainable Development in Textiles, Elsevier, 2007.

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8.Michael Essig, MichaelHulsmann, Eva-Maria Kern, Stephan Klein-Schmeink, Supply Chain Safety Management: Security and Robustness in Logistics, Springer Science & Business Media, 2012.

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| **Course Code** | **3.3** | **TEXTILES AND APPAREL TESTING PRACTICAL** | **L** | **T** | **P** | **C** |
| **Core** | **IX** | **-** | **-** | **8** | **4** |
| **Cognitive Level** | **K4** - Analyze; **K5** - Evaluate; | | | | | |
| **Learning Objectives** | The main objectives of this course are to  1. Test the quality parameters of the fabric,  2. Evaluate the quality of yarn and garments  3. Analyse the colour fastness properties of fabric | | | | | |

**Learning Outcomes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| **CO1** | Perform yarntestsfor crimppercentage,evenness and singleyarn strength | K5 |
| **CO2** | Analyze fabric test such as weight, count, thickness, crease recovery, abrasion, stiffness, bursting strength, tearing strength, drape and pilling | K4 |
| **CO3** | Assess various color fastness tests | K5 |

**I. Testing and Evaluation of:**

1. Yarn Count, lea strength and CSP

2. Single Yarn Strength

3. Twist of yarn

4. Fabric parameters- EPI, PPI, Thickness, GSM

5. Stiffness of fabric

6. Abrasion Resistance of fabric

7. Crease Recovery of fabric

8. Drape of fabric

9.Pilling of fabric

10.Tensile Strength of fabric

11.Tear Strength of fabric

12.Bursting Strength of fabric

13.Colour Fastness to Washing

14. Crocking of crocking (dry/wet)

14.Colour Fastness to Perspiration of fabric

15.Shrinkage

16. Seam testing: seam strength, seam slippage.

17. Accessories Testing: Zipper, Buttons, Sewing thread.

**REFERENCES:**

1. A Practical Guide to Textile Testing, Amutha.K, CRC Press, 2016
2. Textile Testing, Raul Jewel, APH Publishing Corporation,2005
3. Advanced Textile Testing Techniques, Sheraz Ahmad et al., CRC Press, 2017.
4. Fabric Testing, Ed. Jinlian Hu, Woodhead Publishing Ltd., 2008.
5. Principles of Textile Testing: An Introduction to Physical Methods of Testing Textile Fibers, Yarns and Fabrics, J.E.Books, Butterworths,1986

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| **Course Code** | **3.6** | **CAD FOR FASHION DIGITAL COMMUNICATION PRACTICAL** | **L** | **T** | **P** | **C** |
| **Ability Enhancement Course** | **III** | **-** | **-** | **4** | **2** |
| **Cognitive Level** | **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K6** - Create | | | | | |
| **Learning Objectives** | The main objectives of this course are to   1. 1. To understand about the applications of CAD softwares 2. To learn about creating design and content for garment logo and pamphlet suitable for apparel industry 3. To learn about designing garments based on a theme 4. To Create the illustration using CAD software 5. Evaluate the designed garment for selected theme | | | | | |

**Learning Outcomes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| **CO1** | Perform the basic operations of CAD Software’s | K2 |
| **CO2** | Apply creatively the Filter effects, User defined brush  presets, path and characters drape and pilling | K3 |
| **CO3** | Create design pattern, print repeat and graphics | K6 |
| **CO4** | Execute Mood board and story board based on theme using Advanced Graphics | K4 |

**Preparing garment deigns using CAD**

**Application of Software’s - Adobe Photoshop / Coral Draw / Adobe illustrator**

Present your collections of practicing thePhotoshop/ Coral draw tools for enhancing images, Masking, transforms, working with layers, Merging and blending layers, text effects, duplicate, print design creation and repeat setting.

1. **Practice and learn the following**

**Work Space Overview:** Learn aboutTop Menu Bar, How to create a new Document, Photo Shop Tool Palette, Shortcut keys and uses.

**Working with layers and channels:**

Preparing Files and creating a colour Palette

Scanning: Basics, scanning and aligning fabrics

Layers: Use and Function in Design, Exercises onLayers

Masks: How to use mask in Adobe Photoshop

Channels: Working withchannels.

**Creating Filters, brush presets, working with path and Character**

Filters: Filters and uses, working with filters, giving effects to pictures

Brushes Presets: Brushes and uses, Add New brushes

Path: Path and uses, working with Paths

Character: Work with Text, Typography and uses

**Creating design pattern, print repeat and working with graphics**

Understanding Swatches, Working with Repeat of a pattern

Pattern: Define, Create woven patterns

Print Repeat: Fundamentals and Creating Print Repeat

Graphics: Preparing Graphics, How to make Graphics

1. Creative design and content for garment Logo /pamphlet/ letter head and visiting card / fashion silhouette / Mood board and story board suitable for apparel and fashion industry.
2. Digital Fashion Portfolio Creation for Male/Female/children using the below concept (three garment collections for each category)

* Health, safety and protective garments
* Sports garments / leisure garment
* Corporate/Office attire/work outfits/
* Uniforms for restaurant/ Hotel/Spa/housekeeping/front desk/ office professionals

**REFERENCES:**

1. Melanie Bowles, Print, Make, Wear: Creative Projects for Digital Textile Design, Paperback, The People'sPrint, 2015.

2. Josephine Steed, Basics Textile Design 01: Sourcing Ideas: Researching Colour, Surface, Structure, Texture and Pattern, Paperback, Frances Stevenson, 2012.

3. Harold Carr and Barbara Latham, The Technology of Clothing Manufacture, Black Well, Berlin, 2004.

4. Frederick L. Chipkin, Adobe Photoshop Elements for Textile Design, Origin Inc., 2010.

5. Marianne Centner and FrancesVereker, Fashion Designers Handbook for Adobe Illustrator, John Wiley & Sons Ltd., United Kingdom, 2011.

6. Robin Schneider, Adobe for Fashion: Illustrator CS5, The ultimate guide to drawing flats, Lulu.com, 2012.

7. Frankie Ng and Jiu Zhou,Innovative Jacquard Textile Design using digital technologies, Woodhead Publishing, London, 2008.

8. Gini Stephen Frings, Fashion from Concept to consumer, Prentice Hall Inc., New Jersey,2002.

9. Stephen Nicholas Gray, CAD/CAM in Clothing and Textiles, Design Council Publisher,1998.

10. Melanie Bowles, Digital Textile Design, Paperback, Ceri Isaac Illustrated, 2012.

**Learning Outcomes**

On successful completion of the course, the students will be able to

|  |  |  |
| --- | --- | --- |
| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| **CO1** | Identification of area / topic for presentation | K2 |
| **CO2** | Analyze various sources for content development | K4 |
| **CO3** | Create and develop presentation | K6 |
| **CO4** | Evaluate your collected sources for execution of presentation | K5 |

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| **Course Code** | **3.7** | **TERM PAPER AND SEMINAR PRESENTATION PRACTICAL** | **L** | **T** | **P** | **C** |
| **Skill Enhancement Course** | **III** | **-** | **-** | **4** | **2** |
| **Cognitive Level** | **K2** - Understand; **K4** - Analyze; **K5** - Evaluate; **K**6- Create; | | | | | |
| **Learning Objectives** | The main objectives of this course are to  1. The Students will learn to prepare and present paper | | | | | |

* Choose the best topic for preparation and presentation
* Generate ideas and create a research question to stay focused on your research topic
* Understand the format to prepare a paper and learn the basic features of a seminar paper
* Gather information from Books, articles from scholarly journals, magazine articles, newspaper articles, and trustworthy websites.
* Evaluate your sources to determine their credibility, read and draft using collected information with relevant background information.
* Present your claims and research in an organized fashion
* Use proper headings and/or subheadings to organize the paper and conclude
* Create bibliography and revise the entire paper
* Prepare the slides very precise and selective
* Present your paper in front of the audience lively and interesting with strong conclusion

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| **Course Code** | **4.1** | **APPAREL PRODUCTION TECHNOLOGY** | **L** | **T** | **P** | **C** |
| **Core** | **X** | **4** | **-** | **-** | **4** |
| **Cognitive Level** | **K2: Understand, K3: Apply, K4: Analyze, K5: Evaluate, K6: Create** | | | | | |
| **Learning Objectives** | The main objectives of this course are   1. To learn about apparel production systems 2. To Understand production processes 3. To understand the techniques of finishing and packing apparels 4. To Understand Production Planning and Control 5. To impart knowledge on plant loading and capacity planning | | | | | |

**Learning Outcomes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| **CO1** | Apparel production systems | K2 |
| **CO2** | Analyze the Process involved in production | K3 |
| **CO3** | Analyze finishing and packing of apparels | K6 |
| **CO4** | Application of production planning and control | K4 |
|  | Evaluate plant loading and capacity planning | K5 |

**UnitI- Apparel Production Systems and trade associations**

Apparel Production Systems- Nature and Scope. Major functions of apparel manufacturing - Material flow in apparel industry - Basic types of apparel production process - Make through system, Group system, Whole garment production system, Assembly line system, Progressive bundle system and computerized overhead transport system / Unit production system.

**UnitII-Computerized Production Process, planning and scheduling**

**Production Process**-Marker Planning- Efficiency of Marker, Methods of Marker Planning. Spreading-Spreading of the fabric to form a lay, Spreading Requirements, Methods of Spreading. Cutting-Fabric Packages, Introduction to Garment Cutting, Objectives of Cutting, Methods of Cutting. Garment sewing- Automation in apparel manufacturing process-spreading, Marker Making, cutting and sewing.

**Computerized Production planning and scheduling -**Computer applications in Production planning and scheduling – CAD, CAM, CIM. Applications of Artificial Intelligence (AI) in apparel industry - Fabric defect identification, Pattern inspection, Colour matching, Production planning and control, Final inspection.

**UnitIII- Finishing and packing**

Apparel Finishing-Importance - Garment pressing and finishing, Types of Garments pressing, Specialty Garment Finishes. Quality Checking-Inspection, Interactive bar coding, needle detection.

Packaging and ware housing- Types of packing, packing materials, quality specification, merchandise packing and shipping packing. Intra transport, ware housing, computerized storage.

**UnitIV- Production Planning and Control**

Pre-production functions – product acceptance, steps from prototype to production model, order requirements - Production Control-Definition, objectives of production control, co-ordination of production control department with other departments in the manufacturing organizations -Process of inline checking - Pre-production inspection, In-Process Inspection, Pre-final inspection, Pre shipment Inspection.

Manufacturing operations - scheduling, work centres, facility layout, work load and work assignments.

**UnitV- Plant Loading and Capacity Planning**

Determination of machinery requirements for a new factory, calculation of labour requirements, application of line balancing techniques. Techniques of industrial engineering in apparel industry - Time study, Motion study, Method/work study- Definition, Purpose, Techniques.

**REFERENCES:**

1.T.Karthick et al, Apparel Manufacturing Technology, CRC Press, 2016.

2.Rajkishore Nayak & Rajiv Padhye, Garment Manufacturing Technology, Elsevier, 2015.

3. Harold Carr and Barbara Latham, The Technology of Clothing Manufacture, Blackwell Science Ltd., London, 2015.

4. N. Gaither and G. Frazier, Operation Management, Thompsan, Asia, 2004.

5. S. A. Chunwala and D. R. Patol, Production and Operation Management, Himalayas, (2004)

6. Decenzo and Robbins, Human Resource Management, Wiley, 6th edition, 2004.

7. V.Ramesh Babu, Industrial Engineering in Apparel Production, Woodhead Publishing, Elsevier Science &Technology, 2017.

8. Raj Kishore Nayak & Rajiv Padhye, Automation in Garment Manufacturing, Wood head Publishing, 2017.

9. Glock.E, Grace.L, Apparel Manufacturing, Dorling Kindersley Pvt. Ltd., India, 2012.

10. Kitty G.Dickerson, Inside the Fashion Business, Pearson Education Pvt. Ltd., India, 2005.

11. Mamoria, C. B. andMamoria, S., Personal Management, Himalaya Publishing Co.,2005.

12. Jack Donnelly, Universal Human Rights in Theory and Practice, Cornell University Press, New York, 2003.

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| **Course Code** | **4.2** | **INTELLECTUAL PROPERTY RIGHTS FOR TEXTILE INDUSTRY** | **L** | **T** | **P** | **C** |
| **Core** | **XI** | **4** | **-** | **-** | **4** |
| **Cognitive Level** | **K2: Understand, K3: Apply, K4: Analyze** | | | | | |
| **Learning Objectives** | The main objectives of this course are   1. The students will acquire knowledge to identify different property rights and 2. Students will learn to classify the methods of filing the property rights. 3. Students understand copy right, trade mark, industrial design process and patent filing process in detail. | | | | | |

**Learning Outcomes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Describe the objectives and functions of intellectual property rights. | K2 |
| CO2 | Summarize the industrial design protection process, design act, Criteria and qualification for registration | K2 |
| CO3 | Practice drafting procedure for Intellectual Property rights | K3 |
| CO4 | Compare Copy right and Trade mark right for fashion design | K4 |
| CO5 | Differentiate Geographical indication of goods for fashion design and Patenting fashion products | K4 |

**Unit I Introduction to Intellectual Property rights**

Introduction and meaning of Intellectual property rights, Objectives of IP law, Legal rights for fashion designers- Types of Rights, Fashion design piracy

**Unit II Industrial Design protection**

Features of Design Act 2000, Objective of design act, understanding design act, Criteria and qualification for registration, Duration of the registration of design, Cost of filing design, Penalty of the piracy of registered design, Procedure for registration of design.

**Unit III Copy Right Protection**

Understanding copy right act for fashion design, Requirements ofcopyrightprotection,whoownsthecopyrightatwork,Copyright and Design overlap, Difference between copy right and design law, Nature and scope of Copyright protection, Term of Copyright in India.

**Unit IV Trademark Protection for fashion Design**

Introduction and meaning of trade mark, Importance,Types of trade mark. Introduction to brand and trade mark protection, Difference between brand and trade mark, how trade mark protects the brand name, Role of trade mark done in fashion, Trademark registration, duration and validity.

**Unit V Geographical indication**

Geographical indication: Meaning of Geographical indication (GI), Protection of GI, Examples of GI in textiles and clothing in India, need for protection of geographic locations, [Protection of geographical indication.](https://europa.eu/youreurope/business/running-business/intellectual-property/geographical-indications/index_en.htm" \l ":~:text=Geographical%20indications%20protect%20your%20products,as%20certain%20requirements%20are%20met.)

Patent: Meaning of patent,need and importance of patent right, [Eligibility requirements for filing patent applications in India, Types of patent, Scope of patent protection](https://www.lexology.com/library/detail.aspx?g=adff1e84-b5aa-4e1f-8cb0-5bfa5fa98ee1)

**REFERENCES:**

Information Booklet for Applicants for Registration of Designs-Department of industrial policy and promotion, Ministry of commerce and industry, Government of India.

1. Managing Intellectual Property: The Strategic Imperative, Vinod V. Sople,PHI Learning Pvt. Ltd., 2006
2. Using Design Protection in the Fashion Industry, Ulla Vad Lane-Rowley, Wiley, 1997
3. Fashion Law: A Guide for Designers, Fashion Executives, and Attorneys,Guillermo C. Jimenez,Barbara Kolsun,A&C Black, 2014
4. Creating Economy: Enterprise, Intellectual Property, and the Valuation of Goods Barbara Townley,Philip Roscoe, Nicola Searle Oxford University Press, 10-Jan-2019
5. Textile Design Protection: Copyright, CAD and Competition” in Technovation, Vol. 20 (1), pp. 47-53. Dickson, Keith and Coles, Anne-Marie (1999),
6. Intellectual Property and Innovation Management in Small Firms, Coles, Anne-Marie, Dickson, Keith and Woods, Adrian (2003), "Copyright Protection Strategies by Small Textile Firms" in Robert A.Blackburn (ed) Routledge, London & New York.

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| **Course Code** | **4.3** | **PORTFOLIO PRESENTATION -MANUAL/DIGITAL PRACTICAL** | **L** | **T** | **P** | **C** |
| **Core** | **XII** | **-** | **2** | **4** | **4** |
| **Cognitive Level** | **K2: Understand, K3: Apply, K4: Analyse; K5: Evaluate; K6:Create** | | | | | |
| **Learning Objectives** | The main objectives of this course are   1. Design and develop portfolio with sketches, Concept, Mood Boards on basis of theme 2. To become a fabric technician, garment technician, accessory maker, fashion merchandiser and fashion designer. 3. Capability to start up Boutiques and designer shop. | | | | | |

**Learning Outcomes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understandthe conceptofmakingPortfolio. | K2 |
| CO2 | Application of inspiration for development of Mood./color / fabric board | K3 |
| CO3 | Creation of garment design based on customer profile | K6 |
| CO4 | Analyze the designs/fabrics for Portfolio development | K4 |
| CO5 | Evaluation of developed garment against customer profile | K5 |
| CO6 | Differentiate Geographical indication of goods for fashion design and Patenting fashion products | K4 |

# Portfolio Presentation for any 4 Theme with the following components (Woven / knitted fabric)for Children/ Women’s / Men’s/special garments

* NameBoard
* DesignerProfile
* CustomerProfile
* MoodBoard
* InspirationBoard
* Fashion Illustration – 5 (front &back sketches)
* ColourBoard
* Fabric Board
* Design Development / StoryBoard
* AccessoryBoard
* Garment ConstructionBoard
* Photo shoot collection board

**REFERENCES:**

1. Portfolio Presentation for Fashion Designers., [Linda Tain](https://www.bloomsbury.com/in/author/linda-tain)*,* PDF –e BOOK
2. Portfolio Presentation for Fashion Designers Paperback,[LindaTain](https://www.amazon.in/Linda-Tain/e/B001K8MDTW/ref=dp_byline_cont_book_1) , Fairchild Publications2010
3. Design Your Fashion Portfolio Paperback – 1 [Steven Faerm](https://www.amazon.in/Steven-Faerm/e/B0034Q1NJ4/ref=dp_byline_cont_book_1),A& C Black Publishers Ltd, 2012

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| **Course Code** | **4.6** | **INNOVATIVE PRODUCT DEVELOPMENTPRACTICAL** | **L** | **T** | **P** | **C** |
| **Ability Enhancement Course** | **IV** | **-** | **-** | **4** | **2** |
| **Cognitive Level** | **K2: Understand; K3: Apply; K4: Analyse; K5: Evaluate; K6:Create** | | | | | |
| **Learning Objectives** | The main objectives of this course are   * To make analysis of market business * To understand and generate idea for product development * To source materials for product development * To develop and designs innovative product * To analyse cost of the product and report preparation | | | | | |

**Learning Outcomes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Market research | K4 |
| CO2 | Idea generation for product development | K6 |
| CO3 | Could source the material for the product | K2 |
| CO4 | Develop product | K3 |
| CO5 | Analyse cost of the product | K5 |

1. **Development of innovative Product for textile industry**

* Market research for development of innovative product
* Generate idea for product design and determine key criteria
* Design creation and technical specification
* Source materials for product development
* Prototype product development and conversion to second life/final product
* Cost analysis for product development
* Report development and Product presentation

**DISCIPLINE SPECIFIC ELECTIVE**

**Job Role Specific**

**Choose A - E groups (optional)**

**DISCIPLINE SPECIFIC ELECTIVE**

**Group-A-Designer**

**List of Electives**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No** | **Elective Courses** | **S.No** | **Elective Courses** |
| **Discipline Specific (Job roles/Courses)** | | **Generic Elective** | |
| **Group-A-Designer** | |
|  | Draping, Drafting, Construction and Fit Analysis Practical |  | Fashion Illustration Practical |
|  | Fabric Sourcing and Structure Analysis Practical |  | Advanced Pattern Making Practical - Manual / Computerized |
|  | Garment Styling |  | Hand Embroidery |
|  | Design Research |  | Basic Sewing |
|  | Costumes of the World |  | Design Art and Painting Practical |
|  | Fashion Concepts and Designing |  | Personality Development |
|  | Design Collection Practical |  | Beauty Care Practical |
|  | Professional Design Practical |  | Non-Conventional Natural Fibre |
| **Group B-Entrepreneur** | |  | Standards and Specification for Textiles |
|  | Textile Business Start-up Practical |  | Protective Clothing |
|  | Clothing Boutique Management |  | Functional Apparels and Clothing |
|  | Import Export Management and documentation |  | Intimate Apparels |
|  | Fashion Event Management |  | Clothing Appearance and Fit |
|  | Fashion Retailing |  | Industrial and Clothing Psychology |
|  | Entrepreneurship and Industrial organization |  | Home Textile |
| **Group C-Merchandiser/Industrial Engineer/**  **Quality controller** | |  | Surface ornamentation Practical |
|  | Industrial Engineering |  | Ornaments and Accessory Designing practical |
|  | Quality Control in Apparel Industry Practical |  | Women and Empowerment |
|  | Export Merchandizing Practical |  | Home Science Composite |
|  | Logistics |  | Home Furnishing Practical |
|  | Supply Chain Management |  | Innovative Product Development Practical |
| 18 | Apparel Production and Planning |
| 19 | Textile Industry Management |
| 20 | Apparel Machinery Operations and Maintenance |
| **Group-D-Fashion Communicator** | |
| 21 | Fashion Photography Practical |
| 22 | Visual Merchandizing |
| 23 | Communication for Fashion Business |
| 24 | Fashion Industry and Sustainability |
| 25 | Apparel Brand Management |
| **Group-E-Textile Researcher**  **(Technical Textiles)** | |
| 26 | Textile Biotechnology |
| 27 | Applied Physics and Chemistry for Textiles |
| 28 | Nanotechnology in Textiles |
| 29 | Technical Textiles-1 (Agrotech, Buildtech, Clothtech, Geotech) |
| 30 | Technical Textiles-2 (Hometech, InduTech, Meditech, Mobiltech) |
| 31 | Technical Textiles-3 (Oekotech, Packtech, Protech, Sportech) |

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| **Course Code** | **1** | **GARMENT STYLING** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K2** - Understand; **K3** - Apply; K6 – Create | | | | | |
| **Learning Objectives** | The main objectives of this course are   1. The students learn practical techniques, and specialize in an area of styling. Fashion details are identified by colour, silhouette, fabrics, and patterns. 2. The students learn to identify and describe the many different styles of clothes and accessories, as well as the different parts of a garment. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the categories of fashion, the terminology of garments, and draw technical sketches. | K2 |
| CO2 | Understand design elements and principles; create various silhouettes and design details | K2 |
| CO3 | Interpret various garment shaping devices and style variables. | K2 |
| CO4 | Apply the correct use of fabric and printing techniques in styling. | K3 |
| CO5 | Design garments by applying colour principles and techniques. | K6 |

**UNIT ICategories of fashion and Technical design terms and technical sketches**

Categories of fashion & size ranges**:** Basic categories in women’s apparel and size ranges, men’s apparel and size ranges, children’s apparel and size ranges. Garment Terminology: Terminology of a shirt, dress, jacket, pants, and hats. Drawing specifications: meaning of technical sketch,understand different types of sketches, technical sketch for a shirt with the font size and line weights.

