



**Course Structure under CBCS**

**(For the candidates admitted from the academic year 2016-2017 onwards)**

Sem	Course	Course Title	Ins. Hrs / Week	Credit	Exam Hrs	Marks		Total
						Int.	Ext.	
<b>I</b>	Core Course - I (CC)	Technical Textiles	6	5	3	25	75	100
	Core Course - II (CC)	Apparel Production Technology	6	5	3	25	75	100
	Core Course - III (CC)	Apparel Standards and Quality Control	6	5	3	25	75	100
	Core Course - IV (CC)	Textile Wet Processing	6	5	3	25	75	100
	Core Practical - I (CP)	Textile Wet Processing (P)	6	4	3	40	60	100
	<b>Total</b>			<b>30</b>	<b>24</b>			
<b>II</b>	Core Course - V (CC)	Fashion Concepts	6	5	3	25	75	100
	Core Course - VI (CC)	Pattern Making and Clothing Construction	6	4	3	25	75	100
	Core Course -VII (CC)	Apparel Merchandising	6	4	3	25	75	100
	Core Course -VIII (CC)	Entrepreneurship Development	6	5	3	25	75	100
	Elective - I	Advanced Garment Designing (P)	6	4	3	40	60	100
	<b>Total</b>			<b>30</b>	<b>22</b>			
<b>III</b>	Core Practical - II (CP)	Fashion Illustration and Portfolio (P)	6	5	3	40	60	100
	Core Practical - III (CP)	Computer Application in Apparel Industry (P)	6	4	3	40	60	100
	Core Course - IX (CC)	Research Methodology & Statistics	6	5	3	25	75	100
	Elective - II	Clothing Production Management	6	4	3	25	75	100
	Elective - III	Apparel Export Management & Global Marketing	6	4	3	25	75	100
	<b>Total</b>			<b>30</b>	<b>22</b>			
<b>IV</b>	Core Course - X (CC)	Knitting Garment Technology	6	5	3	25	75	100
	Core Course - XI	Textile Economics	6	4	3	25	75	100
	Project Work	Dissertation=80 Marks [2 reviews –20+20=40 marks Report Valuation = 40 marks] Viva = 20 Marks	6	5	-	-	-	100
	Elective - IV	Fashion Communication and Visual Merchandising	6	4	3	25	75	100
	Elective - V	Home Textiles	6	4	3	25	75	100
	<b>Total</b>			<b>30</b>	<b>22</b>			
<b>Grand Total</b>			<b>120</b>	<b>90</b>				<b>2000</b>

**Note:**

Core Papers	-	11
Core Practical	-	3
Elective Papers	-	5
Project	-	1

**Note:**

1. Theory	Internal	25 marks	External	75 marks
2. Practical	”	40 marks	”	60 marks

3. Separate passing minimum is prescribed for Internal and External

- a) The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks)
- b) The passing minimum for University Examinations shall be 40% out of 75 marks (i.e. 30 marks)
- c) The passing minimum not less than 50% in the aggregate.

**Project**

Dissertation	80 Marks	[2 reviews – 20+20	=	40 marks
		Report Valuation	=	40 marks]
Viva	20 Marks			20 marks

Passing Minimum in a Subject

CIA	40%	} Aggregate 50%
UE	40%	

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## **CORE COURSE I**

### **TECHNICAL TEXTILES**

#### **Objectives:**

1. To make known the field of technical textiles to students
2. To impart knowledge about the application of textiles for technical purposes

#### **Unit I      Technical textiles**

Introduction, definition and scope of technical textiles. Technical fabric structure-Woven and non-woven.

#### **Unit II      Home textiles**

Definition, Bed linens, Floor covering, Wall coverings Door and window treatments, Table and kitchen linens.

#### **Unit III     Medical and Survival textiles**

Introduction. Non implantable materials, Implantable materials, Health care and hygiene, textiles. Tents, helmets, gloves, sleeping bag, Survival bags and Suits.

#### **Unit IV     Textiles in transportation and Geo Textiles**

Introduction, Textiles in Cars, Road vehicles, Rail ways, Aircraft and Marine applications. Essential properties of Geo Textiles, Applications of Geo Textiles, Natural fiber for soil strengthening.

#### **Unit V      Textiles in defence**

Textiles for Protection, Thermal insulation materials, Camouflage concealment and deception, Flame and Heat protective textiles, Ballistic protective materials, Intelligent textiles-use of Wearable electronics

#### **References:**

1. Horrocks, A.R. and Anand, S.C., Handbook of Technical Textiles, The Textiles Institute, Wood Head Publishing Ltd., England, 2000.
2. Rigby, A.J. and Anand, S.C., Non-wovens in Medical and Healthcare Products, Technical Textiles, Int., 1996.
3. Pandey, S.N., Potential for the use of Natural Fibres in Civil Engineering, Jute Technological Research Laboratory, 2002
4. Grosick, Z.J. Watson's Advanced Textile Design-compound woven structures, Woodhead Publishing, England, 2004.
5. Murphy W.S, Textile Finishing, Abhishek Publications, Chandigarh, 2000.