**UNIT IIElements and Principles of Design, Silhouettes and Design details related to silhouettes**

Elements and Principles of Design,Silhouettes:Silhouettes changes by waist position,Classicdress silhouettes defined by shape**,** Dress Silhouettes changed by design details**,** Skirt silhouette defined by shape and design details**,** Silhouettes based on the length of the garment. Pant silhouettes defined by shape and design detail**.** Define - Bell bottoms, drawstring pant, active pant, trouser style, knickers and draw the silhouettes.

**UNIT III Styles, lines, details for shape and fit Style variables and characteristics**

Garment shaping devices: Influence of single and double-pointed darts in apparel fitting, technical aspects of dart design, Uses of pleats in garment styling, Placement variations for design detail, Use gathers in garment styling, Application of easing in tailored garment. Draw the position of easing in tailored garment, Application of elastic, draw cord and lacing as shaping device, Seam shaping, Define seams, application area of various seams, Style variables and characteristics.

**UNIT IV Fabrics, Dyeing and Printed techniques**

**Fabrics**: Importance of fabrics and its usage for apparel products, definefabric hand, sample, role of yarn size that makeup fabrics. Woven fabric and its terminology, Fabric terminology for weft knit and jersey construction, types of knits, quality issues related to knit fabric, Fabric layout, technical design aspects of cutting, different fabrics and its drapes, embellished or embroidered fabrics.

**Prints:** Popular Printing techniques, current print patterns, Traditional dyeing and printing techniques, Methods, techniques, application, colours and motifs used. Pigment painted textiles, Mordant Painted textiles, Printed textile Practices, Resist dyed textiles, yarn resistant textiles.

**UNIT V Colour**

Colour**:** Colour wheel, Characteristics of colour, Positive and negative factors of Primary, secondary and neutral colours. Colour harmony, Rules for building the colour palette, Combining colours, the power of contrast, Colour composition, Colour and colour ways. Seasonal colour palette, developing colour palette to give more options, Colour proportions, styling techniques on silhouetteusing colour.

**REFERENCES:**

1. Technical source book for Apparel Designers, 3rd Edition, Jaeil Lee, Camille Steen
2. Basics Fashion Design 02: Textiles and Fashion, By Jenny Udale,(2008)
3. The Colour Bible, The Definitive Guide to Colour in Art and Design by Laura Perryman, (2021)

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| **Course Code** | **2** | **DESIGN RESEARCH** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K3 - Apply; K4 - Analyze; K6 – Create | | | | | |
| **Learning Objectives** | The main objectives of this course are   1. The students develops a strong understanding of the design research process and become familiar with many research methods. 2. The students learn and develop an understanding of the principles of inspiration research, information research and compiling research and how to apply them in design project. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the importance, components and process of design research | K2 |
| CO2 | Understandabout organizing design research | K2 |
| CO3 | Employ various methods of data collection and doing market research. | K3 |
| CO4 | Examine the design collection, compile and document the research work. | K4 |
| CO5 | Develop design based oncurrent trends | K6 |

**UNIT- I: Design Research**

Collection -Definition, design collection, starting a design collection. Design research – importance of design research, fashion design research process- steps in design research process Brief and Research. Components of fashion design research process - Shapes and structure, silhouette, Proportion and line, details, surface decoration and print, fabric selection, Sources of inspiration -Cultural influences, Historical influence, Contemporary trends,Tangible and material research.

**UNIT- II: Information and Inspiration research, fabric and colour research**

Design theme-importance, types of themes, meaning and importance of inspiration, starting a design research, Information research and inspiration research. Organizingdesign research.

Fabric research:importance, sourcing of fabrics, choosing fabrics, collecting and storing fabric samples, attending fabric fairs.

Colour research: creating colour palette, colour distribution and colour forecasting.

**UNIT- III: Market research**

Identification of market, identify muse, understand different market levels and genres of the industry: haute couture, pret a porter, luxury super brands, mid-level brands and designers, independent designer labels, casual wear and sportswear brands, high street, women’s wear, men’s wear, children’s wear.

Methods of data collection, Identifying and analysing the competition, brand identity and its role,market segmentation by demographics,brandadvertisement, presence and influence of public relations, understanding trends, trend forecasting agencies and ethical concerns.

Market research for a collection, Market research to develop Mood board and story board.

**UNIT- IV: Compiling and analysis of research**

Compilation and documentation:sketchbooks, storyboards, drawing-techniques and art materials, collage, juxtaposition, scrapbooks, photography, photocopying, Sampling and customization, deconstruction, modelling on the stand, and cross-referencing.

Analysis of research, focus on key elements and compile a set of concept or focus research pages. Triangulation, interplay between images, making a board of your own: creating a mood board, key elements of mood board.

**UNIT- V: Design development,communicating ideas and current trends in designing**

Collaged research on figures, draping on the stand, photomontage with drapery, triangulation, investigative approach, and interplay between images.

Design development exercises: techniques to begin the process of design development using the collaged figures, techniques to refine the garments, unifying collection.

Approaches to render ideas: sketching and design drawing, creating six-figure templates, illustrating with collage, art materials, difference between fashion design sketching and illustration, working drawings, layout and composition. Creating a toile or sample.

**REFERENCES:**

1. Basics Fashion Design 01: Research and Design, Simon Seivewright,A&C Black, 2012
2. Basics Fashion Design 04: Developing a Collection, Elinor Renfrew, Colin Renfrew, AVA ,Publishing, 2009
3. Doing Research in Fashion and Dress: An Introduction to Qualitative Methods,YuniyaKawamura,Berg, 2011
4. Basics Fashion Design 05: Fashion Drawing, John Hopkins,AVA Publishing, 2009
5. Fashion Design Research, EzinmaMbonu, Laurence King Publishing, 2014

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Outline to the styles worn during the ancient till the 19th century | K4 |
| CO2 | Identify the costumes to its nationality | K1 |
| CO3 | Appreciate the diverse cultures and the nuances. | K5 |
| CO4 | Understand the costumes of various costumes across the globe | K2 |
| CO5 | Apply the knowledge in the collections they design in the future | K3 |

**UnitI CostumesofAmericanCountries**

AmericanCountries-InuitandAleut,AmericanIndiansofthesouthwest,Plainsandnorthwest,Amishcostumes,Guatemala,Mexico,Colombia,Peru and Bolivia,Chileand Brazil.

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| **Course Code** | **3** | **COSTUMES OF THE WORLD** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K1-Remember;K2-Understand;K3 -Apply;K4 -Analyze;K5-Evaluate;** | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse areto:   1. Studythecostumes oftheworld. 2. Tracethe developmentofcostumesthroughtheages.   Familiarize with the styles and special features in costume from ancient world till 20thcentury. | | | | | |

**UnitII CostumesofEuropean Countries**

EuropeanCountries–Russia,Italy,Norway,Sweden,Denmark,Scotland,Germany,Spain,Belgium,Hungary,PolandandUkraine.

**UnitIII CostumesofMiddleand FarEastern Countries**

MiddleandFarEasternCountries-TurkeyandIran,CostumesofArabPeninsula,China,Japan, Korea,SriLanka,Pakistan,Nepal,Vietnam,Myanmar,ThailandandPhilippines.

**UnitIV CostumesofAfricanCountries**

AfricanCountries—Egypt,Nigeria,Lybia,Ethiopia,Kenya,Uganda,Tanzania,Botswana, Zimbabwe,NigeriaandCameroon.

**UnitV EnglishFrenchandAmericanCostumes**

Costumeofancient-Egypt, Greece, Rome. AfricanTribalCostumes.

Englishcostumes:EnglishCostume during 15th-17thcenturies.

Frenchcostumes:FrenchCostumesduringrenaissance16th-18thcenturies.

Americancostumes: Americancostumesfrom18thto20thcenturies.

**REFERENCES:**

1. HistoricCostume, ChasA, 'BernardandCo,Illinois, 1961
2. CostumethroughtheAges,Laver,JamesSimonand Schuster,NewYork,1968
3. AHistoryofFashionandCostume-PaigeWeber,BaileyPublishingAssociatesLtd,2005
4. AHistoryofFashionandCostume,VolumeI,TheAncientWorld–JaneBingham,Bailey PublishingAssociatesLtd(2005)
5. CostumesofIndianandPakistan,DasS N,DBTaraporevaIaSons&Co,Bombay,1958

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| **Course Code** | **4** | **FASHION CONCEPTS AND DESIGNING** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K3** - Apply; **K6** - Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse areto:   1. Apply knowledge of designseffectively 2. Implement the learned concepts as adesigner. 3. Study about the colouring & texture for fashionabledesign. 4. Develop wardrobe collection for different seasons. 5. Design costumes for differentthemes. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Apply designs concepts and techniques effectively | K3 |
| CO2 | Create and Implement the design concepts in dress designing | K6 |
| CO3 | Create and Explore the colouring & texture for designing | K6 |
| CO4 | Create garment designing based on the principles of designs. | K6 |
| CO5 | Apply the illustrated designs on different types of clothing. | K3 |

**Unit I Basic Elements of Designing**

Elements Of Design: - Basic Elements - Designing of costumes using elements of design - line, dot, curves, texture, shine, rough, silhouettes, color - Define Application of Principles: Balance, rhythm, harmony, repetition, grading, unity, symmetry

**Unit II Color Theory**

Colour Theory:- Color Theory: Color wheel - primary, secondary, transparency - Techniques of color mixing - Color Contrast and Attributes: interaction, harmony, psychology, mood, culture and expression - Composition: Color, space, movement, balance, asymmetry, rhythm, shapes, proportion - Aspects / temperature of color-warm cool, hot, cold, dark, pale and bright - Application of Principles in garment Designing for latest trends - Dimensions of color- hue,

Intensity, value, chroma - Basic color schemes- achromatic, analogues, monochromatic, complimentary, and neutral – Rendering techniques.

**Unit III Textures and Design**

Textures and Design - Personal appearance and fit - Textures-types of textures - Textural effects,usingtexturesindesigns–Colorandtextureofthefabric.Designfeature,Personal appearance and fit for different figure types

**Unit IV Indian and Global Fashion Designers**

An overview on Indian and global Fashion designers, Understanding Fashion designer – types – classicist, idealist, influenced, realist and thinking poet.

Indian Fashion designers– Haute couture – Manish Malhotra, Wendell Rodricks, Abu Jani and Sandeep Khosla, Tarun Tahiliani, JJ Valaya, Rina Dhaka, Manish Arora , Rohit Bal, Ritu Beri, Ritu Kumar , Omi Gurung, Shilpa Reddy, Vikram Phadnis, Neeta Lulla, Erum Ali, Payal Jain.

Global Fashion designers -France, Italy, America, Britain, Fareast- Contributions of well knowndesignersfromFrance-[Agnes,SophieAlbou](http://en.wikipedia.org/wiki/Madame_Agnes)Italy-[PierreCardin,RobertoCavalli](http://en.wikipedia.org/wiki/Pierre_Cardin)

America - [AdamsAdrian,](http://en.wikipedia.org/wiki/Osceola_Macarthy_Adams)[Joseph Abboud](http://en.wikipedia.org/wiki/Joseph_Abboud). Britain -[Basso & Brooke](http://en.wikipedia.org/wiki/Basso_%26_Brooke) and Fareast Countries - Sandy Powell, [Valentino](http://www.bykoket.com/blog/wish-list-beautiful-haute-couture-wedding-dresses/) Garavani.

**Unit V Designing Costumes for Different Themes**

To develop wardrobe collection for different seasons and design costumes for different themes.

**REFERENCES:**

1. Fashion Design, Janice G.Ellinwood, Fairchild Books, colour illustrations, 2011.
2. Fashion Color Harmony, Hibeaki, Publisher Rockford, 2016.
3. The Art of Costume and Personal Appearance‖ By Grace Margaret Morton, 1964.
4. Fashion Rendering with Color, Bina Abling, 2000.
5. Individuality in Clothing Selection and Personal Appearance Hardcover – Import,[SuzanneMarshall ,](http://www.amazon.in/s/ref%3Ddp_byline_sr_book_1?ie=UTF8&amp%3Bfield-author=Suzanne%2BMarshall&amp%3Bsearch-alias=stripbooks)[Hazel Jackson](http://www.amazon.in/s/ref%3Ddp_byline_sr_book_2?ie=UTF8&amp%3Bfield-author=Hazel%2BJackson&amp%3Bsearch-alias=stripbooks), [M. Sue Stanley Ph.D. ,](http://www.amazon.in/s/ref%3Ddp_byline_sr_book_3?ie=UTF8&amp%3Bfield-author=M.%2BSue%2BStanley%2BPh.D.&amp%3Bsearch-alias=stripbooks) [Mary Kefgen](http://www.amazon.in/s/ref%3Ddp_byline_sr_book_4?ie=UTF8&amp%3Bfield-author=Mary%2BKefgen&amp%3Bsearch-alias=stripbooks) , [Phyllis Touchie-Specht](http://www.amazon.in/s/ref%3Ddp_byline_sr_book_5?ie=UTF8&amp%3Bfield-author=Phyllis%2BTouchie-Specht&amp%3Bsearch-alias=stripbooks) Fashion –From concept to consumer – Gini Stephens Frings, 6th edition, prentice Hall, 1999.

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand about design collection for garments, Jewellery and accessories | K2 |
| CO2 | Plan fabrics and garments for large gatherings like wedding | K3 |
| CO3 | Analyse various themes and inspirations | K4 |
| CO4 | Understand the various factors influencing a design collection | K2 |
| CO5 | Create portfolio presentation for any collections | K6 |

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| **Course Code** | **5** | **DESIGN COLLECTION PRACTICAL** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K3 - Apply; K4 - Analyze; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse areto:  1. Gainaclearunderstandingofrange planning  2. Enhancedesigningskills  3. Gain more confidenceinpresentingthecollection | | | | | |

1. **Garment Design Collection with Theme and Inspiration (Design collections can be done in computers or by hand)**

Present all the collections as Portfolio with a minimum of 4 boards each

1. Designacollection/rangeforthefollowing(4to6garmentseach)

* Casualwear
* Partywear
* ForaSeason(any 1)
* ForaFestival(any 1)

1. **JewelleryandAccessoriesCollectionwith ThemeandInspiration**

* Designornaments forthehead,ear,neck,hand,finger,waistand anyotherspecialitems likemasks,kerchiefsand so on(2collection)
* Designhandbags,purse, cellphonepouchand travelbag (2 collection)

1. **DesignaCollectionforaWedding/BirthdayParty orany Function(any2)**

**REFERENCES:**

1. FashionDesignDrawingand Presentation,PatrickJohnIreland, BT BatsfordLtd,2006
2. CreativeFashionPresentation,PollyGuerin, FairchildPublishers,1987

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| **Course Code** | **6** | **PROFESSIONAL DESIGNPRACTICAL** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **-** | **-** | **3** | **3** |
| **Cognitive Level** | **K1** - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse areto:   1. Inculcate the skills and knowledge to conduct design research, create design concepts, develop prototype and evaluate the design processes for design brief. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Demonstrate the ability to conduct design research | K2 |
| CO2 | Specify the recorded information in a sketch book to develop a concept for design brief | K5 |
| CO3 | Prepare the cost sheet, techpack, spec sheet and time constraints for a design brief. | K3 |
| CO4 | Appraise the Constructed Prototype for the design brief | K5 |
| CO5 | Compile the development processes and document its outcomes | K5 |

1. Conduct Fashion Design Research - Generate ideas for the theme or Concept Undertake Consumer and Market research
2. Determine key criteria for design brief -Prepare croquis drawing, technical drawing/working drawing and document. Create a template for cost sheet and Specify the budget in the cost sheet for the design brief and specify the timing to complete the brief
3. in a template.\
4. Confirm the Design Brief - Prepare the cost sheet, techpack, spec sheet and time constraints for a design brief
5. Design Processes - Construct the prototype Sample
6. Implement design process - Evaluate the prototype samples and record in a template

**REFERENCES**

1. Textile Design: Principles, Advances and ApplicationsA Briggs-Goode, K Townsend Elsevier, 15-Apr-2011.
2. Apparel Manufacturing TechnologyT. Karthik, P. Ganesan, D. Gopalakrishnan CRC Press, 05-Aug-2016.

**DISCIPLINE SPECIFIC ELECTIVE**

**Group B-Entrepreneur**

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| **Course Code** | **7** | **TEXTILE BUSINESS START-UP** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **-** | **-** | **3** | **3** |
| **Cognitive Level** | **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K6**– Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. The learners will understand ideation process; market analysis, legal structures and 2. Develop knowledge to create a business plan | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the concept and importance of market research | K2 |
| CO2 | Learn to create a business idea | K6 |
| CO3 | Interpret various legal formalities to start a business. | K4 |
| CO4 | Analyse the financial requirements to start a business. | K4 |
| CO5 | Developing business plan for start up | K3 |

**Unit-IConducting market research**

Market research –Introduction, Importance, analyze the trends in the sector**,** analysis of the competition**,** existing market and analyze the correct supply demand, expectations of your future customers.

**Unit-II -Idea Assessment**

Idea Assessment –Meaning and importance of idea generation, Understanding Targetsegment, Sizing theMarket, Analyzing the environment and Competitive advantage, creating a business idea-process and techniques.

**Unit-III -Building a Legal foundation**

Building a Legal foundation -Choosing the right legalstructure, Introduction to permits, registrationsand compliances, Introduction to intellectual propertyrights. Importance and types of IPRS. IP registrationprocess

**Unit-IV -Financial Basics**

# **Financial Basics** - Introduction to Financial statements, Management Informationsystems, Introduction to working capitalmanagement, Introduction to Break evenanalysis, Elements of cost and Break-evenpoint, Cost change and margin ofsafety. Financial requirements to start a business, Investment needed to start a textile business -cost of location, cost of Machineries, cost of labour, cost of transportation, cost of marketing and advertising.

**Unit-V- Introduction to Business Planning**

Introduction to Business Planning -Importance of Businessplan**,** Elements of BusinessPlan**,** Format of a BusinessPlan, writing a business plan.

**REFERENCES:**

1. Start-up: A Practical Guide to Starting and Running a New Business, Tom Harris,Springer, 07-Aug- 2018

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| **Course Code** | **8** | **CLOTHING BOUTIQUE MANAGEMENT** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K2: Understand, K3: Apply, K4: Analyze, K6: Create** | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. To learn about boutique business management 2. To impart the knowledge of developing business plan 3. To Understand about material sourcing and supplier relations 4. To Analyze about Marketing techniques and legal requirements 5. To understand the benefits and process of online boutique | | | | | |

**Learning Out comes**

On successful completion of the **course, the students will be able to**

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the concept of Boutique management | K2 |
| CO2 | Developing a business plan | K3 |
| CO3 | Sourcing of materials and relationship with supplier | K4 |
| CO4 | Applying Marketing techniques, fulfilment of legal procedures and IP registrations | K3 |
| CO5 | Creation of online business | K6 |

**UNITIBoutique Management**

Introduction to boutique management, Skills required to set up a boutique- starting a boutique business- Creating a business plan, identifying target market and customer, Choice of ideal location and space management, financial planning -working capital Sales, Cost of goods expenses, accounting, advertising, insurance, markdowns, rent, repair and maintenance, salaries, sales, taxes, license, Market analysis, Competitor analysis. Facilities planning-Boutique interior designing- visual merchandising and store layout. Government norms to run a boutique.

**Unit IIProcedures to start a business**

Setting up business, loan or equity capital for boutique business, tax registration, startup check list, obtain DIN Director Identification Number PAN, TAN Tax Account Number, register with the office of inspector, shop, and establishment act (state /municipal) GST registration, register for professional tax, register for EPF Government norms to run a boutique, Interior designing, sourcing of raw materials and Inventory planning.

**Unit III Relationship with supplier and consumers**

Buyer supplier relationships-technical support, expertise, resource support service level risk reduction consumer relationship, Tips and Tricks to attract the customer, Characteristics of B2B and B2C Marketing strategies

**Unit IV Technologies in boutique handling**

Essential Technology support to run a boutique and Labour management, Warehouse, Billing software data maintenance. Recent technologies in Offline and Online boutique business, creating of web pages, online advertising, print and distribution of flyers

**Unit V Marketing, promotion and R&D**

Quality control, D2C, Marketing and Promotion and maintenance of boutique business. Product development and selling accessories

**REFERENCES:**

1.Briana Stewart, Opening a Boutique Guide: How to Start your Own Unique Clothing Boutique, Bull City Publishing, 2014.

2.Tag Goulet, DebbraMikaelsen, CatherineGoulet, Fabjob, Guide to Become a Boutique Owner, FabJob Publisher, 2011.

3.Jennifer Lynne Matthews, Fashion Unraveled: How to Start, Run and Manage an Independent Fashion Label,East Bay Fashion Resource; First edition,  2009.

4.Charlene Davis, Start Your Own Clothing Store and More: Women's, Men's, Children's, Specialty (Startup Series), Entrepreneurs press and Paperback – Third edition,2011.

5.Christy Wright, Business Boutique: A Woman's Guide for Making Money Doing What She Loves, Ramsey Press, 2017.

6. Entrepreneur Press,Start Your Own Clothing Store and More: Women's, Men's, Children's, Specialty Entrepreneur Press, 01-Jan-2011.

7.Leontine de Wit, Boutiques and Other Retail Spaces: The Architecture of Seduction David Vernet, Routledge, 2007.

10.Tom Harris, Start-up: A Practical Guide to Starting and Running a New Business, Springer, 2018.

11.Neil R. Bingham, The New Boutique: Fashion and Design, Merrell publishers, 2005.

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| **Course Code** | **9** | **IMPORT EXPORT MANAGEMENT AND DOCUMENTATION** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K3 - Apply; K4 - Analyze; | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. Toobtainknowledgeinimportandexportmanagementfeaturesandprocedures. 2. Understandingaboutthe benefitsandsupports providedbyGovernment ofIndia. 3. Tobefamiliarwith approvalsandassistanceprovidedbyGovernmentinstitutes. 4. FamiliaraboutDocumentsneedforshipment. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Learn the concept of import and export | K2 |
| CO2 | Understandexport and import procedures | K2 |
| CO3 | Interpret various Export Assistance of India | K4 |
| CO4 | preparing documents for exports | K3 |

# **UNITI -Import Export Management**

ImportExportManagementIntroduction;conceptkeyfeature;foreigntrade-institutionalframeworkandbasics;tradepolicy;foreigntrade-simplificationofdocument; reduction in document to five for custom purpose – exporting and importingcounter trade- promise and pitfall of exporting; improving export performance - countertrade.

# **UNITII -Export Procedures**

Export Procedures - Preparation for exports: Registration of firms with authorities,PAN No., IE code, BIN No., EPC, Central Excise etc,.- Category of exports: Direct, indirect,thirdpartyexports.-CategoryofExporters:Manufacturerexporter,merchantexporter,EOU/SEZ/-FivetypesofExportHouses-Exportbenefits:Dutydrawback,advanceauthorization scheme, duty free import authorization, duty exemption entitlement scheme,EPCG, duty entitlement pas book scheme, market development assistance - GSP and GSTPrulesas pertheFT policy.

# **UNITIII -Import Procedures**

Import Procedures – Import management, procurement planning, and project importsreign.-Identification,selectionofsuppliers-Purchasecontract,termsofpayments-Termsof Delivery Inco terms- Import policy ITC HS- Role of a customs house agent and freightforwardagents-Typeofcustomsduties,valuationrules-Completedocumentationandprocedures for import clearance at sea port- Customs clearance of imports by sea and airdocuments,procedures. etc.-Imports undervarious imports notificationissuedbycustoms.

# **UNITIVExport Assistance of India**

Export Assistance of India: Introduction, Importance of Export Assistance, Export Promotion Measure in India -Expansion of Production Base for Exports; Relaxation in Industrial Licensing Policy /MRT/ FER/ Foreign Collaborations; Liberal Import of Capital Goods; EPZ / EOU -Assured Supply of Raw-Material Imports -Eligibility for Export/ Trading/Star Trading/Super Star Trading Houses - Export Houses Status for Export of Services- Rendering Exports Price Competitive; Fiscal Incentives; Financial Incentives; Strengthening Export Marketing Effort

# **UNIT V Export documentation**

Exportdocumentation –Introductionandvarioustypesofexport documents– Pre- shipment and Post-shipment documents – Pre-Shipment and Post- Shipment finance -conditions in LC for stipulated documents legalization shipping consignment certificates.Export duty draw back– pass book – capital goods import license and assistance. Types ofbillofladings.

# **REFERENCES:**

1. Export import procedures, C.Rama gopal, New Age International (P) Limited,PublishersNew Delhi.
2. EXPORT/IMPORTPROCEDURESandDOCUMENTATION,ThomasE.JohnsonAndDonnaL.Bade,American ManagementAssociation,New York.
3. ForeignTrade–Theory,Procedures,PracticesandDocumentation,Dr.KhushpatS.Jain,HimalayaPublishingHousePvt.Ltd, New Delhi.
4. Export-Import Theory, Practices and Procedures, Belay Seyoum, PhD, SECONDEDITION,Routledge, New York
5. ExportImportPolicy,Publisher:MinistryofCommerce,GovernmentofIndia,NewDelhi.
6. Electronic Commerce by N. Janardhan, Publisher:IndianInstitute ofForeign Trade,NewDelhi.
7. Nabhi's New ImportExportPolicy,Publisher:NabhiPublication,NewDelhi.
8. Export-What,Where, HowbyRamParas,Publisher:Anupam, Delhi.
9. ImportExportManagement,EIILMUniversity,Sikkim.

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| **Course Code** | **10** | **FASHION EVENT MANAGEMENT** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K2: Understand, K3: Apply, K4: Analyse, K5: Evaluate, K6:Create** | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. To impart awareness on various fashion events 2. To learn the various practical steps required for successful organization of fashion events 3. To gain practical knowledge related to the coordination of different activities | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the categories of fashion, the terminology of garments, and draw technical sketches. | K2 |
| CO2 | Understand design elements and principles; create various silhouettes and design details | K2 |
| CO3 | Interpret various garment shaping devices and style variables. | K2 |
| CO4 | Apply the correct use of fabric and printing techniques in styling. | K3 |
| CO5 | Design garments by applying colour principles and techniques. | K6 |

**UNIT I**

Event management – Introduction, principles and purpose. Types of fashion events- fashion show, fairs, trade show and product launch. Role of an event coordinator-administration, design, marketing, operations, risk and creating an event plan. SWOT analysis.

**UNIT II**

Fashion event planning requirements - theme creation, targeting the audience/vendors, schedule planning, finding a venue, budget, guest lists and invitations. Organizing the required committees, preparing duty charts, source of finance.

**UNIT III**

Fashion event venue requirements - stage/ booth design, lighting and allied audio- visual effects, seating patterns and plan, ensuring legal compliance, safety and security, licenses and permissions to be obtained.

**UNIT IV**

Catwalk presentation requirements – merchandise selection, model selection, music and choreography, final show sequence rehearsals and wardrobe assistants. Preparation of programme booklet, catering arrangements and progress monitoring through checklists.

**UNIT V**

Promotion – media selection-building media relations and preparing press release-poster and pamphlets – catering arrangements. Risk management for prevention of hazards, security for people and merchandise.

**REFERENCES:**

1. Jenny Davis, A Complete Guide to Fashion Designing, First Edition, Abhishek   Publications, Chandigarh. (2006).

2. Mahadevan M.G, Textile coloring, First Edition, Abhishek Publication, Chandigarh. (2008).

3. Premlata Mullica, Text book of Textile Designing, Kalyani Publishers, Ludhiana. (2006).

4. Kathryn Mc Kelvey and Janine -Munslow Fashion Design: Process, Innovation and Practice, Blackwell Science Ltd., Blackwell Publishing Company, UK. (2005).

5. Parachure, J. W, Fundamentals of Designing for Textiles and other end use, Woodhead publishing, India, New Delhi, (2009).

6. Dorling Kindersley., Fashion, The Ultimate Book of Costume and Style, Dorling Kindersley Limited; London. (2012).

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| **Course Code** | **11** | **FASHION RETAILING** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K2: Understand, K3: Apply, K4: Analyze, K6: Create** | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. To learn about retail merchandising 2. To Understand about retail locations 3. To impart students the knowledge of about brands and private labels 4. To analyse the financial aspects of Merchandising 5. To plan Store Layout and Merchandise Presentation | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the concepts of retail merchandising | K2 |
| CO2 | Apply the concept in planning the retail locations | K3 |
| CO3 | Analyze brands and private labels | K4 |
| CO4 | Analyze the online retail business | K4 |
| CO5 | Development of store layout and merchandise presentation | K6 |

**Unit I - Retail Merchandising**

Retail Merchandising -The Marketing Channel, Retail organization structures, retail merchandising , Retailing Formats- Department stores specialty stores,hard – to – classify stores, Depth and breadth, discounting , Other Retailing Formats – non store retailers.

**Unit II - Retail Locations**

Retail Locations -Unplanned shopping districts, planned shopping centres, and the mix of stores in a shopping center. Retail growth and expansion – Retail ownership. International Retailing, Retailing Advertising.

**Unit III - Brands and private labels**

Brands and private labels- -branded Merchandising, Licensing, Private Labels, Private labels as Brands. Merchandise Recourses – Manufacturers, Merchant Wholesaler – Distributors. Trade Shows.

**Unit IV - Online Retail Business**

Online retail business - Introduction and Emergence of Internet retailing - Components of E-Retailing– Advantages – Shortcomings - Opportunities for Online retail in India –Challenges in E-Retailing.

# Augmented Reality (AR) For Fashion Ecommerce – Introduction to Augmented Reality, Benefits of AR in fashion ecommerce – Benefits of AR Virtual fitting rooms.

**Unit V Store Layout and Merchandise Presentation**

Store Planning and Store design - elements- Store layout, signage and graphics- – types of store layout - grid, loop, free form, and spine. Creating an appealing store atmosphere -Visual Merchandising – Fixtures -Merchandise Presentation techniques.

**REFERENCES:**

1.John Donnellan, Merchandise Buying and Management, Fairchild Publications , New York 1996.

2. Ellen Diamond, Fashion Retailing: A Multi-Channel Approach,Prentice Hall, 2nd Edition,2005.

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| **Course Code** | **12** | **ENTREPRENEURSHIP AND INDUSTRIAL ORGANIZATION** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K2: Understand, K3: Apply, K4: Analyze** | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. To study about the importance of entrepreneurship 2. To understand the role of women entrepreneurship 3. To analyse Entrepreneurial motivation theories 4. To understand about the Institutional Support to Entrepreneurs 5. To understand about project and personal management | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the Features and importance of entrepreneurship | K2 |
| CO2 | Learn about types and role of women entrepreneurs for growth | K2 |
| CO3 | Analyze the theories of entrepreneurial motivation | K4 |
| CO4 | Analyze and approach of Institution for Support to Entrepreneurs | K4 |
| CO5 | Management of Project and personnel | K3 |
| CO6 | innovative development of project | K6 |

**UNIT I -Entrepreneurship**

Entrepreneurship- Meaning, Importance**,** Evolution of term Entrepreneurship**,** features**,** Factors influencing entrepreneurship **-** Psychological factors, Social factors**,** Economic factor**,** environmental factors **-** Characteristics of an entrepreneur**-**rural entrepreneurship, problems of rural entrepreneurship. .Growth of entrepreneurship- role of entrepreneurship in economic development -

**UNITII - Institutional Support to Entrepreneurs**

Institutional support to entrepreneurs - Need for support - National small Industries Corporations (NSIC), NIESUBD, **National Entrepreneurship Development Board -** NEBD, PMEGP ,SIDO, SSIDC, SISI, State Finance Corporations (SFC), District Industrial Centres (DICs), Financial assistance -state and central government banks-Financial incentives and subsidies.

**UNITIII - Women Entrepreneurs**

Concept of Entrepreneur - Categories of Women Entrepreneurs - Women in organized and unorganized sector, Women in traditional and modern industries, Women in urban and rural areas - Supportive Measures for Women’s Economic Activities and Entrepreneurship- Technological training and awards, Federations and associations. Problems of Women Entrepreneurs in India and Ways to Develop Women Entrepreneurs. Measures to Improve Women Entrepreneurship- Trade Related Entrepreneurship Assistance and Development (TREAD) scheme for women, Mahila Vikas Nidhi, Cooperative schemes, Government Yojanas. Training programs – Support for training and employment programme of Women (STEP), Development of Women and Children in Rural Areas (DWCRA).Trade Related Entrepreneurship Assistance and Development (TREAD) Scheme for WomenTrade Related Entrepreneurship Assistance and Development (TREAD) Scheme for Women

**Unit IV - Entrepreneurial motivation and Types**

Entrepreneurial motivation – motivation theories – Maslow’s need hierarchy Theory, McChelland’s acquired needs Theory, Herjburg’s theory, McGragor’s Theory. Need for Entrepreneurship development programs - sickness in small business.

Types of entrepreneur**-** innovating, adoptive, Fabian, drone, individual and institutional, technologist, forced.

**UNIT V - Project, Innovation and personnel management**

Project Management-Introduction, internal constraints and external constraints - project lifecycle - element of project formulation.

Innovation Management-Functions-classification- Process Innovation, Product Innovation, Marketing Innovation, Organizational Innovation.

Personnel management – meaning, manpower planning, jobs requirements, recruitments, training and development, remuneration and benefits.

**REFERENCES:**

1. Hisrich R D, Perter MP, “Entrepreneurship”, TATA MCGRAW- Hill,2013.
2. Mathew j Manimala, “Entrepreneurship theory at cross roads: paradigms and Raxis” dream teach, 2005.
3. Michael h. Morris, et. al., Entrepreneurship and innovation, CE gage learning, New Delhi, 2011.
4. S.S Kanka, Entrepreneurial Development, Revised edition, Sultan Chand Publications, New Delhi, 2012.
5. Khanaka, S.S., Entrepreneurial Development, S. Chand and Company Ltd., New Delhi, (2006).
6. Sanjay Tiwari and Anshuja Tiwari, Entrepreneurship Development in India. Sarup & Sons, New Delhi, 2007.
7. Philip Kotler and Kevin Lane, Marketing Management, Keller, Pearson Education Inc., Delhi, 2006.
8. Ramachandran K., Entrepreneurship development: Indian Cases on Change Agents. Tata McGraw Hill Private Limited, New Delhi, 2009.
9. Singh A.K., Entrepreneurship Development and Management, Lakshmi publications pvt. Ltd. New Delhi, 2009.

**DISCIPLINE SPECIFIC ELECTIVE**

**Group C- Merchandiser /**

**Industrial Engineering /Quality controller**

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| **Course Code** | **13** | **INDUSTRIAL ENGINEERING** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K3 - Apply; K4 - Analyze; K6 - Create; | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. To learn about industrial engineering applications in garment production 2. To understand the techniques of increasing efficiency in apparel production | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the roles and types of IE | K2 |
| CO2 | Able to analyse garment follow-up and productionbuild-up | K4 |
| CO3 | Interpret various methods of time and motion study | K4 |
| CO4 | Apply techniques to increase production efficiency and minimize wastage | K3 |
| CO5 | Design factory layout for effective apparel production | K6 |

**Unit I: Concept of Industrial Engineering (IE)**

Industrial Engineering (IE) – Definition – importance, Features and roles, objectives of IE, Dimensions of IE in apparel industry. Applications of IE techniques in garment industry -Capacity building, operator performance, follow-ups, work –in- process.

**Unit II Method Analysis**

Definition, recording the method, operation process chart, flow process chart, flow diagram, string diagram, multiple activity or man-machine chart.

**Unit III Motion economy and Work measurement**

Motion economy - Principles of motion study, two-handed process chart, micro motion study, study of method recorded.

Work measurement- Definition, techniques of work measurement, time study, selecting the job, rating factor, allowances, and other methods to set time standards.

**Unit IV Apparel production systems andFollow-Up**

Production Follow-Up and Build-up - Analyze garment operations – operation bulletin, Operator cycle time (OCT) Chart, General sewing data (GSD), Standard allowed minute (SAM) calculation, production plan-Target setting. Avoid thread wasting in sewing line, Production reports – Hourly production, day production and efficiency.

Garment production system- group system, progressive bundle system, unit production system, quick response sewing system. Work aids and special attachment used in garment production – binders, folders, guides, and different presser foot.

**Unit VFactory layout**

Layout - objectives, designing the lay out, Line balancing, Waste Observation (TIMWOOD) Method, bottle Neck Analysis and down time management

**REFERENCES:**

1. Industrial Engineering in Apparel Production, V. Ramesh Babu, (2017). Elsevier Science & Technology
2. Industrial Engineering And Management, OP. Khanna, (2018).Dhanpat Rai Publication
3. Apparel Manufacturing: Sewn Product Analysis, R.E. Glock & G.I.Kunz, (1995).Prentice Hall, New York
4. Industrial Engineering Handbook, William K Hodson & Maynard’s, (1992). Mc Graw-Hill, Inc., New York
5. Maurice,Johnson.(1995).“Introduction of Work Study”, Geneva: International LabourOrganization.
6. RameshBabu,V.(2012).“IndustrialEngineeringApplicationinApparelProduction”. NewDelhi: Woodhead Publishing India,
7. Solinger,Jacob.(1998).“ApparelManufacturingHandBook”.2ndEdition,Columbia:BobbinBlenhein MediaCorp,
8. JuanCarlo,Hiba.(1998).“Improvingworkingconditionsandproductivityinthegarmentindustry”. Geneva:InternationalLabourOrganization.

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| **Course Code** | **14** | **QUALITY CONTROL IN APPAREL INDUSTRYPRACTICAL** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **-** | **-** | **3** | **3** |
| **Cognitive Level** | K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create; | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. To gain practical knowledge in fabric inspection, audit, defect analysis, inline and end line checking, garment measure, presentation, checking and packing audits as per buyers demands. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Analyze yarn, fabric and garment quality parameters. | K4 |
| CO2 | Identification of defects and faults in garment production | K5 |
| CO3 | Interpret various methods and machineries employed in quality management | K3 |
| CO4 | Apply the correct use of fabric and printing techniques in styling. | K3 |
| CO5 | Design garments by applying colour principles and techniques. | K6 |

1. **Yarn Quality parameters**

* Analyse different fibre from blended yarns using microscope, chemicals and observe the solubility, identify fibres Fourier transform infrared spectroscopy (FTIR), Raman spectroscopy and identify the relative percentage of each component
* Identify the yarn count, yarn twist and yarn strength using appropriate instruments
* Check the affinity of dyes such as wash fastness test, light fastness test and rubbing test
* Carry out Fibre melting point test and analyse the results.

1. **Fabric Quality parameters and Spreading /Cutting**

* Appropriate use of the measuring tape to ensure accurate measurements and compliance with industry standards.
* Identify the major and minor defects and analyze using the 4-point system and 10-point system
* Calculate the width-length, tearing strength, GSM, loop length & crimp of a fabric using appropriate tools and instruments.
* Create a presentation on the cut panel audit process, which includes an overview of the process and the purpose of the audit.
* Colour matching tools using colorimeter or a spectrophotometer to measure the color of the fabric under different light source.
* Practice fabric layout, and how to minimize waste, Discuss possible solutions and ways to improve the layout process.
* Create a presentation of fabric relaxation plan that are practiced in the industr

1. **Finished Garment Quality parameters**

* Traffic card/light system, inline checking and end line checking, Practice performing end line checking that is parts assembling, label position, stitches on top of garment, loop threads and stains
* Prepare a catalogue of the major and minor defects.

1. **Final Inspection**

* Visit a local factory or garment manufacturing plant where students can observe first-hand and the process of final inspection.
* Identify the reasons of failed inspection due to issues of accessories and trims.
* Conduct hole and pull tests for the accessories and trims as practiced in the industry.
* Guidelines of packaging terms during audit process.
* Guidelines for packaging garments. This may include specific instructions on how garments should be folded, how many garments should be packed in each carton, and the type of packaging materials that should be used.

**REFERENCES:**

1. V.Pradip and Mehta P.E, Sathish K Bhardwaj, ‘Managing quality in the apparel industry’, New edition, 2012, National Institute of Fashion Technology and New age International publishers limited, New Delhi.

2. Dr.V.K.Kothari, ‘Testing and quality management’, first edition, 1999, IAFL Publivations, New Delhi.

3. Sara J Kadolph, ‘Quality Assurance for textiles and Apparel’, second edition, 2007,Fairchild group (A division of Conde Nast publications, New York.

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| **Course Code** | **15** | **EXPORT MERCHANDIZING PRACTICAL** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **-** | **-** | **3** | **3** |
| **Cognitive Level** | **K3: Apply, K4: Analyze, K5 - Evaluate; K6: Create** | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:  1.The students gain skills and knowledge to conduct Survey on Market trend   1. Understand costing and documentations required in merchandising department. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Could analyse fabrics, trims and accessories of current trends | K4 |
| CO2 | Locate right supplier and vendor to create database for business | K5 |
| CO3 | Preparation of specification sheet | K6 |
| CO4 | Document preparation for inspection procedures | K3 |
| CO5 | Creation of template for purchase order / invoice | K6 |

**Market Trend assessment**

Prepare a document by selecting a current export garment and analyze the market trends on fabrics, trims andaccessories.

**Identification of Vendors/ Supplier**

Develop a database by locating the vendor’s details in nearbyregion

Collect all the relevant swatches to meet the design brief.

**Preparation of the BOM and Evaluation**

Prepare Specification sheet, Cost sheet, Bill of Material (BOM), SAM (Standard Allowed Minute) and TNA (Time and Action Calendar) for the Selected Style andActionCalendar) for the Selected Style.

**Confirmation of Merchandise Plan**

Construct Size setsamples

Create a template for purchase order for a givenstyle

Create a template for Performa invoice for a given style

**Preproduction and final inspection documents**

Prepare a complete document for pre-production meeting and final inspection procedures

**REFERENCES:**

1. Apparel Merchandising, Reashad Bin Kabir , Saiful Islam Tanvi, Lulu.com
2. Apparel Merchandising: The Line Starts Here, Jeremy A. Rosenau, David L. Wilson, A&C Black, 2014
3. Apparel Manufacturing: Sewn Product Analysis, 4/E,Glock Ruth E., Glock, Pearson Education India,2005
4. Costing for the Fashion Industry, Michael Jeffrey, Nathalie Evans, Berg, 2011

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| **Course Code** | **16** | **LOGISTICS** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K3 - Apply; K4 - Analyze; | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:  1. To teach the young budding entrepreneurs to make decisions and work flow in minimalized way to increase the output.  2. To create passion in the field of logistics, supply chain and provides competitive edge solutions. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the functions of logistics in an enterprise | K2 |
| CO2 | Understandthe concept of supply chain management | K2 |
| CO3 | Interpret various ports used in logistics | K4 |
| CO4 | Use of effective transportation | K3 |
| CO5 | Shipment process for export process | K3 |

**Unit I Overview of Logistics**

Origin and concept, Evolution of the Logistics Concept–Logistical Mission and Strategic Issues–Objectives of Logistics-Functions of Logistics in an Enterprise, Logistics in India–Growing Importance of Logistics Management–Logistical Competitive Advantage–Strategic Logistics Planning Process–Components of Logistics Management–Functions of Logistics Management. Reverse logistics and Jobs-Main Drivers in Logistics and their role- Maritime Logistics-Air Fright Logistics.

**Unit II Supply Chain Management**

Supply Chain Management: Introduction– –Functions and Contributions–Supply Chain Effectiveness and Indian Infrastructure–Framework for Supply Chain Solution–Outsourcing and 3PLs – Fourth- party Logistics (4PLs)–Supply Chain Relationships-Conflict Resolution Strategies for Harmonious Relationships.

Import Cycle: Export Cycle - Positions and Places in a Terminal - Facilities in a Terminal - Container Monitoring and stacking - CFS inside a Terminal - Reasons for Congestion of a terminal - de-congesting the terminal - Window system in a terminal

**Unit III Role of Ports in Export Logistics**

Difference between Major and Minor Ports: Ports in India - Natural Harbors - New Ports to be developed in India - Major Ports of the World - Largest Port in the world - Port Officials and their roles - Role of Ports - Who are Port users.

Major Port Trust Act: Port as a custodian of the cargo - Transit sheds - Cargo receivers - Wharfs and Berths - Various berths in a Port - Meaning of Berth Restrictions - Port equipment’s and damage - Extra services - Berth reservation schemes

**UNIT IV Air Transportation**

History of Air Cargo & amp; Mail, Air Freight, Air Express, and Overnight Air Express & amp; Air Mail Other Multi Modal forms of Transport- Rail, Sea & amp; Surface Transport-Key Concepts. Key Organizations Facilitating Air Cargo International Air Transport Association(IATA),International Civil Aviation Organization (ICAO), International Federation of Freight Forwarders Association (FIATA),The International Air Cargo Association (TIACA).

**UNIT V Shipment Processes for Export Business**

Difference between First Mile, Line Haul and Last Mile operations–First Mile process flow. Importance of First Mile operations in e-commerce logistics. Shipment pickup process. Pick up operations staff-roles and responsibilities. Safety and security of shipments during pickup-Pickup documentation.

Last Mile in Ecommerce- Meaning, importance of Last Mile in the supply chain, Last Mile Delivery challenges for ecommerce, Trends in Last Mile delivery, Route optimization in Last Mile operation.

Delivery Process & its challenges, Reverse pickup process in Last mile operations, Challenges in Reverse Pickup process, Tools and applications in Last Mile operations, Considerations for effective last mile logistics strategy. Innovations in Last Mile Logistics Technology Trends in Last Mile Delivery Last Mile Delivery Market Future Prospects.

**REFERENCES:**

1. Douglas M.Lambert, James S. Stock and Lisa M. Ellram (1998), Fundamentals of Logistics Management, The McGraw Hill Companies, New York.
2. Gaurdin, Kent N., Global Logistics Management (2001), Blackwell Publishers Ltd., Oxford
3. Martin Christopher, Logistics and Supply Chain Management (2000), Financial Times Management, Pitman Publishing, London.

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| **Course Code** | **17** | **SUPPLY CHAIN MANAGEMENT** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K4 - Analyze; K5 - Evaluate; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:  1. Impartknowledgeonthescope andimportanceofsupplychainmanagement  2. Gain insightsontherole ofdistribution,transportation,and supplierinsupplychain  3. Gain betterunderstandingonthesignificanceofITinthesupplychain | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the categories of fashion, the terminology of garments, and draw technical sketches. | K2 |
| CO2 | Understand design elements and principles; create various silhouettes and design details | K2 |
| CO3 | Interpret various garment shaping devices and style variables. | K2 |
| CO4 | Apply the correct use of fabric and printing techniques in styling. | K3 |
| CO5 | Design garments by applying colour principles and techniques. | K6 |

**Unit-I SupplyChainManagement,ScopeandImportance**

RoleofLogisticsand SupplychainManagement:Scope and Importance-EvolutionofSupply

Chain-DecisionPhasesinSupplyChain-Competitiveand SupplychainStrategies–Driversof SupplyChainPerformanceand Obstacles.

**Unit-II DistributioninSupplyChain**

RoleofDistributioninSupplyChain–FactorsinfluencingDistributionnetworkdesign–DesignoptionsforDistributionNetworkDistributionNetworkinPractice-Roleofnetwork. DesigninSupplyChain–FrameworkfornetworkDecisions.

**Unit-III TransportationinSupplyChain**

Roleoftransportationinsupplychain–factorsaffectingtransportationsdecision–Designoption for transportation network – Tailored transportation – Routing and scheduling in transportation.

**Unit-IV SourcingSupplyChainSupplier**

Roleof sourcing supplychainsupplierselection assessmentandcontracts-Designcollaboration-sourcing planningandanalysis-supplychainco-ordination-Bullwhipeffect–Effectoflack ofco-ordinationinsupplychainand obstacles–Buildingstrategicpartnerships and trustwithin asupplychain.

**Unit-V IT inSupplyChain**

The role IT in supply chain- The supply chain IT frame work Customer Relationship Management–Internalsupplychainmanagement–supplierrelationshipmanagement–futureofITinsupplychain–E-Businessinsupplychain.

**REFERENCES:**

1. SupplyChainManagement, Strategy, Planning,andoperation, SunilChopra,PeterMeindl andKalra,PearsonEducation,2010.
2. ModelingtheSupplyChain,Jeremy F.Shapiro,ThomsonDuxbury,2002
3. QuantitativemodelsinOperationsand SupplyChainManagement, SrinivasanG.S, PHI,2010

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| **Course Code** | **18** | **APPAREL PRODUCTION AND PLANNING** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K3 - Apply; K5 - Evaluate; | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:  1. Createabetterunderstandingonimprovingproductivity  2. Gain indepthknowledgeonworkstudyandmethodstudy  3. Gainaclearperspective ofproductionmanagement | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the significance of productivity and production management | K2 |
| CO2 | Apply ergonomics in the apparel industry | K3 |
| CO3 | Evaluate the production with work study and method study | K5 |
| CO4 | Interpret work measurement procedure and techniques | K2 |
| CO5 | Appraise the productivity in a workplace | K5 |

**Unit-I Productivity,Meaning,MeasurementandImportance**

Productivity:Meaning,measurementandimportance;productivityandstandardofliving;factorsaffectingproductivity;improvingproductivity;determinationoftotaltimeofajob;reducing ineffectivetime.IntroductionofIndustrialEngineering-ApplicationofErgonomicsinapparel industry.

**Unit-II Productionmanagement**

Production management: Stages of Product Development, Function of production control,Productivity Concept, Human resource management, inventory management, Equipment, management and Plant modernization. Scope of manufacturing activity, coordinating departmentalactivities.

**Unit-III WorkStudy**

WorkStudy: Meaning,importanceand procedure;humanfactorintheapplicationofworkstudy. Workingconditionsand environment;pre-requisitesforworkstudy

**Unit-IV MethodStudy**

Method Study:Selectionofjobs,record, examinationand development,movementsofworkers intheworkingarea;evaluate,define,installandmaintain;methodstudyintheapparelindustry.

**Unit-V WorkMeasurement**

WorkMeasurement:Purpose,uses,procedureand techniques;worksampling;timestudy; equipment, selecting and timing thejob;ratingandstandardtime;pre-determinedtimestandards and standarddata;usesofstandarddata.MaterialsHandlingand Storage, FlexibleManufacturing Systems, OperationTimeAnalysis

**REFERENCES:**

1. IntroductiontoClothingProductionManagement, A.J.Chuter,BlackwellScientificPublications, 1995
2. TheTechnologyofClothing Manufacture,Barbara Lathamand HaroldCarr,BlackwellScientificPublications,1988
3. ApparelManufacturingHandbook,JacobSolinger,VanNostrandReinholdCompany,1980.

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| **Course Code** | **19** | **TEXTILE INDUSTRY MANAGEMENT** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K1: Recall, K2: Understand, K3: Apply, K4: Analyse** | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. To study about Textile industry 2. To understand about departments in apparel industry and manufacturing operations 3. To learn about Textile Associations and Organizations 4. To impart knowledge on Government Policies and Start-ups 5. To analyse Textile industry Management | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the nature of Textile industry | K1 |
| CO2 | Identify the role of departments in apparel industry and production operations | K2 |
| CO3 | To Analyze the necessity of Indian textile associations and Organizations | K4 |
| CO4 | Analyze technical developments through government policies. | K3 |
| CO5 | Analyze textile management systems | K4 |

**UnitI - Textile Industry**

Indian Textile industry- Growth and development -Market size- structure of textile industry- Problems and prospect-Readymade Garment industry - Government Initiatives for textiles sector Types-Cotton, silk, woollen, ready-made, Hand-crafted, jute and coir.

**UnitII - Apparel Industry Departments and Operations**

Apparel industry- recent developments-Departments of a garment industry – Marketing, Merchandising, Fabric sourcing  and store, Design and development, Pattern Making and CAD, Sampling, Fabric Testing, Production Planning and Control, Cutting and sewing, Quality Control, Machine Maintenance, Processing, packing-Supportive departments- Industrial Engineering, Finance and accounts, Human Resource and Administration, Shipping and documentation.

**UnitIII -Textile Associations and Organizations**

Indian textile associations, SIMA, SITRA, SISPA, South Indian Spinners Association, Association of Man - Made Fibre Industry of India, Association of Synthetic Fibre Industry, Indian Spinners' Association, All India Texturisers' Association, National Textile Corporation Ltd, Confederation of Indian Textile Industry (CITI), The Cotton Corporation of India Ltd, The Clothing Manufacturers Association of India, Textile Machinery Manufacturers' Association (India), Indian Textile Accessories & Machinery Manufacturers' Association (ITAMMA), Federation of All India Textile Manufacturers Association (FAITMA), Federation of Indian Export Organization.

**UnitIV - Government Policies and Incubation Centers**

Government policies for textile industries - Amended Technology Upgradation Fund Scheme for textiles industry (ATUFS), Scheme for Integrated Textile Parks (SITP), NationalTextilepolicy 2000, Foreign Direct Investment (FDI), SAATHI Scheme, and Merchandise export from India Scheme, Scheme for Capacity Building in Textiles Sector (SCBTS). Five Government Schemes for Retail Businesses- Raw Material Assistance, Infrastructure Development Scheme, MUDRA Loans. Developing Training & Plug and Play Infrastructure.

Incubation Centers-Common Working Space, Test and demonstration facilities, Mediation and Network, Training and Coaching, Business Support.

**UnitV- Textile Management**

Textile Management –Introduction, Inventory-Introduction - Sales Management -Formatting sales policies, structuring the sales force and its size, designing sales territories.

Human Resource Management - Meaning, objectives, scope and functions, importance of human factor -workers hygiene management-Importance– Measuresof Personal Hygiene- Workers Safety management-Types of hazards and hazard control measures-safe handling of materials using protective wear- sign boards-facilities at work place-Accidents and emergency security.

Environmentmanagement system- Importance, benefits- Disaster management in textiles and apparel industry, its rescue and relief.

**REFERENCES:**

1. R.Nandagopal et al., Textile and clothing management, Allied Publishers pvt ltd. Delhi, 2004.

2. Anu Thomas,Startup India: Policies abound but limited impact on ground, ET online, 2017.

3. Dudeja V. D., Professional Management of Fashion Industry, Gagandeep Publications, Delhi, 2005.

4. NirupamaPundir, Fashion Technology Today and Tomorrow, Mittal Publications, New Delhi, 2007.

5. ManmeerSodhia and Pooja Chately,Fashion Marketing and Merchandising, Kalyani Publishers, New Delhi, 2003.

6. N. Gaither and G. Frazier, Operation Management, Thompsan, Asia, 2004.

7. S. A. Chunwala and D. R. Patol, Production and Operation Management, Himalayas,2004.

8. Decenzo and Robbins, Human Resource Management, Wiley, 6th edition,2004.

9. Gini Stephens Frings., Fashion from concept to consumer, Person education, inc,seventh edition, 2002.

10. Dorling Kindersley, Fashion, The Ultimate Book of Costume and Style, Published by Dorling Kindersley Limited; London, 2012.

11. Mamoria, C. B. andMamoria, S., Personal Management, Himalaya Publishing Co., 2005.

12. Jack Donnelly, Universal Human Rights in Theory and Practice, Cornell University Press, New York, 2003.

13. Gordon A. Berkstresser, Textile Marketing Management, Noyes Publications, 1984.

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| **Course Code** | **20** | **APPAREL MACHINERY OPERATIONS AND MAINTENANCE** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K1: Recall, K2: Understand, K3: Apply, K4: Analyse, K5:Evaluate** | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. To enable students to learn about evolution and types of sewing machineries 2. To study different types of basic sewing machines 3. To impart the students to understand the concepts of garment quality in stitching operations 4. To acquaint students about the importance of In-line inspection 5. To understand care and maintenance of sewing machines | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Evolution and types of sewing machineries | K1 |
| CO2 | Types of basic sewing machines | K2 |
| CO3 | Analyzation of garment quality in stitching operations | K4 |
| CO4 | Application of inspection techniques for In-line operations | K3 |
| CO5 | Evaluation of maintenance of sewing machines | K5 |

**Unit I - Introduction to Sewing Machines**

Introduction- Evolution of the sewing machine- Types of sewing machines- Mechanical, Electrical and Computerized sewing machines. Categories of sewing machine - Domestic and Industrial sewing machines –characteristics and features.

**Unit II - Sewing Machines**

Classification of sewing machines-General sewing machines and sewing machines based on technical characteristics. General- sewing machines, Special sewing machines, sewing automata, sewing systems, Numerical-controlled,  robotic sewing machines. Technical -stitch type, sewing needle, feed mechanism, bed type- Characteristics and features- working principle -precautions. Advanced sewing machines in industry- sewing machine brands.

**Unit III - Garment quality in Stitching Operations**

Garment quality -factors contributing quality product-raw material quality, accessories, cutting quality, Inspection procedure in sewing department, machine and sewing quality, Washing and finishing quality. Functions of quality assurance in sewing department - Role and responsibility of Quality assurance manager. Standard quality levels-Fault free fabric, Good stitching and seam formation, Machine conditions, needle size, and thread, trims and fasteners -Job cord-meaning - Importance of job card or work ticket- job card specification -garment components, stitch specification.

**Unit IV - In-line Inspection**

In-line inspection – Meaning - Format of inline checking - checking at check points, Roving quality checking, Traffic light System, inspection by buyer. Types of in-line inspection -Purpose- In-line Inspection report – Defect list- Defect classification zones - Most noticeable, Average noticeable, least noticeable. Specifications of quality department -Swatch cards, specification sheet, trim cards.

**Unit V - Care and Maintenance**

Cleaning and Maintenance of tools - Cleaning and oiling of sewing machines- Handling of sewing machines -Safe and correct procedure of handling equipment and machinery - Clothing and Personal Protection, Clear demarcations and sign boards, Compliance towards – Noise Protection, Cleanliness and maintenance, Reporting an Accident, Essential facilities required at the workplace- Potential hazards risks and threats based on nature of operations.

**REFERENCES:**

1. Harold Carr and Barbara Latham, The Technology of Clothing Manufacturing, Om Book Service, New Delhi, 2010.

2.Dudeja, V.D., Professional Management of Fashion Industry, Gangandeep Publication, New Delhi, 2005.

3.Gerry Cooklin, Garment Technology for Fashion Designers, Black Well Science Ltd., Oxford, 2005.

4.Betsy hosegood, The Complete Book of Sewing, Dorling Kindersley Limited,London, 2006

5.[Karthik](https://www.google.co.in/search?tbo=p&tbm=bks&q=inauthor%3A%22T.%2BKarthik%22) T., [Ganesan](https://www.google.co.in/search?tbo=p&tbm=bks&q=inauthor%3A%22P.%2BGanesan%22) P., [Gopalakrishnan](https://www.google.co.in/search?tbo=p&tbm=bks&q=inauthor%3A%22D.%2BGopalakrishnan%22), D, Apparel ManufacturingTechnology, CRC Press,U.S., 2016.

6.Debbie Colgrove, Sewing, Wiley Publishing,Inc., Hoboken, NewJersey, 2006.

**DISCIPLINE SPECIFIC ELECTIVE**

**Group-D-Fashion communicator**

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| **Course Code** | **21** | **FASHION PHOTOGRAPHY PRACTICAL** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K3 - Apply; K4 - Analyze; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. Topractice and help the student to acquire practical skills in fashion Photography through exploration of different styles, and its applications. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the parts and functions of a camera | K2 |
| CO2 | Developprofessionalphotographsusingvariedtechniques andmethodsofphoto shoot | K6 |
| CO3 | Analysethevideocapturingand editingmethods | K4 |
| CO4 | Discovertheintricaciesofmediaplanning. | K3 |
| CO5 | Createfashionphotographsandvideosand presentthesameeffectivelyinmedias | K6 |

1. **Learning Basics**

**Camera skills and working knowledge**

* Learning Basic camera Techniques and Features, Hands on Training with camera.
* Lenses and Optics- Learning about focal lengths
* Exposure and Light Metering- learning photography vocabulary: aperture, shutter speed, ISO-Equivalent Exposures- Metering- Modes.

**Photography Skills**

* Take pictures of any Objects (Model, Product, and Nature) with Different shutter speed.
* Understanding the Object (Model, Product, and Nature) and clicking the best of it.
* Take pictures of any Objects (Model, Product, and Nature) with Different Motion –Blur-Light.
* Take Pictures and Videos of any Objects (Model, Product, and Nature) using Different props.

1. **Shootthe followingPhotographsinDifferentPerspectivesand Backgrounds**

Product photography

Modellingphotography

Indoorand Outdoorphotography

1. **Creation of Magazine, Broucher, Catalogue, and retouching Images**.

Working with Layers and Channels

* Developing a portfolio of any Objects (Model, Product, and Nature) on Particular Theme.
* Working with Path and Character - Patches and healing brushes.

**REFERENCES:**

1. Lighting People: A Photographer's Reference- RossellaVanon, Peter Lindbergh: On Fashion Photography- Publisher: Taschen, Vogue: The covers- DodieKazanjian
2. FashionPhotography:AComplete guidetotheToolsand TechniquesoftheTrade,BruceSmith,Amphoto Books, 2008.
3. WritingforVisualMedia,AnthonyFriedmann,2010.
4. ADifferentVisionon FashionPhotography,Thierry-MaximeLorit,2016.
5. Mics,Cameras,SymbolicAction:Audio-VisualRhetoricforWritingTeachers,ScottK. Halberitter, 2012

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| **Course Code** | **22** | **VISUAL MERCHANDIZING** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K1: Recall, K2: Understand, K3** - Apply; **K4: Analyse, K5** - Evaluate; **K6** - Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. To study the elements of visual merchandising 2. To study understand the techniques of visual merchandising 3. To learn about the planning and presentation of merchandise 4. To understand the concepts applied in visual merchandising | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Categorize the tools used in visual merchandising display | K2 |
| CO2 | Demonstrate the promotional and seasonal visual merchandising Techniques | K3 |
| CO3 | Select the appropriate visual merchandising tools to achieve a gooddisplay presentation | K5 |
| CO4 | Predict an innovating and eye catching window display with suitablesignage and props | K6 |

**Unit – I Visual Merchandising and Display**

Essentials of Visual Merchandising and Display: Definition, Elements of Visual Merchandising - Store front, Store layout- types of store layout, Store interior- Interior display, Store exterior display, Virtual Visual Merchandising. Day to-day activities of Visual Merchandiser, Visual merchandisers in department store, multiple chain store and small retail outlets.

Display Design Basics-Line, composition, Texture, Colour and Lighting.

**UNIT II Exterior and Interior Display**

Exterior Presentation: Exterior Signs, Store entrance, Marquees, Banners, Awnings, Walks and Entries and Landscaping

Interior Presentation: Interior display in selling area and sales support area, Areas of display- Windows, Highpoints, Focal points, Nesting Tables, Staircase landings, Step raisers, Lift area, Danglers, Cash counters, pillars, and entrances. Planogram, strategy for creating attractive retail display.

**UNIT III Window Display**

Window Display: Scope of Window display, types of window display, Window display designing process-theme and schemes, colour, budgeting, window prepping and installing, structuring the window calendar. Steps create eye-catching and innovative displays.

In-Store Visual Merchandising and display -Product handling, colour blocking, product blocking, Vertical, horizontal, cross and symmetrical merchandising**.**

**Unit IV SIGNAGE FIXTURES AND PROPS**

Signage Fixtures and Props:

Fixtures: Types of fixtures, selecting display fixtures.

Signage: What signage can do for customer, retailer, vendor and community, various types of signs.

Props: Advantages and types of props. Role of mannequins in clothing store for effective visual presentation.

Common errors in creating window display, Promotional and seasonal display techniques

**Unit–V Store planning and Merchandise presentation**

Space Management, Factors affecting operational efficiency, store planning-Allocating Space, Circulation, Shrinkage Prevention

Merchandise presentation planning- Shelving, Hanging, Pegging, Folding, Stacking, Dumping, Selecting Fixtures and Merchandise.

**REFERENCES:**

1. Visual Merchandising and Display – Martin M Peglar 2002, S. V. M, Fairchild Publication, Inc, New York.
2. Grace I kunz, Merchandising: Theory, Principles and Practices, 2005, IOWA state University, Fairchild Publication, Inc, New york
3. John Donnellan, University of Massachusetts-Amherst,, Merchandising buying and management, 1999, FairChild Publications, New York.

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| **Course Code** | **23** | **COMMUNICATION FORFASHION BUSINESS** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K2: Understand, K3** - Apply; **K4: Analyse, K6** - Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. To study about communication process 2. To understand about the importance of listening 3. To learn about the business correspondence and presentation skills 4. To study the business communication techniques | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Business communication and its process | K2 |
| CO2 | Significance of active and poor listening | K2 |
| CO3 | Application of Presentation skills | K3 |
| CO4 | Analyze the principles of Business correspondence | K4 |
| CO5 | Application of business communication skills for letter correspondence | K3 |

**UNIT 1- Communication**

Communication- meaning, Importance and purpose, role of communication in business, main forms of communication business. Types of Communication-Forms of Communication.-Verbal and non- verbal communications - Technology and Business Communication, Communication in Management, effective communication at workplace – Barriers. Corporate communication.

**UNIT II - Listening**

Listening-Definition-Listening Process-Types-Superficial, Appreciative, Focused, Attentive Evaluative, Empathetic-Barriers- Traits of a good Listener, factors contributing to poor listening, Active listening.

Technical Writing-Importance, Characteristics. Report writing- objectives and types.

Business proposals-definition, types. Note making and writing technique.

**UNIT III –Meetings, Presentation skills**

Meetings – Types, Characteristics, Conducting Meetings, Effective meeting, communicating through Visuals.

Presentation skills- Definition, Importance, features of a good presentation, components of presentation skills-Planning effective presentation- -Analyze the audience, Structure, verbal delivery, Body language and movement, form of language, equipment’s and facilities, verbal and nonverbal, Interacting with audience and managing questions, Rehearsal - Network Etiquette

**UNIT IV - Business Correspondence**

Business Correspondence -Meaning and significance-Principles-Essentials of Business letters- -introduction, format and layout -E-mail- report writing,-writing skills - Elements of business letter- Formats - Types of business letter-Internal, External, Routine, Sales, Personalized, Circulars.

**UNIT V - Letter Correspondence**

Letter Correspondence- Introduction, Objectives- - Requirement correspondence- definition, application letter, contact of resume and CV, interview letter, offer of employment, letter of acceptance, resignation letter, letter of recommendation.

**REFERENCES:**

1. Krishna Mohan and MeeraBanerji, Developing communication skill, Trinity press, Lakshmi publication, Chennai, 2016.
2. Mary Ellen guffey, Essentials of communication, south – western collage publication Association for business communication, 2018.
3. PoojaKhanna, Business Communications, Vikas Publishing House Pvt.Ltd.,Noida,2015.
4. R.C. Bhatia, Business communication, Ane’s books Pvt.Ltd., New Delhi,2009.

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| **Course Code** | **24** | **FASHION INDUSTRY AND SUSTAINABILITY** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K2: Understand, K3** - Apply; **K4: Analyse, K6** - Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. To Understand the concept of fashion industry and its sustainability 2. To learn about the concept of sustainability in clothing industry 3. To learn about relations of Fashion industry and Environment 4. To Understand the idea of green consumerism 5. To understand about Sustainable Business Strategies | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Fashion industry and its sustainability | K2 |
| CO2 | Sustainability in clothing industry | K2 |
| CO3 | Analysing Fashion industry and Environment | K4 |
| CO4 | Becoming green consumer | K3 |
| CO5 | Development of Sustainable Business Strategies. | K6 |

**Unit I - Fashion sustainability**

Introduction- Fashion, Sustainability, Pillars of sustainability. Sustainable fashion- Meaning-Importance-Need- Social, Economic and Environmental concerns related to fashion -Business models for sustainable fashion-Sustainable clothing- Sustainable consumption practices for enhanced product life. in Sustainability in fashion-Benefits and challenges.

**Unit II - Sustainability in Clothing Industry**

Recycling and upcycling- Concepts and benefits- Carbon footprint, water footprint and energy consumption of fashion industry.Sustainability in Clothing Industry -Clothing lifecycle, fast and slow fashion, clothes repair and re-use. Value and Green aesthetics- Ethical design- Concept of Zero waste fashion design-Product service system (PSS) for sustainable fashion- PSS design thinking and PSS consumer adoption - Multi-life Garments through Modular Structures and Supplemental Services Consumer engagement and business innovation.

Sustainable fashion designers, sustainable fashion brands, Eco-friendly fashion labels

**Unit III- Fashion Industry and Environment**

Fashion and Environment –Fashions environmental impact -Water pollution, water consumption, Micro fiber pollution, Waste and disposal, chemical usage, carbon emissions, soil degradation. Reducing environmental impact in fashion industry-buy less, buy clothes from sustainable brands, buy better quality, think before disposal, buy second hand, swap and rent clothing, cloth washing practice.

**Unit IV - Green Consumerism**

## Green consumerism -Meaning-Importance- green consumerism and waste reduction- Green consumer – Possible ways to become green consumer- Green Marketing Strategies. 3Rs – Reduce, Reuse and Recycle. Ways to increase the sustainability of fashion -Raise awareness, Radical Rethinking, Increase corporate and consumer responsibility, Push for alternatives, Introducing effective policy.

**Unit V - Sustainable Business Strategies**

Sustainable Business Strategies - Environmentally Friendly Operation Strategies - Design for environment, environmental management systems, product stewardship programs, supply chain management, total quality management and Just-in-time. Marketing Mix for Green Products-Product, place, promotion, price.Product Life Cycle in Fashion Industry- Materials, Production, Distribution and Transportation, Product Use, End of Use. Textile recycling- Available recycle options - convenience of recycle options- Re-design solution package. Consumer behaviors and attitudes- Media and information reliability, Green clothes and information credibility.

**REFERENCES:**

1. Yamase K, Cut up Couture- Edgy Upcycled Garments to Sew, Interweave, 2012.

2. Fletcher K, Sustainable Fashion and Textiles- A Design Journey, Lawrence King Publishing,

2008.

3. Phillips J,Create, Sustainable Luxe- A Guide to Feel Good Fashion, Space Publishing, 2013.

**Online Reference**

1 https://www.coursera.org/learn/sustainable-fashion

2 https://www.edx.org/course/circular-fashion-in-a-sustainable-clothingindustry

3 https://www.my-mooc.com/en/mooc/sustainable-fashion/

4 <https://www.sustainablefashionmatterz.com/what-is-sustainable-fashion>

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| **Course Code** | **25** | **APPAREL BRAND MANAGEMENT** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K2: Understand, K3** - Apply; **K4: Analyse, K6** - Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. Createawarenessonbrandidentity 2. Gainbetterunderstandingonbrandbuildingstrategies 3. Get theattentionoftheconsumerbyestablishing brands | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Plan products with a brand identity | K4 |
| CO2 | Understand the significance role of brand identity | K2 |
| CO3 | Develop strategies to establish and maintain brand | K6 |
| CO4 | Prepare effective branding strategies | K3 |
| CO5 | Devise methods of establishing a brand in the minds of the consumer | K4 |

**UnitI ProductDevelopmentandSales**

Product–definition,types; productline,productmix;newproductdevelopment; estimatingmarketandsalespotential,salesforecasting

**UnitII Brand,ItsIdentity**

Brand– definition,evolution,importance; productvsbrand;branding–meaning,creation,challenges; brand designing– understanding consumer, competition and components, brandidentity - brand naming, logos, image, characters, slogans and promise , Tools to maintain brandidentity,IllustrationsforBrandidentityfromapparelindustry.

**UnitIII Brand Building**

BrandBuilding:brandinsistencemodel;BrandAdvertising – definition, objectives,modes,economic and ethics; Nontraditional marketing approach in Advertising. Brand- Association,CategoriesandManagementChallenges.BrandingintheAgeofInformationand Internet.

Effective Brand Name. Brand equity measurement systems; legal laws in brand management;Brandprotection,Globalbranding.

**UnitIV BrandingStrategies**

Brandingstrategies;Brandattributesand loyalty,brandextension,brandrevitalization,brandrepositioning,brandrecall,brandharvestingandbrandimitation.

**UnitV Brandand ConsumerBuyingProcess**

Brand and Consumer Buying Process; Consumer search for Brand Information; Issues associatedwithEffectiveBrandName.Brandequitymeasurementsystems;legallawsinbrandmanagement;Brandprotection,Globalbranding.

**REFERENCES:**

1. Branding,BradVanAuken,JaicoPublishingHouse,Mumbai,India,2010.
2. BrandManagement, MahimSagar, DeepaliSingh, AgrawalDP, AchintyaGupta,AneBooks IndiaPvt. Ltd.,India, 2009**.**
3. HarshVVerma,“BrandManagement”,ExcelBooks,NewDelhi,India,2004

**DISCIPLINE SPECIFIC ELECTIVE**

**Group-E-Textile Researcher (Technical Textiles)**

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| **Course Code** | **26** | **TEXTILE BIOTECHNOLOGY** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are :   1. To know about the enzymes suitable for textile industry 2. To learn about the microbes in textile technology 3. To learn about the Bio-processing of Textiles 4. To learn about the manufacturing of Bio-functional Textiles 5. To know about the Biotechnology Application in Textile Industry | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | 1. Understand the industrially important enzymes for processing the textiles | K2 |
| CO2 | 1. Understand the role of microbes in textile | K2 |
| CO3 | 1. Apply suitable enzymes in Textile processing | K3 |
| CO4 | 1. Create Bio-functional Textiles | K6 |
| CO5 | 1. Understand Biotechnology Application in Textile Industry | K2 |

**Unit I Enzymes in Textiles**

Enzymes – General Terminology, Nomenclature and Classification; Enzymes in Textile industry – Amylases, Cellulases, Pectinases, Catalases, Proteases; Enzymes in treatment of textile dye effluent – Lignin peroxidases and Manganese peroxidases in degradation of azo dyes; Enzyme Engineering – Site-directed mutagenesis and Directed Evolution; Production of industrially important enzymes –Amylases, Cellulases, Lipases, Proteases: Subtilisin; Extraction of enzymes – soluble and membrane-bound. Purification of enzymes; Quantification of enzymes – colorimetric, spectrophotometric and spectrofluorometric assays; Biological assays.

**Unit II Microbes in Textiles**

Microorganisms in textile industry –Bacteria (*Bacillus*), Yeast (*Saccharomyces*) and Fungi (*Aspergillus*); Methods of culturing microorganisms – Culture media types, Isolation of pure cultures.Nutritional types of microorganisms. Fermentation media – Formulation – Carbon, Nitrogen sources, Minerals, Growth factors, Antibiotics and Antifoams; Microbial growth–Batch, Continuous, Fed-batch cultures, Growth Curve, Measurement of microbial growth. Growth control–Physical Methods, Chemical agents; Downstream processing– Precipitation, Filtration, Centrifugation, Cell disruption, Chromatography – Adsorption, Ion-exchange, Gel permeation, Affinity, Reverse phase and HPLC.

**Unit III Bio-processing of Textiles**

Isolation of enzymes; Application of enzymes in Textile processing – Bio scouring, Bio desizing, Bio bleaching, Bio degumming, Bio stiffening, Denim fading; Special finishes: Nano particle preparation and micro encapsulation of bio/natural extractions for anti-bacterial, anti-fungal, fragrance finish.; Methods of Finishing: Dip and dry, pad dry cure, plasma treatment, ultrasonic atomizer.

**Unit IV Bio-functional Textiles**

Introduction, types, manufacturing and applications of bio-functional textiles; Electrospunnanofibers as Bio-medical devices; Evaluation of bio-functional effects and safety, future trends.

**Unit V Biotechnology Application in Textile Industry**

Natural fibres: Transgenic cotton, wool, DNA profiling of animal hair fibres; Novel fibres: Protein polymers, spider silk, other new fibre sources: chitins and chitosan, bacterial cellulose, corn fibre, polyester fibres; Biofabrics: Dyes and intermediates from micro-organisms: Naphthoquinone dye, anthroquinones, indigo; Treatment of textile waste water: Bioremediation – Bacteria (*Bacillus*, *Staphylococcus*, *Pseudomonas* and other bacteria), Yeast (*Saccharomyces*, *Candida*), Fungi (*Aspergillus*, *Trichosporon*, *Galactomyces*) and Microalgae (*Chlorella*, *Spirogyra*) for decolouration, metal and toxin removal.

**REFERENCES:**

1. Advances in textile , P. F., Whitaker, A., & Hall, S. J, Second Edition. Elsevier, 2003.
2. Lehninger principles of biochemistry , Nelson, D. L., Lehninger, A. L., & Cox, M. M. Macmillan, 2008 .
3. Biochemistry , U. Satyanarayana and U. Chakrapani, ArunabhaSen Books and Allied P Ltd, Kolkata, Third Edition, 2006.
4. Textile processing with enzymes, Cavaco-Paulo, A., &Gubitz, G. (Eds.), Elsevier. 2003.
5. Application of enzymes in the textile industry: a review, Mojsov, K., 2011.
6. Microbiology, Prescott, L. M., Harley, J. P., & Klein, D. A., 5th International Edition, 2002.

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| **Course Code** | **27** | **APPLIED PHYSICS AND CHEMISTRY FOR TEXTILES** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K2: Understand, K4: Analyse** | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are :   1. To know about the enzymes suitable for textile industry 2. To learn about the microbes in textile technology 3. To learn about the Bio-processing of Textiles 4. To learn about the manufacturing of Bio-functional Textiles 5. To know about the Biotechnology Application in Textile Industry | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the natural and synthetic polymers in textile fibres. | K2 |
| CO2 | Understand the various dyes used in the textile industry. | K2 |
| CO3 | Understand the detergents and soaps used in textile applications. | K2 |
| CO4 | Analyze the structural properties of textile fibres. | K4 |
| CO5 | Analyze the mechanical and thermal properties of textile fibres. | K4 |

**Unit-I Textile Fibres, Polymers and Natural polymers**

Textile Fibres: Classification – natural and manmade fibres, Chemical structure and Composition.

Polymers: Introduction – Classification – Types and mechanism of polymerization – Degree of Polymerization – Crystalline vs. amorphous regions. Synthesis and application of polymers: Polyethylene (LDPE & HDPE), Polyacrylonitrile, Polyesters (PET), Polyamides – Nylon 6 and Nylon 66. Natural polymers: Natural resins, Polysaccharides, Starch, Glycogen, Cellulose, Preparation and processing of cellulose.

Synthetic fibres: Important requirements of a fibre, Difference between natural and synthetic fibres, Properties of synthetic fibres, Preparation of synthetic fibres, Methods of spinning, application of synthetic fibres, Rayon or artificial silk, Nitrocellulose rayon or pyroxylin, Cuprammonium rayon, Viscose rayon, Properties of viscose rayon, Nylon-6 (Kapron), Various routes of nylon, Nylon -66, Properties of nylon intermediates.Nylon-6 or perlon L. Properties of nylon-66.

**Unit-II Dyes**

Dyes: Sensation of colour, Colour and constitution, Nomenclature. Dyeing, methods of dyeing, direct dyeing, vat dyeing, mordant dyeing, Substantive dyeing, disperse dyeing, formation of dye on the fibre, dyeing with reactive dyes, dyeing of wool with acid dyes, cross dyeing, basic operation of dyeing, dye intermediates.

Classification of dyes: Classification of dyes based on chemical constitution, nitroso dyes, nitro dyes, azo dyes, acid azo dyes, methyl orange, methyl red.Classification of dyes based on their mode of application, acid dyes, basic dyes, direct or substantive dyes, modern or adjective dyes, ingrain or developed dyes, Ice colours, Sulphur dyes, pigment dyes, Solvent or spirit soluble dyes.

**Unit-III Detergents and Soaps**

Detergents: Principal groups of synthetic detergents, Classification of surface active agents, Anionic detergents.

Soaps: General consideration in soap making, Manufacture of soaps, Metal soaps, Oil to be used soaps, Cleansing action of soaps. Alkyl sulphonates, alkyl aryl sulphonates, Alkyl sulphates, Amide sulphonates, miscellaneous compounds. Cationic, Non-ionic and Amphoteric detergents. Surfactants: Classification and applications of surfactants, Biodegradability of surfactants, Ecofriendly detergent containing enzymes, Ecofriendly detergents-zeolites, Detrimental effects of detergents.

Green chemistry approaches in textile industry.

**Unit-IV Structural Properties**

Crystallinity- % of Crystallinity& orientation of polymer; measurement of crystallinity& orientation – powder XRD analysis. Single fibre structure – Single crystal XRD analysis.

Surface analysis – Optical microscopy, FE-SEM, Energy Dispersive Spectroscopy (EDAX).

Optical properties – Optical absorption or transmittance – UV-Vis-near IR Spectroscopic methods – lower & upper cut-off wavelength, % of transmittance.

**Unit-V Mechanical &Thermal properties**

Mechanical properties – Tensile strength & Young’s modulus, density measurement methods.

Thermal analysis – TG & DTA, DSC, NMR.

Swelling phenomenon of textile fibres – types of swelling – factors influencing swelling – effects of swelling

**REFERENCES:**

1. Industrial Chemistry, B.K.Sharma, Krishna Prakashan Media (P) Ltd, Goel Publishing house, 19th edition 2016.
2. Handbook of Tensile Properties of Textile and Technical Fibres, A. R. Bunsell, Elsevier Science, 2009.
3. Crystals and Crystallinity in Polymers: Diffraction Analysis of Ordered and Disordered Crystals, Claudio De Rosa, FiniziaAuriemma, Wiley, 2013.
4. Text book of Organic Chemistry, Soni P L &Chawla H M, S Chand & Co., 2010.
5. Textile Chemistry, Thomas Bechtold& Tung Pham, De Gryuyter, 2019.
6. Chapter 3 Green Chemistry in Textiles, *Sustainable Innovations in Textile Chemistry and Dyes*, S.S. Muthu (ed.), Springer Nature Singapore, 2018.

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| **Course Code** | **28** | **NANOTECHNOLOGY IN TEXTILES** | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are :   1. To know about the enzymes suitable for textile industry 2. To learn about the microbes in textile technology 3. To learn about the Bio-processing of Textiles 4. To learn about the manufacturing of Bio-functional Textiles 5. To know about the Biotechnology Application in Textile Industry | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Remember the basics of Nanoscience, and textile structures and its applications in textiles. | K1 |
| CO2 | Understand the technological production of nanofibers. | K2 |
| CO3 | Apply the knowledge of Nano particles , Carbon Nanotubes and Nano Composites for various Textiles end use | K3 |
| CO4 | Get familiarized with the new concepts of Nanocoatings and Surface Modification Techniques | K4 |
| CO5 | Evaluate and create nano based textile products for various applications | K6 |

**Unit-I Nanoscience, and Textile Structures**

Nanoscience –Introduction-evolution of nanotechnology-history of nanomaterials-definition of nanomaterials – one, two and three dimensional nanomaterials – Natural nanomaterials

Synthesis of nanomaterials: Top-down and bottom-up approaches – “green” synthesis of nanoparticles. Properties: Size dependent properties.

**Unit-II Nano fibre Production and Properties**

Electrospinning – Working Principle – Instrumentation - Parameters - types of electrospinning – Multi-jets from single needle, Multi-jets from multiple needles, Multi-jets from needleless systems

Potential approaches - Bubble electrospinning – Electro blowing - Electrospinning by porous hollow tube- Electrospinning by microfluidic manifold- Roller electrospinning- Melt electrospinning

Electro conductive, antistatic, Anti-bacterial and anti-microbial, self- sterilizing Durable/ Anticorrosive, Moisture absorbent, Self- cleaning/ dirt and water repellent, UV protective, Fireproof and Flame retardant, Nano-filtration, Fragrence and odor control, Stain Resistive, Improved tensile strength.

**Unit-III Nano particles, Carbon Nanotubes and Nano composites in Textiles**

Nano particles - Preparation of nano-sized materials- Vapour phase reaction- commercially nano-particles- metals and metal oxides nano-particles- polymer and polymer nano-composites- Clay nano-particles, carbon nano particles-polymer nano-whiskers.

Nano-particles in functional textile finishing- Wrinkle resistance- stain resistance- water repellency-anti-static performance- anti-bacterial effect- ultra violet protection.

Carbon nanotubes: structure and properties- synthesis- electric arc discharge- laser ablation method- chemical vapor deposition- nanotube purification-applications of carbon nanotubes in textile and its related products.

Nano-composites: Classification of nanocomposites- Non-polymer based nanocomposites, polymer based nanocomposites.

**Unit-IV Nanocoatings and Surface Modification Techniques**

Introduction to Nanocoatings: Importance of nanocoatings- finding the perfect solvent, applications of nanocoatings.

Abrasion & wear resistant Nanocoatings -Thermal barrier and flame retardant Nanocoatings-Anti-microbial Nanocoatings: Thermal barrier and flame retardant Nanocoatings.

**Unit-V Nanomaterials for Textiles and Cosmetics Applications**

Textiles - Nano-filled polypropylene fibers -Bionics- Swim-suits with shark-skin-effect, Soil repellence, Lotus effect – Nano finishing in textiles (UV resistant, antibacterial, hydrophilic, self-cleaning, flame retardant finishes) -Modern textiles; Lightweight bulletproof vests and shirts, Color changing property, Waterproof and Germ proof, Cleaner kids clothes, wrinkle free, Wired and Ready to Wear. Military textiles

Cosmetics – Formulation of Gels, Shampoos, Hair-conditioners (Micellar self-assembly and its manipulation) -Sun-screen dispersions for UV protection using Titanium oxide – Color cosmetics.

**REFERENCES:**

1. Brown, P.J., Stevens, K.: Nanofibers and Nanotechnology in Textiles. Woodhead Publishing Limited, Cambridge, 2007
2. Ramakrishna, S., Fujihara, K., Teo, W.E., Lim, T.C., Ma, Z.: Electrospinning and Nanofibers. World Scientific Printers, Singapore, 2005
3. Alfred Ruiden, Elements of Polymer Science and Engineering, Elsevier Science, 1998
4. Mahltig B.,Textor T., “Nanosols& textiles”, World scientificpublishers, 2012
5. Nanocomposites - New Trends And Developments Edited by FarzadEbrahimi,Published by inTech, 2012
6. Mai Y-W., “Polymer Nano composites”, Wood head publishing, 2006

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| **Course Code** | **29** | **TECHNICAL TEXTILES – 1**  (Agrotech, Buildtech, Clothtech, Geotech) | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. Learn about the production methods used for the Technical Textiles. 2. Learn in detail about the functions and properties of Technical Textiles. 3. Learn about the applications and latest developments in Technical Textiles. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand about agrotextiles for various applications | K2 |
| CO2 | Understand about building textiles for various applications | K2 |
| CO3 | Understand about cloth textiles for various applications | K2 |
| CO4 | Understand about geo textiles for various applications | K2 |
| CO5 | Design technical textile products for various applications | K6 |

**Unit-I Agrotech**

Agro Textiles: Introduction, fibers used, Types, production methods, functions and properties, Characteristics and Applications in Agro products and in its field. Latest developments in Agro Textiles.

**Unit-II Buildtech**

Build Tech:Introduction, fibers used, Types, production methods, functions and properties, Characteristics and Applications in Architecture and in Building Construction. Recent Advancement in Build Tech. Applications and latest trends in its field.

**Unit-III Clothtech**

ClothTtech:Introduction, fibers used, Types, production methods, functions and properties, Characteristics and Applications – Sewing threads, interlinings, umbrella cloth, narrow fabrics, zip fasteners.

**Unit-IVGeo textiles**

**Geo textiles: -** Introduction, fibers used, Types, production methods, functions and properties, Characteristics and Applications in its field. Recent developments in Geo Textiles.

**Unit-VProduct Development**

Product development in Agrotech / Buildtech / Clothtech / Geotech.

**REFERENCES:**

1. Hand book of Technical textiles, A. R. Horrocks and S. C. Anand, Wood head publishing ltd, England, 2000.
2. Technical Textiles and its Application, Dr.S.Grace Annapoorani, LASER Park Publishing House, India, 2017.
3. Textiles for Industrial Applications, R Senthil Kumar, CRC Press, 2013.
4. Textile Fibers: Developments and Innovations, Kothari, V., New Delhi: IAFL Publications, 2000.
5. Handbook of Industrial Textiles, SabitAdanur, Wellington Sears CRC Press, 1995.
6. Agro Textiles and its Application, Dr.S.Grace Annapoorani, Wood head publishing ltd, India, 2018.

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| **Course Code** | **30** | **TECHNICAL TEXTILES – 2**  (Hometech, InduTech, Meditech, Mobiltech) | **L** | **T** | **P** | **C** |
| **Elective** | **DSE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. Learn about the production methods used for the Technical Textiles. 2. Learn in detail about the functions and properties of Technical Textiles. 3. Learn about the applications and latest developments in Technical Textiles. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand about home textiles for various applications | K2 |
| CO2 | Understand about industrial textiles for various applications | K2 |
| CO3 | Understand about medical textiles for various applications | K2 |
| CO4 | Understand about mobile textiles for various applications | K2 |
| CO5 | Design technical textile products for various applications | K6 |

**Unit-I Home Textiles**

Home Textiles:Introduction, Fibers used, Properties, classification, Applications – furniture, carpeting, interior decoration, fireproofing, fiberfill, stuffed toys, mosquito nets, vacuum cleaner filters.

**Unit-II Industrial Textiles**

Industrial Textiles:Introduction, fibers used - types, functions and properties and characteristics.

Applications and latest trends in its field.

**Unit-III Medical Textiles**

Medical Textiles: Introduction, Fibers used, Properties, classification- Non – Implantable, Implantable, Extra corporal devices, Health care /Hygiene Products and Applications. Wearable assistants for mobile health monitoring. Recent trends in Medical Textiles.

**Unit-IV Mobile Textiles**

Mobile Textiles:Introduction, fibers used - types, functions and properties and characteristics, Applications – Seat cover fabric, upholstery, seat belts, helmets, cabin filters, insulation felts, automotive interior carpets, tufted carpets, airbags, airline disposables, aircraft webbings.

**Unit-V Product Development**

Product Development in Hometech, Indutech, Meditech and Mobiltech.

**REFERENCES:**

1. Hand book of Technical textiles, A. R. Horrocks and S. C. Anand, Wood head publishing ltd, England, 2000.
2. Technical Textiles and its Application, Dr.S.Grace Annapoorani, LASER Park Publishing House, India, 2017.
3. Textiles for Industrial Applications, R Senthil Kumar, CRC Press, 2013.
4. Textile Fibers: Developments and Innovations, Kothari, V., New Delhi: IAFL Publications, 2000.
5. Hand book of Industrial Textiles, SabitAdanur, Wellington Sears CRC Press ,1995.

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| **Course Code** | **31** | **TECHNICAL TEXTILES – 3**  (Oekotech, Packtech, Protech, Sportech) | **L** | **T** | **P** | **C** |
| **Elective** | **DSW** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | **K2** - Understand; **K6** – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. Learn about the production methods used for the Technical Textiles. 2. Learn in detail about the functions and properties of Technical Textiles. 3. Learn about the applications and latest developments in Technical Textiles. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand about oekotextiles for various applications | K2 |
| CO2 | Understand about packaging textiles for various applications | K2 |
| CO3 | Understand about protective textiles for various applications | K2 |
| CO4 | Understand about sports textiles for various applications | K2 |
| CO5 | Design technical textile products for various applications | K6 |

**Unit-I Oeko Textiles**

Environment friendly textiles: Introduction, fibers used Types, functions and properties, Characteristics and Applications - Environmental engineering and landfill waste management, secondary protection in chemical/oil industries

**Unit-II Packaging Textiles**

Packaging textiles: Introduction, fibers used Types, functions and properties, Characteristics and Applications – leno bags, wrapping fabric, jute hessian and sacks, soft luggage products, tea bag filter paper, woven sacks

**Unit-III Protective Textiles**

Protective Textiles:Introduction, fibers used Types, functions and properties, Characteristics and Applications Fire Protective clothing, Heat – resistant garments, Water proof materials, Ballistic resistant Vests, Biological and chemical Vests, Military Protective clothing. Smart polymers used in Protective clothing. Recent developments in protective textiles.

**Unit-IV Sports Textiles**

Sports Textiles:Introduction, fibers used, Types, functions and properties, Characteristics and Applications of Sports Tech. Applications and latest trends in Sports Tech.

**Unit-V Product Development**

Product development in Oekotech, Packtech, Protech and Sportech

**REFERENCES:**

1. Hand book of Technical textiles, A. R. Horrocks and S. C. Anand, Wood head publishing ltd, England, 2000.
2. Technical Textiles and its Application, Dr.S.Grace Annapoorani, LASER Park Publishing House, India, 2017.
3. Textiles for Industrial Applications, R Senthil Kumar, CRC Press, 2013.
4. Textile Fibers: Developments and Innovations, Kothari, V., New Delhi: IAFL Publications, 2000.

**DISCIPLINE SPECIFIC / GENERIC ELECTIVE(Open choice)**

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| **Course Code** | **32** | **HAND EMBROIDERY** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2: Understand, K3 - Apply;K6 - Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. To study about the Fundamentals of Embroidery 2. To understand the origin of Indian Embroidery 3. To learn about hand and machine embroidery stitch types 4. To understand traditional Indian embroideries | | | | | |

**Learning Objectives**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Learn about basic hand and machine embroidery stitches | K2 |
| CO2 | Understandabout different Indian embroideries and its historic importance | K2 |
| CO3 | Take care and maintain embroidered materials | K3 |
| CO4 | Creation of design for applying embroidery stitches on fabrics | K6 |

**UNIT – I Fundamentals of Embroidery**

Fundamentals of Embroidery, Selection of material – thread – needle. Methods of tracing design, Hand embroidery Stitches – Running, stem, Blanket , Lazy daisy, chain, couching, Herringbone, Fish bone, Feather – single and double, Rumanian seeds, Cross, Fly, Stain , Long and Short, French knot, Bullion knot, Double knot, Lettering – Alphabets and Monogram work.

**UNIT – II Machine Embroidery stitches**

Machine Embroidery stitches – Running, cording, Satin, Long and Short, Granite, Eyelet, Cutwork, Letters Monograms, appliqué on net.

**UNIT – III Special stitches**

Special stitches - Counted thread work on canvas material – Drawn Thread Work – Cut Work – Bead Work – Mirror Work – Sequins Work. Designing and producing fabric appliqués and placing it on children and women’s apparel

**UNIT – IV Origin of Indian Embroidery**

Origin of Indian Embroidery .Embroidery stitches used – Kashida of Kashmir, kantha of Bengal, Phulkari of Punjab, ,Kasuti of Karnataka, Chikankari of Luck now Embroidery of Kutch and Kathiawar, Zari embroidery – Types, Colours, Motiffs, Fabric used and their historical importance

**UNIT – V Care and Maintenance of Embroidery**

Care and Maintenance of Embroidery Articles – Pressing Articles – Frames - Glass & Wooden. Estimating, Costing & Marketing of Finished Embroidery Goods.

**REFERENCES:**

1. Mary Mathews, Practical clothing construction -Part I, II , 1986, Cosmic Press, Chennai
2. JamilaBrijBhushan, The costumes and textiles and India, 1958, D B Taraporevala Sons & Co, Bombay.
3. DorrisFlyn, Costumes of India, 1971, xford&IBH Publishing Co ,Delhi
4. Das S.N , Costumes of India and Pakistan, 1956, DB Taraporevala Sons and co, Bombay
5. Encyclopedia of Embroidery Stitches Including Crewel, 1974, Dover Publications
6. Val Holmes, Decorative Painting Techniques Book, 2003.

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| **Course Code** | **33** | **BASIC SEWING** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2: Understand, K3 - Apply; K4: Analyse, K6 - Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. To impart knowledge on basic drafting and draping techniques 2. Understand about preparation of fabric for cutting 3. To enable the students to learn the skills of constructing garments | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the method and importance of taking body measurements | K2 |
| CO2 | Application of principle of pattern making techniques for drafting | K3 |
| CO3 | Learn about the concept and use of grain during fabric cutting | K3 |
| CO4 | Analyzed the methods for preparation of fabric for cutting | K4 |
| CO5 | Design garments by applying different types of seams and other garment details | K6 |

**UNIT-I Body Measurements**

Body Measurement – importance, preparations for taking body measurements, ladies measurements, children’s and men’s measurements. Importance of standardizing body measurements

**UNIT-II Pattern making**

Introduction to pattern making-Pattern making Tools-Types of pattern making, Importance of Paper patterns, Principles for pattern Drafting, Advantages and Disadvantages of pattern making.

**UNIT-III Grain**

Grain –Importance of grain in cutting, Preparatory the fabric for cutting-Drafting procedure for bodice front, bodice back, sleeve and collar.

**UNIT-IV Seams and seam finishes**

Seams-Introduction, types of seams- Importance and types of seam finishes –Fullness- Darts, Tucks, Pleats, Godets, Gathers, flares, Shirring and Ruffles – Neckline finishes-Importance, types -Binding and facing.

**UNIT-V Sleeves, Plackets and Pockets**

Sleeves-Types of sleeves-Set in sleeves and sleeves combined with bodice, Pockets-Types – patch, set-in pocket, Pocket set into the seam- Plackets-Importance, Types of plackets – Fasteners – Types-Buttons, button holes, hooks and eyes, zippers, eyelets, buckles, Velcro’s and studs.

**REFERENCES:**

1. Mary Mathews, Practical’s Clothing Construction Cosmic Press, Chennai, – Part I & II, 1986.
2. Helen Joseph, Pattern Making for Fashion Design, Armstrong Pearson Education, Delhi, 2000.

# Connie Amaden Crawford, The Art of Fashion Draping, Blooms burry Academic, London.Third edition, (2004).

# Jaffe, Draping for fashion Design, Sonali Publication, New Delhi, (2012).

# Khurana K, Draping and Pattern Making for Fashion Design, Sonali Publications, New Delhi., (2012).

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| **Course Code** | **34** | **DESIGNARTANDPAINTING**  **PRACTICALS** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **-** | **-** | **3** | **3** |
| **Cognitive Level** | K3 - Apply; K4: Analyse, K5: EvaluateK6, K6 - Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. Teachthe characteristicsofselectedWorldart. 2. Teachthe nuancesofIndianPainting 3. Guidethestudentstorecreateitinthegarmentstyles | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| 1 | DevelopWorldartforms inpaper | K6 |
| 2 | RedrawtheIndianpaintings | K5 |
| 3 | Understandthenuancesofart formsandpaintings | K3 |
| 4 | Analyzethedesigndetails | K4 |
| 5 | Recreatetheartandpaintingdesignsingarmentstyles | K6 |

1. **SketchthefollowingWorldArt formsanddesignthesameinagarment**

(Partofthedesignor full,withor withoutmodification) withpencils, pens, acrylics,oilpaints,watercolors, inksoranyother medium.

* Baroque
* Impressionism
* Cubism
* Surrealism
* Futurism
* Rococo

1. **DrawsketchesoftheIndian PaintingsandDesign thesamein a garment.**

(Partofthedesignor full,withorwithoutmodification) withpencils,pens, acrylics,oilpaints,watercolors, inksoranyother medium.

* Rajput painting
* Mysorepainting
* Tanjorepainting
* Kalamkaripainting
* Warlipainting
* Gondpainting
* Muralpainting

**REFERENCES:**

1. SouthIndianPaintings,C.Sivaramamurti,Publisher:NationalMuseum,1968.
2. TheRoyalArtofTanjorePaintings,SmitaShiroleYadavandPadmaRaghavan, PublishedbyEnglishEdition,2010.
3. Artbook-"GondArt"aMindfulColouringBookPaperback–TruptiKumbhare, Deepali Patwadkar,2018.
4. IndianPainting:TheGreatMuralTraditionHardcover,MiraSeth, Publisher:HarryN.

Abrams,2006.

1. WarliPainting:Step-by-stepInstructionandDesigns,AmritaGupta, CreateSpace

IndependentPublishingPlatform,2016

1. KalamkariandTraditionalDesignHeritageofIndia, ShakuntalaRamani, Publisher:Wisdom Tree,2007

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| **Course Code** | **35** | **PERSONALITY DEVELOPMENT** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 – Understand, K3 - Apply; K5 - Evaluate; K6 – Create | | | | | |
| **Learning Objectives** | 1. To study about evaluating personal appearance 2. To learn the process of skin treatment and make-up technique 3. To learn about selecting wardrobe and developing one’s communication 4. To understand about developing one’s personality traits | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| 1 | Evaluate their own personal appearance | K5 |
| 2 | Gain knowledge on skin and facial care | K2 |
| 3 | Acquire ideas on various make – up techniques along with safety precautions | K6 |
| 4 | Attain knowledge about wardrobe selection and planning techniques | K3 |
| 5 | Develop efficacy in communication | K2 |

**UnitI- Personal Appearance**

Self-evaluation – meaning, importance, evaluation of behaviour, personality, attitudes and perception. Personal appearance – importance -Posture - body language –Importance, Positive and negative body language - face to face communication – Importance, characteristics, benefits -positive and negative approach. Self-introduction- meaning, steps for an effective self-introduction.

**UnitII- Skin treatment and Care**

Care of skin - cleansing, nourishing, vaporizing and toning technique – benefits, importance and types of cleansing.

Facials- Facial Massage-Electro therapy and Light therapy.

Facial Treatments-Aromatherapy

**UnitIII- Make-up technique**

Make-up technique - Facial Makeup- Cosmetics for Makeup- Makeup color theory- Client Consultation- Corrective Makeup-Artificial Eyelashes -Special make-up -Safety Precautions technique

**UnitIV- Selection of Wardrobe**

Wardrobe selection – Meaning, planning a wardrobe, Selection of colour and pattern of clothes to suit different personality –factors affecting wardrobe collection - Choice of costumes for different occasions and seasons.

**UnitV- Communication Skills**

Developing communication skills – Communication – Introduction, importance, Nature, Scope, Process of communication -communication skills -Listening, Speaking, Reading, Writing- Definition, meaning, nature and scope,

Oral communication -Vocal noise, Voice training, activating tongue, relaxing facial muscles, breathing properly.

**REFERENCES:**

1. Krishna Mohan and Meera Banerji, Developing communication skill, Trinity press, Lakshmi publication, Chennai, 2016.

2. BarunMitra, Personality Development and Soft Skills, Oxford University Press, 2012.

3. Janet Simms, A Practical Guide to Beauty Therapy, Neison Thomas Ltd, UK, 2001.

4. Daniel K.Mroczek, Hand book of personality, Psychology press, New York, 2014.

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| **Course Code** | **36** | **BEAUTY CAREPRACTICALS** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **-** | **-** | **3** | **3** |
| **Cognitive Level** | K3 - Apply; K3 - Apply;K4: Analyse, K6 - Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. Impartknowledge onbeautycare 2. Enableoneselftohelpmaintainpersonalcare 3. Enhance their beauty through make up, hair styles and skin care | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understandandmaintainpersonalbeautyandhygiene | K2 |
| CO2 | Createnewhair styles | K6 |
| CO3 | Analyzethebeautyproductsand theircare | K4 |
| CO4 | Presentoneselfwithconfidenceand beauty | K3 |

1. **BasicsTreatments**

* Threading
* Manicure
* Pedicure
* Mehandiapplicationonhands

1. **FaceMakeupandTreatments**

* Bleaching for normal Skin
* Facial–Normalskin
* Basic Makeup
* BridalMakeup

1. **HairStylesand Treatments**

* Basic Hair styles (any 5)
* SpecialHairstyles(any2)
* Basichaircuts
* Dandrufftreatment
* Dyeapplicationforhair

**REFERENCES:**

1. GreenBeautyRecipes:EasyHomemade Recipes toMakeYourOwnNaturalandOrganic Skincare, Hair Care, andBodyCareProducts,JulieGabriel, PetiteMarieLimited,2010
2. Beauty:TheUltimateCosmeticMakeover Guide. Book1:FaceandSkin byElizabethM Reed,PublishedbyQuillpenPtyLtd,2015

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| **Course Code** | **37** | **NON CONVENTIONAL**  **NATURALFIBRES** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K1-Remember;K2-Understand; K3 - Apply; K4-Analyze; | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. To know about the enzymes suitable for textile industry 2. To learn about the microbes in textile technology 3. To learn about the Bio-processing of Textiles 4. To learn about the manufacturing of Bio-functional Textiles 5. To know about the Biotechnology Application in Textile Industry | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the significance of Non-Conventional Natural fibres and environmental impact of existing natural and synthetic polymers | K1 |
| CO2 | Apply the potential use and environmental benefits of Non-conventional Natural fibres in diverse fields | K3 |
| CO3 | Application of different enzymes for textile industry | K3 |
| CO4 | Analyze the application of different Non- Conventional Natural fibres and elucidate the benefits and shortcomingsfor product development | K4 |
| CO5 | Learn about application ofNon- Conventional Fibres and Bio composites from Renewable resources | K2 |

**Unit-I Introduction to sustainability and Natural Cellulose fibres from Renewable Resources**

Introduction to Sustainability: Definition, Concept, Dimensions of Sustainability, Environmental impact of Natural fibers and Synthetic Polymers, Alternative Fibers for Environmental Sustainability, Meaning of Non-Conventional fiber and Sustainable fibers, Need for Non-Conventional Naturalfibers

**Natural Cellulose fibres from Renewable Resources**: Introduction to Natural Cellulose fibres from Renewable Resources, Corn Stover- Wheat and Rice Straw Fibres, Sorghum Stems and leaves, Cotton stalks, Palm trees, Banana Pseudo-stems, Sugarcane Bagasse.

**Unit-II Natural Cellulose fibres from Renewable Resources**

Milkweed fibre, Coconut husk fibres, Pineapple fibres, Switch grass, Hop stems and Bamboo fibres, Lotus stem and Coffee grounds, Hibiscus, Stinging Nettle and other Lignocellulosic sources, Regenerated cellulose fibres from Non- Conventional Cellulosic Resources.

**Unit-III Natural Protein Fibres (Innovative and Renewable resources)**

Lacewing Silk, Mussel Byssus fibres, Hagfish proteins, Spider silks, Honeybee, poultry feathers, Animal Hair fibres (Chiengora), Casein, plant protein, Lysozyme

**Unit-IV Fibres from Biotechnology**

Introduction, Production of Bacterial Cellulose, Agricultural Residues as Feed stocks for production of Bacterial cellulose, Blends of Bacterial Cellulose fibers, Application of BacterialCellulose, Regenerated Cellulose Films and Bio hybrid Yarns.

**Unit-V Emerging Non- Conventional Fibres and Bio composites from Renewable resources**

Bio composites from Renewable resources, Emerging Non- Conventional fibres from Fruits and Vegetable scraps: Oranges, Apple, Grapes and others. Leather alternatives from: Fish, Mushrooms, apples, pineapples and others

**REFERENCES:**

1. Sustainable Fibers for Fashion Industry, Volume 1, Subramanian Senthilkannan Muthu, Miguel Angel Gardetti,Springer, 23-Mar-2016
2. Handbook of Sustainable Luxury Textiles and Fashion, Volume 1,Miguel Angel Gardetti, SubramanianSenthilkannan Muthu, Springer, 10
3. Innovative Biofibers from Renewable Resources Narendra Reddy, Yiqi Yang Springer, 05-Dec-2014
4. Biofiber Reinforcements in Composite Materials Omar Faruk, Mohini SainElsevier, 25-Sep-2014

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| **Course Code** | **38** | **STANDARDS AND SPECIFICATION FOR TEXTILES** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2-Understand;K3 -Apply; K4-Analyze;K5 -Evaluate; | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. Introduce students about standard test methods for identification of fibres which are very important to a number of industries including textiles, forensic and design. 2. To make learn the students about standards and specifications of fabrics both woven and knit for different types of fashion or aesthetics apparels. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the procedure and evaluation techniques to test antimicrobial textiles | K2 |
| CO2 | Interpret fabric performance specification requirements for Woven and knit fabrics | K5 |
| CO3 | Application of standard procedures to manufacture health and hygiene products such as Sanitary Napkins and Surgical face mask | K3 |
| CO4 | Apply and analyze the standard test methods for woven, knit, underwear,swimwear, denim, sportswear fabrics explaining the important characteristics that varies among differentfabrics. | K4 |

**Unit-I Methods for Identification of Fibers in Textiles and Conditioning of Textiles**

Standard test methods for identification of fibers intextiles - fiber analysisqualitative, quantitative. standard practice for conditioning and testingtextiles- scope, terminology: moisture content, moisture equilibrium, precondition, standard atmosphere for preconditioning textiles, standard atmosphere for testing textiles, apparatus, preparation of test apparatus and calibration, procedure, standard atmosphere for testing various materials.

**Unit-II Antimicrobial Textiles**

Applications and objectives, antimicrobial textiles and their fields of application, two types of activity – passive antimicrobial principles and active antimicrobialprinciples.

Antibacterial activity assessment of textile materials- purpose and scope, principle, terminology-activity, antibacterial agent, zone of inhibition, safety precautions, uses and limitations, test organisms, materials, media and reagents, test specimen, procedure, evaluation, precision andbias, test methods- agar platemethod, parallel streakmethod.

Antifungal activity on textile materials- mildew and rot resistance of textile materials:-purpose and scope, principle, terminology-fungicide, fungi static, mildew resistance, rot resistance antibacterial agent, zone of inhibition,safety precautions

**Unit-III Standard performance Specification for Woven and Knit Fabrics**

Standard performance specification for women’s and girls’ woven sportswear- shorts, slacks, and suitingfabrics. Standard performance specification for women’s and girls’ knitted sportswear fabrics- scope, specification requirements, significance and use, sampling and test methods. Standard performance specification for men’s and boys’ woven dress suit fabrics and woven sportswear jacket, slack, and trouserfabrics.

Standard performance specification for men’s and boys’ knitted dress suit fabrics and knitted sportswear jacket, slack, and trouserfabrics. Standard performance specification for men’s and boys’ knitted dress shirt fabrics- scope, specification requirements, significance and use, sampling and test methods

**Unit-IV Standard Performance Specification for Woven Fabrics, Underwear Fabrics, Denim Fabrics &Swimwear Fabrics**

Standard performance specification for woven blouse, dress, dress shirt and sport shirt fabrics - scope, significance and use, testmethods.

Standard performance specification for brassiere, slip, lingerie and underwear fabrics- scope, significance and use, testmethods.

Standard specification for 100 % cotton denim fabrics- scope, significance and use, sampling, specification requirement, testmethods.

Standard performance specification for knit and woven swimwear fabrics -scope, significance and use, sampling, specification requirement, testmethods.

**Unit-V Health Care and Hygiene Products**

Specifications for sanitary napkins -materials, sizes, manufacture, workmanship and finish, requirements, tests, packing andmarking.

Specifications for surgical face masks specification -surgical drapes, gowns and clean air suits, used as medical devices, for patients, clinical staff and equipment - test method to determine the resistance to wet bacterialpenetration.

**REFERENCES:**

1. An Index of State Specifications and Standards: Covering Those Standards and Specifications Issued by State Purchasing Offices of the United States, Volume 13Linda L. Grossnickle U.S. NationalBureau of Standards, 1973
2. Quality Assurance for Textiles and Apparels, Fairchild publications, 2nd Edition, Sara J Kasolph, 2007
3. Physical Testing of Textiles, Saville, B.P. Woodhead Publishing Ltd and CRC Press LLC, 1999
4. Managing Quality in the Apparel Industry Pradip V. Mehta, Satish K. Bhardwaj New Age International, 1998
5. Publications of the National Bureau of Standards CatalogUnited States. National Bureau of StandardsU.S. Government Printing Office, 1971
6. Publications of the National Institute of Standards and Technology Catalog, Volume 1National Institute of Standards and Technology (U.S.) The Institute, 1980

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| **Course Code** | **39** | **PROTECTIVECLOTHING** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2-Understand; K3 - Apply; K4-Analyze; | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:  1. Selectsuitablefibers,yarns, fabricsandfinishesforprotectiveclothing  2. Understandthedynamicsofprotective clothing   1. Gainknowledgeonthemethodsofevaluatingtheprotectivegarments | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| 1 | Understand the meaning and uses of protective clothing | K2 |
| 2 | Appraise suitable fibres, yarns, fabrics and finishes for protective clothing | K4 |
| 3 | Understand the methods of creating suitable fabrics for protective clothing | K2 |
| 4 | Plan protective clothing to suit the needs of the wearer | K3 |

**Unit-I Fibers,YarnsandFabrics for ProtectiveGarments**

Fibers,yarnsandfabricsforprotective garments**-**Selectionoffibres-suitabilityand propertiesofhighperformancefibersforvariousprotectiveclothing,chemicalcompositionandphysical structure,characteristics andworkingofvariousfibersaccordingtodifferentenduseslike thermal protection,ballisticprotection,anti-microbialprotection,Protectionagainstcold.Yarn andfabric(knitted,woven andNon-woven) parameters,theirmethodsof production,effectof structureontheirperformance;useofcompositematerialsinyarn andfabricformationusedfor protectiveend uses.

**Unit-II ChemicalFinishesfor ProtectiveGarments**

Chemicalfinishesforprotective garments-Useofcoated fabrics–differenttypesoffinisheslike fireretardantfinishes,fordifferenttextilematerials,water repellentfinishes, anti-microbial finishes;chemicalfinishesagainstradiationandchemicals–methodof application of those finishes;machinesandtechniquesusedforsuchapplications; protectivefinishesforhealthcare garments

**Unit-III ProtectiveGarmentsinotherApplications**

Protectivegarmentsinotherapplications**-**Protectivefabricsusedinthemedicalfieldandinhygiene;militarycombatclothing;protectivefabricsagainstbiologicalandchemicalwarfare; textilesforhighvisibility.

**Unit-IV Garment Construction**

Garmentconstruction-methodofconstruction ofgarmentsaccordingtovariousprotectiveend useslikeprotectionagainstcold,heat,chemical,ballisticprotectionetc.;useofdifferentfabric type-knitted,woven,andNon-woven;coated/laminatedinprotectiveapplicationsdifferent places;use ofinterlining and composites.

**Unit-V EvaluationofProtectiveFabrics**

Evaluationofprotectivefabrics-desirable propertiesofprotectivetextiles,methodoftestingforthermalprotectiveperformance, water,cold,abrasionand wearresistance;evaluationof resistanceintomildew,ageing,sunlight,chemical,electrostaticand electricalresistivity,impact properties;ASTMstandards forprotective garments.

**REFERENCES:**

1. WellingtonSearsHandbookofIndustrialtextiles,AdanurS,TechnomicPublishingCoInc, 1995.
2. ProtectiveClothing, PushpaBajajand SenguptaA.K, TheTextileInstitute,1992.
3. HandbookofTechnicalTextiles,HorrocksA.R.and AnandS.C,WoodheadPublishingLimited,Cambridge,UK,2000.

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| **Course Code** | **40** | **FUNCTIONALAPPARELSAND CLOTHING** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K1 - Remember; K2 - Understand; K4 - Analyze; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:  1. Acquireknowledgeonthemeaning and significanceoffunctionalclothing  2. Gain insightsonthesuitablefabricsandmethods forcreatingfunctionalclothing  3. Gainknowledgeonthemethodsofevaluatingtheprotectivegarments | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Identify suitable fiber, yarn and fabric for protective materials. | K1 |
| CO2 | Understand the finishes applied on the functional clothing items | K2 |
| CO3 | Analyse the requirements of functional clothing | K4 |
| CO4 | Relate to the methods of tests on fabrics used | K2 |
| CO5 | Design functional clothing items | K6 |

**Unit-I RequirementsofProtectiveMaterials**

CharacteristicrequirementsofProtectivefiber,yarnandfabricforflameproof,heatresistant, ballistic resistance,electricalconduction, bacterialprotection, radiationprotectionand radiation contaminationprotection

**Unit-II ChemicalFinishes**

ChemicalFinishes-Mechanism,Chemistry, Materialsandmethods-Flameretardant,Liquid repellent,Antistatic,Antibacterial,UVprotectionandmiteprotectionfinishes.

**Unit-III FunctionalFabrics**

Functional fabricsusedinthemedicalfield andinhygiene;militarycombatclothing;protective fabricsagainstbiologicaland chemicalwarfare;textilesforhighvisibility

**Unit-IV ProtectiveGarment Construction**

Protective Garmentconstruction-methodofconstructionofgarmentsaccordingtovarious protectiveend uses;use ofaccessories forprotectivegarment

**Unit-V Standardsand Tests forProtectiveFabric**

Standardsand testmethodforprotectivefabricperformance-Flameretardantfinishes, Liquid repellentfinishes,Antistatic,Liquidrepellent,antibacterial,UVprotection, miteprotection; Materials and methods. Manikins – Thermal manikins, segmented thermal manikins, evaporative resistance measurement- moisture permeability index, skin model, Concept of dynamic

**REFERENCES:**

1. WellingtonSearsHandbookofIndustrialtextiles,AdanurS,TechnomicPublishingCoInc,1995.
2. ProtectiveClothing, PushpaBajajand SenguptaA.K, TheTextileInstitute,1992.
3. HandbookofTechnicalTextiles,HorrocksA.R.and AnandS.C,WoodheadPublishingLimited,Cambridge,UK,2000

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| **Course Code** | **41** | **INTIMATEAPPARELS** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K3 - Apply; K4 - Analyze; | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:  1. Acquireknowledgeontheintimateapparelanditstypes  2. Gain insightsonthepatternmakingand sewingtechniquessuitableforintimateapparels  3. Gainknowledgeonthesuitablefabricsand essentialaccessories | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| 1 | Understandthetypesofintimateapparels | K2 |
| 2 | Prepare and analyse designfor intimate apparels | K3 |
| 3 | Relatetothemethodofcreatingpatterns | K3 |
| 4 | Selectsuitable accessories forintimateapparel | K4 |
| 5 | Appraisesuitablemethodsofconstruction | K4 |

**Unit-I Introduction to Intimate apparels**

Intimate apparels–Definition,classification,materials-fiber,fabric and accessories;physical and physiologicalrequirementsofintimateapparels

**Unit-II IntimateApparels-DesignAnalysis**

Designanalysis, measurements,patterndraftingofmen’sintimateapparel–Longjohns, tanktop,boyshorts, knickers,bikiniunderwear,thong, boxer briefs,boxer shortsandjock strap.

**Unit-III DesigningIntimateApparels**

Design aPanties, camisoles, tube top, shape wear, bikini and bra.

**Unit-IV Intimate apparelaccessories**

Intimate apparelaccessories-Brawire,hookand eyetape,ringand slider,buckle,plasticbone, elasticsand sewingthreads.

**Unit-V Sewing of intimate apparels**

Sewing of intimate apparels - seams, stitches, machines; lamination; moulding and welding

Technique.

**REFERENCES:**

1. Ann Haggar, “Pattern Cutting for Lingerie, Beach Wear and Leisure Wear”, Black WellScience Limited, France, 2001
2. Innovations and Technology of Womens Intimate Apparel, W.Yu, J. Fan, S.C. Harlock,S.P, Wood head Publishing Limited, England 2006

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| **Course Code** | **42** | **CLOTHING APPEARANCE**  **AND FIT** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K3 - Apply; K4 - Analyze; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. Learn about perceptions of body appearance and its relations toclothing 2. Understand the Assessment of clothing appearance andfit. 3. Know about the concepts of Virtual reality,3D Body scanning, Sizingsystems 4. Recognize the need and the ability to understand cosmetictextiles 5. Understand Human Anthropometrics ,Impact of physical appearances, rejuvenating the fashion and clothingcurriculum | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the concept of body appearance and its relations toclothing | K2 |
| CO2 | Apply the concepts of assessment of clothing appearance and fit, Virtual Reality,3D Body scanning, Sizing systems | K3 |
| CO3 | Evaluate the principles of cosmetic textiles in textile industry | K4 |
| CO4 | Analyse the Human Anthropometrics and systems | K3 |
| CO5 | Create the Impact of physical Appearance on attributions of specific traits | K6 |

**Unit-I Perception of Body Appearance and its Relation to Clothing**

Introduction – Beauty - Facial attractiveness, body physical attractiveness,body image, modificationofbodyappearancebydressing,fabricpropertiesrelatedtoclothingappearance& fit.

**Unit-II Assessment of Clothing Appearance**

Introduction - Assessment of fabric surface smoothness, seam appearance, crease retention, appearance retention of finished garments, and reliability of subjective assessment. Objective evaluation of fabric wrinkling, fabric pilling, seam pucker, overall garment appearance

**Unit-III Assessment of Clothing Fit**

Definition of fit - Influences on clothing fit, testing methods for dimensional fit, subject rating scales, subjective fitting guide, and Virtual reality – Body cloths trial. **3-d Body Scanning** – Introduction - global development of body scanners, principles and operations of body scanning technologies, bench marking. Challenges of 3D body scanning. Garment drape - measurement of fabric drape

**Unit-IV Textiles and Cosmetics**

Cosmetic Textile-Development of cosmetic textiles using microencapsulation technology-air suspension coating-pan coating-emulsion hardening process-cosmetic textile products- advantages and disadvantages**.**

**Unit-V Appearance Management through Clothing**

Human Anthropometrics and Sizing Systems- Terms and definitions - Traditional anthropometry, Historical development of sizing system. Impact of physical appearance on attributions of specific traits –Body languages and clothes for presentations –Rejuvenating the fashion and clothing curriculum.

**REFERENCES:**

1. Clothing Appearance and Fit Science and Technology, J.Fan, W.Yu and Hunter, Woodhead,2004
2. Functional Textiles for Improved Performance Protection and Health, N.Pan and G.Sun,Woodhead, 2011
3. Anthropometry Apparel Sizing and Design, Deepti Gupta and Norsaadah Zakaria, Woodhead, 2014

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| **Course Code** | **43** | **INDUSTRIAL AND CLOTHING PSYCHOLOGY** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2: Understand, K3 - Apply; K4: Analyse, K5: EvaluateK6, K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. To understand about theories of clothing 2. To enable the students to learn various industrial psychology 3. To equip the students with the knowledge on work in work place 4. To impart knowledge on clothing psychology 5. To understand the concept of psychology test | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand about the Theories of clothing | K2 |
| CO2 | Apply the concepts of industrial psychology | K3 |
| CO3 | Analyze and compare the concept human engineering | K3 |
| CO4 | Develop wide knowledge on clothing psychology | K6 |
| CO5 | Evaluate the various aspect of psychology test | K5 |

**UNIT I - Theories of Clothing**

Theories of clothing – theory of modesty, immodesty, protections, adornment, combined need theory, other theories in fashion - Relation between clothing and other disciplines - Physical Health and Mental Health - Clothing and first impressions.

**UNIT II - Industrial Psychology**

Industrial Psychology - Introduction, Concept and Meaning, Characteristics of Industrial Psychology, Scopes of Industrial Psychology-Major fields of Industrial Psychology-Major problems of Industrial Psychology-Personal Values and ethics in industrial organization.

**UNIT III - Psychological Tests**

Meaning of Psychological Tests - Characteristics of psychological tests- Types of Psychological Tests - Limitations of psychological tests.

Meaning of attitude- Components of Attitudes - Attitudes Change- Changing other’s attitude, Changing our own attitude.

**UNIT IV - Ergonomics**

Ergonomics - Meaning- Concept of human engineering / Ergonomics – Importance and need- Fundamental ergonomic principles in workplace -problems at the workplace and ergonomics- benefits of a workplace ergonomics process.

**UNIT V - Clothing psychology**

Socio-psychological impact of clothing- Colours in clothing psychology- Properties of colour-Effects of colour-Mood, Emotions, Behavior- Colour as marketing tool-colour psychology in apparel design.

Clothing comfort-Psycho- Physiological factors of clothing comfort - Psychophysics and clothing comfort - Wear trail - Garment fit and comfort- Introduction - Body dimensions and pattern - Garment fit and comfort relationship – Factors related to garment fit - Measurement of garment fit.

**TEXT BOOKS**

1. Carolyn Mair, The Psychology of Fashion (The Psychology of Everything), Taylor& Francis, 2018.

2. J.Fan, W.Yu and Hunter, Clothing appearance and fit science and technology, Woodhead Publishing, 2004.

3. Apurba Das, R. Alagirusamy, Science in Clothing Comfort, Woodhead Publishing India,2010.

**REFERENCES:**

1. Sharron J. Lennon, Kim K. P. Johnson, Nancy A. Rudd, Social Psychology of Dress, Bloomsbury Academic USA, 2017.

2.Jacqueline Morley, Fashion: The History of Clothes, Sandy Creek, 2014.

3.Michael Jaffe Joseph D. Menczel, Thermal Analysis of Textiles and Fibers, Woodhead Publishing, 2020.

4. Susanne Kuchler, Clothing as Material Culture, Daniel Miller, 2005.

5. Susan B. Kaiser, The Social Psychology of Clothing: Symbolic Appearances in Context, Fairchild Books, 2nd edition, 1996.

6. Song G, Improving Comfort in Clothing, Woodhead Publishing Ltd., January, 2011.

7. J T Williams, Textiles for Cold Weather Apparel, Elsevier, 2009.

8. F. Wang, Chuansi Gao, Protective Clothing: Managing Thermal Stress, Woodhead Publishing Series in Textiles, 2014.

9. Vikram Bisenand Priya, Industrial Psychology, New Age International (P) Limited, Publishers, NewDelhi, 2010.

10.Aswathappa K, Human Resource Management, Tata McGraw Hill, New Delhi, 2008.

11.Aamodt M.G, Cengage, Industrial Organizational Psychology: An Applied Approach, Learning Publications, USA, 2007.

**Web Resources**

1.https://checkify.com/blog/time-and-motion-study/

2.https://www.helpguide.org/articles/stress/stress-management

3.https://alejandraslife.com/7-cool-facts-about-fashion-psychology/

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| **Course Code** | **44** | **HOME TEXTILE** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2 - Understand; K3 – Apply, K4 - Analyze; K5 - Evaluate; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. To study about the concept and market for home textiles 2. To understand the uses and applications of floor coverings 3. To know about the characteristics of Windows and Wall Coverings 4. To understand about the products used in seating and bed linens 5. To understand the application and uses of table, kitchen and bath linens. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| 1 | Create bedlinens, table linen, kitchen linen, window dressings | K6 |
| 2 | Modify the ambience of the room for good | K4 |
| 3 | Develop home textile collection for different age groups and special people’s needs | K5 |
| 4 | Understand current trends of Home textiles | K2 |
| 5 | Select fabrics and accessories to suit the need and item | K3 |

**UNIT I - Home Textile in India**

Home Textile in India: Introduction, history, exports – Trends in home textile industry – Domestic and Global market for home textiles, Major production centers in India.

Home Textile Products – Role of fabric in interior furnishing – Properties required – Factors affecting that selection of fabrics – Different fibers used, Standard sizes, Fabric requirement and cost calculations.

**UNIT II - Seating and Bed Linens**

**Seating:** Structures, lay out, Range & size – Material used – Manufacturing – Double cloth – loop pile – cut pile – cushion foam – multi layer sheets – seat covers – types &materials.

**Bed Linens** – Definitions – design & size – Bed spread designs – chenille and organic bed spreads – dimensions – Bed sheets – types – fitted sheets – manufacturing process – bed skirts – types – mattress – domestic and international market for bed linens – pillows – Quilt types– Machine, Hand quilting – process sequence for bed linen – scope in global market.

**UNIT III - Windows and Wall Coverings**

Windows- Basic sizes, Lay outs, Materials – Voiles, Nets – Sun filters – Semi sheers – Reflective textiles – Draperies – Types – Valances – Types – Shades – Types – Swags – Headings – Types. Curtains – Introduction – Types of curtains – Characteristics of curtain fabrics.

Wall Coverings- Requirements, benefits, types – carpet as wall covering – choice of Materials - manufacturing of fabrics – Application and end use.

**UNIT IV - Floor Coverings**

Floor Coverings: Definitions – Fiber used – Types of carpets – Comparison of carpets – broad loom carpets –– Benefits of carpets and rugs – Carpet cushions – Manufacturing Process –Rugs-Types of rugs – Knots and oriental rugs – Embroidered rugs – Natural leather rugs–Advances- Earth carpets – Thinking carpets – Magic carpets – Lawn carpets.

**UNIT V - Table, Kitchen and Bath Linen**

Table Linens – Place mats and table cloths – Definition – Placemats – Varieties of placemats – Making process flow – Instruction – tips and warnings – Reversible placemats – Stone placemats– table cloths – Types, material and manufacturing .

Kitchen Linens – Introduction – Material used – Kitchen products – Oven mitten – Pot holder – Apron – Napkins – Doilies – Kitchen mats – Dining table cloth – tea cozy–kitchen curtain– Table runner – Kitchen rugs – Types of stitches and seams used.

Bath Linen- Categories – bath robe – Sizes and design elements – Terry towels– Fiber used – Standard sizes –Construction of terry towels -use and care – Production centers.

**REFERENCES:**

1. Gopalakrishnan.D and T.Karthik, Home Textiles, Astral Publications, 2020.

2. Subrata Das, Performance of Home Textiles, Woodhead, 2018.

3. Ashis Kumar Ghosh, Traditional Knowledge of Household, DayaPublishing House, 2011.

4. V.Ramesh Babu, S.Sunderesan,Home furnishing, Woodhead, 2018.

5. Varghese, M.A., Ogale, M.M, and Srinivasan , K., Home Management, New AgeInternational,2017.

6. Premavathy, Parveen Pannu,Interior Design and Decoration‟, CBS Publishers andDistributors, 1st Edition, 2013.

7. Harriet Goldstein, Art in Every Day Life, Goldstein Press, 2007.

8. Virginia Hencken Elsasser and Julia Sharp, Know Your Home Furnishings, Fairchild Books; 2nd Edition, 2016.

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| **Course Code** | **45** | **SURFACE ORNAMENTATION**  **PRACTICAL** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **-** | **-** | **3** | **3** |
| **Cognitive Level** | K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. To acquaint students with the knowledge on application of embellishments on fabric surface. 2. To enrich garments using dyeing 3. To impart the knowledge and skills required to design fabrics and garments using printing and painting 4. To design garments through proper selection of embroidery stitches 5. To identify the usage of garment accessory for enrichment of garments. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Designing garments with surface decoration | K5 |
| CO2 | Application of dyeing techniques on garments | K3 |
| CO3 | Garment designing using printing and painting | K6 |
| CO4 | Evaluate samples produced using embroidery | K4 |
| CO5 | Create designs using garment accessories | K6 |

1. Develop designs on garments for surface enrichment of neckline/waist line/sleeves/bottom hem line/collars/plackets/around buttons or button hole/arm line/pockets using the below embellishment techniques.
2. Select any two children, Women’s and men’s garments suitable for designing and application of ornamentation techniques.

1. Dyeing - Tie and dye/ Batik

2. Printing – Block/Screen/Stencil

3. Painting

4. Embroidery -Hand/Machine

5. Smocking

6. Lace

7. Applique

8. Studs/Beads/sequins/mirror/stone

9. Accessories-Buttons/elastic/cords/tapes/buckles

**REFERENCES:**

1. Munni Srivatsava and Bats for, Embroidery Techniques from East & West, London, 2005.

2. Lucinda Ganderton, Dorothy Wood, The Ultimate Book of Quilting Cross Stitch, Needle craft, Annes Publishing Ltd., London, 2005.

3. Nancy Ziemon, Machine Embroidery with confidence – A beginners guide, Krause Publications, West Indies, 2005.

4. Margo Singer, Textile Surface Decoration- Silk and Velvet, Textile handbook, A&C Black Publishers, Great Britain, 2007.

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| **Course Code** | **46** | **ORNAMENTS AND ACCESSORIES**  **DESIGNINGPRACTICAL** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **-** | **-** | **3** | **3** |
| **Cognitive Level** | K3 - Apply; K5 - Evaluate; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:  1. Tocreateand developornamentsand jewellery.  2. Todesignornamentsand jewellery forvariousoccasion. | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| 1 | Designing garments with Fabric accessories | K6 |
| 2 | Application of various ornaments suitable various occasions and garment styles | K3 |
| 3 | Ornament designingsuitable to different human personalities | K6 |
| 4 | Evaluate over all appearance on applying ornaments and accessories | K5 |

1. **Createthe following**
2. Fabric accessories - Bag/Stole/Hat/shawl/scarf /mask/gloves/any others
3. Leather accessories - Belt/Shoe/Slipper/suspenders/pouch /any others
4. Clay and Stone accessories - One set of ornament
5. Metal accessories - Ear ring/ Necklace/ Ring/Bangle/Anklet/Bracelet /any others
6. Use of natural waste materials and other usable materials for making fashion accessory.
7. **Createthe followingornaments**
8. OrnamentsforHair
9. Ornamentsfor Ear
10. OrnamentsforNeck
11. OrnamentsforHand
12. OrnamentsforHip
13. Ornamentsfor Finger
14. Ornamentsforlegs
15. **Create setofornamentsto suitadress**
16. Set of Bridal ornaments
17. Set of ornaments for any special garments (like fashion show, dance costume etc)

**REFERENCES:**

1. JewelleryMaking,AComplete CourseforBeginners, JinksMcGrath,ApplePress, 2007
2. TheWorkbenchGuidetoJewelleryTechniques,AnastasiaYoung,Thamesand Hudson,2010
3. Phyllis G. Tortora, Bina Abling,(2003) The Fairchild Encyclopedia of Fashion Accessories, Fair child Publications
4. 2. Elizabeth Galton, (2012) Jewelry Design: From Fashion to Fine Jewelry, AVA Publishing, Singapore.
5. 3. Robert Leach, (2012) The Fashion Resource Book: Research for Design, Thames & Hudson.
6. 1. Gini Stephen Frings,(2002) Fashion from Concept to Consumer, Prentice Hall Inc., New Jersey.
7. 2. Marywolfe (2003), The world of fashion merchandising, The Goodheart-wilcox Company Inc. Illinois
8. 3. Dorling Kindersley,(2012) Fashion, The Ultimate Book of Costume and Style, Published by Dorling Kindersley Limited; London.

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| **Course Code** | **47** | **WOMEN AND EMPOWERMENT** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K2: Understand,K3 - Apply; K4 - Analyze; | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are:   1. To understand about Women Empowerment 2. To learn about the social empowerment 3. To analyse the economic empowerment of women 4. To Transform women to get real empowerment 5. To evaluate capacity building and training for women | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the concept of empowerment its approaches | K2 |
| CO2 | Women’s role in society and economic development | K3 |
| CO3 | Interpretthe need for women in politics | K4 |
| CO4 | Capacity building for empowerment of women | K3 |

**UNIT I Empowerment**

### Empowerment – Meaning and concept of empowerment – Individual and collective empowerment – Framework for empowerment – Choices women can make for empowerment- Women and the Indian Constitution -Welfare approach – Women in Development – Equity approach – Empowerment approach – Indian Women Today.

**UNIT II: Social empowerment**

Meaning – Importance and framework – Demography, education, health and nutrition, environment, violence against women – problems and rights of the girl child – Media – Science and technology – Women in difficult circumstances.

**UNIT III: Economic empowerment**

Women in labour force participation – Women and domestic work – Home based work – Work in organized and unorganized sector – Women in agriculture – industry and service sector – women entrepreneurs – Women self-help groups (Micro credit) , Gender and poverty – Globalization and women.

**UNIT IV : Political empowerment**

Need of women in polititcs – Dominant women in polititcs –political participation in grass root level -Barriers for participation of women in local governments – Reservation policy for women in politics – Legal empowerment

**UNIT V Capacity building**

Capacity building for empowerment of women – Gender training and capacity building – Training methodology – women Leadership – Group dynamics – Problem solving – Conflict resolution – Group discussions – Crisis management.

**REFERENCES:**

* Singh,D.P. & Singh, M. (2005),Women and Empowerment,Unistar Publications,Chandigarh
* Bharat,J. &Madhu,J.(2004),Indian Approach to Women’s Empowerment,RawatPublications,New Delhi
* Seth & Mira (2001), Women Development :The Indian Experience,SagePublications,New Delhi
* Government of India, Planning and Commission, The Tenth Five- Year Plan
* Government of India, Department of Women and Child Development,Annual Report 2002-2003,New Delhi.
* Meenapriyadharshini S (2017) social empowerment of Women 24/7 publications, Kolcatta.
* Blumberg, R.L. (2005): “Women’s Economic Empowerment as the Magic Potion of Development?” Paper presented at the 100th annual meeting of the American Sociological Association, Philadelphia
* Desai, N. and U. Thakkar (2007): “Women and Political Participation in India”, Women in Indian Society, New Delhi, National Book Trust.

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| **Course Code** | **48** | **HOME SCIENCE COMPOSITE** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **3** | **-** | **-** | **3** |
| **Cognitive Level** | K1 - Remember; **K2: Understand,** K3 - Apply; | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:   1. Describe the importance of each branch of Home Science 2. Understand the essence of each subject 3. Prepare them for UGC NET, SLET and ICMR | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | The field of food science and nutrition | K1 |
| CO2 | Various concepts of home science extension education | K2 |
| CO3 | The concepts of home science and its applications in resource management | K3 |
| CO4 | The basic knowledge of human development. | K2 |
| CO5 | The importance of textile and clothing in our daily life events. | K3 |

**Unit I Food science and nutrition**

Basic concepts of food groups and nutrients - Role of microorganisms in food spoilage and its prevention - Recent advances in food processing and preservation -Recent techniques in food technology.

Institutional management: Management of hospitality institutes- hospitals/hotels/restaurants/cafeteria and outdoor catering.

**Unit II Extension education**

History and development of home science - Formal/ non-formal and extension education - Vocationalization of home science in India - Concept and classification of communication - Trends in home science research.

**Unit III Resource management**

Concept of home management and steps - Classification of resources - Basic characteristics of resources.

Work simplification - Interior decoration - Household equipment, decision making

**Unit IV Human development**

Child development-principles and stages - Life span development - Theories of human development - Early childhood care and education - Family welfare programs.

**Unit -V Textiles and Clothing**

Textile Fibers-Definition, Classification of Fibers. Natural fiber – Cotton, silk, wool - Man Made Fibers- Polyester, Nylon - Primary and secondary characteristics of textile fibers.

Yarn-Definition- Types- Applications.

Fabric manufacturing techniques – Weaving, Knitting, Non-woven -Definition and applications.

Garment Manufacturing-Terminology used in apparel industry- Introduction to apparel categories-Men, Women and children. Tools used-Measuring, Marking, Cutting, finishing and general tools. Steps involved in Garment Manufacturing-Design development, Body measurements, Pattern making, spreading, marking, cutting and apparel construction.

**REFERENCES:**

1. Jha, J.K, Encyclopaedia of Teaching of Home Science, Vol.I,II and III . New Delhi: Anmol Publications, 2002
2. Varghese , M.A.et al. Home Management , New Delhi: Viley Eastern Limited, 2001
3. Suriakanthi.A., Child Development - An Introduction Gandhigram : Kavitha Publications, 2002.
4. Education Planning group, Home Management. Newdelhi: Arya Publishing House, 2001.
5. Hurlock, E.B,. Developmental Psychology A Life-Span Approach. New Delhi: Tata Mcgraw Hill Publishing Company Limited, 2007.
6. E.P.G. Gohl, L.D. Velensky, “Textile Science” CBS Publishers and Distributors, 2003.
7. AJ. Hall. “The standard hand book of Textiles”, Wood head Publishing 8th edition 2004.
8. P.V. Vidyasagar, “Hand Book of Textiles”, A. Mittal Publications, 2005 5.Sara J. Kadolph, “Textiles”, Prentice Hall, 10th edition 2007.
9. Williams, Abigail. *The Social Life of Books*. Yale University Press, 2018.

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| **Course Code** | **49** | **HOME FURNISHINGPRACTICAL** | **L** | **T** | **P** | **C** |
| **Elective** | **SE** | **-** | **-** | **3** | **3** |
| **Cognitive Level** | K2 - Understand; K3 - Apply; K4 - Analyze; K6 – Create | | | | | |
| **Learning Objectives** | Themainobjectivesofthiscourse are to:  1. LearnthetypesofHomefurnishingproducts  2. Designproductswithsuitablefabrics  3. Createhomefurnishingproductsrelated withsuitabletechniques | | | | | |

**Learning Out comes**

On successful completion of the course, the students will be able to

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| **S. No** | **Outcomes** | **Domains of Learning** |
| **Cognitive** |
| CO1 | Understand the types of home furnishings | K2 |
| CO2 | Design and construct home furnishing | K3 |
| CO3 | Analysing the various fabrics and designs of home furnishing to suit various rooms | K4 |
| CO4 | Creating appealing home textile products | K6 |

1. **DesignandConstructthe FollowingItems**
2. Bedlinens–Bedspreadswithpillowcovers, Quilts,bed covers
3. Tablelinens–Tablecloth,Runner and Placemats
4. Kitchenlinens–Apron,Potholder,Breadbasket,Mittens
5. WindowDressings–Curtainand draperies(2 typeseach)
6. Wall-hanging,door-hanging,doormats(2typeseach)

**DesignandConstructtheHomeFurnishingItemsforthe Following**

1. Guestroom
2. Living room

**REFERENCES:**

1. Cushionsand Pillows-ProfessionalSkills–MadeEasy,HamlynOctopus,Octopus publishinggroup,NewYork,2001
2. TheultimatesewingBook200 sewingideasforyouandyour home,MagiMc McCormickGordon,Collinsand Brown,London,2002
3. DesignandmakecurtainsbyHeather Luke,publishedbyNewHollandpublishers,London, 1999
4. Artand craftoffabricdecoration-JulietBawden,publishedinLondon,1994

Cornucopiaofcushions,SusieJohns,published by ApplePress, London,1997