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**CORE COURSE II**  
**APPAREL PRODUCTION TECHNOLOGY**

**Objectives:**

1. To understand the apparel production methods
2. To analyse the essentials of apparel industry

**UNIT I Introduction to apparel production management**

Definitions, Objectives and terminology, function of production department, factors of Production - duties and responsibilities of production manager, process flow in apparel production, work allotment and line supervision.

**UNIT II Apparel production planning**

Definition, Pre planning: Pre-production functions, Importance of Preproduction function. Lead Time, Product development - steps from prototype to production sample, Production control and product data management, capacity and material requirement planning.

**UNIT III Apparel production methods**

Methods of apparel production - whole garment production system, Progressive bundle system, Unit production system, Multiple flow system, Modular manufacturing systems, procedure for choosing suitable production system and their advantages and disadvantages.

Quick Response(QR), Just in Time Production system (JIT), Optimized Production Technology (OPT) and other methods followed to increase productivity in garment industry. Cut order planning – types of spreads, spreading methods, efficient marker utilization and economic cut quantities, cutting ticket, bundle control sheet.

**UNIT IV Apparel Plant requirements**

Introduction to garment industry- plant location, plant layout, process layout, product layout, combination layout. Determination of man power and machines for balanced production in apparel unit, material management and control.

**UNIT V Work Study**

Basic tools – work measurement, method study and time study based on Process Flow Chart - Flow Diagrams. Objectives of work study, method analysis, workplace layout, operation sequence, work aids and attachments, operator monitoring, cycle checks.

**References:**

1. Jacob Solinger, Apparel Production Handbook, Reinhold Publications, 1998.
2. Rajesh Bheda, Managing Productivity of Apparel Industry, CBI publishers and distributors, 2002.
3. Carr Harold, Latham Barbara, The Technology of Clothing Manufacture Om Book Service, 2004.
4. Gerry Cooklin, Introduction to Clothing Manufacture, Blackwell Science Ltd., 2005.
5. Churter, A.J., Introduction to Clothing Production Management, Oseney Mead, 2001.

## **CORE COURSE III**

### **APPAREL STANDARDS AND QUALITY CONTROL**

#### **Objectives:**

1. To study garment defects and inspection
2. To understand the apparel quality standards

#### **UNIT I Introduction to Quality standards**

Introduction to Quality standards – importance – benefits - levels & sources of quality standards - British standards & ISO standards for the apparel industry – ISO 9000 & 14000 standards & SA 8000 - Total Quality Management systems. Quality – Introduction – definition & importance – quality inspection – raw material – product – online – final inspection

#### **UNIT II Garment defects**

Garment defects: Cutting defects - Sewing defects - assembly defects – Pressing - Finishing & Packaging defects. Concepts of TQM - tools used for quality assurance - Care labels - International care labelling system – Japan –Canada -British care labelling systems.

#### **UNIT III Quality control program**

Starting a quality control program, implementation of quality system in production line – Product specification & analysis using analytical tools - Quality management through inspection & Seven quality tools.

#### **UNIT IV Testing Standards and Specifications**

Testing Standards and Specifications fibre length, maturity, yarn strength-yarn count, Bursting strength, Abrasion, Pilling, Drapemeter, Crease recovery and stiffness.

#### **UNIT V Apparel Standards and Testing**

Accessories testing -Inspecting garments using spec sheets - Inspecting garments using measuring tapes - without using measuring tapes - Button quality testing - Interlining quality testing - Packing a shirt and identifying faults. Quality costs & customer returns - Inspection procedures - AQL & apparel quality controls.

#### **References:**

1. Pradeep V Mehta, Managing Quality in Apparel Industry, NIFT publishers.2000
2. Mehta P V, An Introduction to quality control for the apparel industry, Marcel Dekker.2001
3. Slater K, Physical Testing & Quality Control, Vol 23, No.1/2/3, Textile Inst. 1993.
4. John H Skinkle, Textile Testing, Brooklyn pub. NY.2003
5. Sara J Kadolph, Quality Assurance for textiles & apparels, Fairchild pub, 1998.
6. Ruth Clock 7 Grace Kunz, Apparel Manufacture – Sewn Product Analysis, Upper Sadale River pub., NY, 2000.

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## **CORE COURSE IV**

### **TEXTILE WET PROCESSING**

#### **Objectives:**

1. To acquaint student with an understanding of textile wet processing
2. To acquire knowledge in the recent development in textile finishing

#### **UNIT I Preparatory process**

Grey fabric – properties of grey fabric. Basic fabric preparatory processes - Singeing, Scouring, bleaching, mercerizing, desizing.

#### **UNIT II Dyeing Printing and Printing procedure**

Classification of dyes and Stages of dyeing, Characteristics of dyes Suitable for different fibres. Direct, Vat, Sulphur, reactive, naphthol, acid and Basic and Disperse Dyes, Method of dyeing Natural Dyeing, Cotton, Silk, Wool and Synthetics with respective dyes, Dyeing of fibre blends, Natural dyeing-Sources, extraction, Mordants-definition, need, types, Mordanting techniques, Dyeing procedure-types, Direct style-block stencil, screen, roller printing, Duplex printing, Rotary, Transfer printing. Discharge style Resist style-Batik, tie and dye, Minor printing methods- Flocking, Marbling, Blotch, Jetspray, Electrostatic, Photoprinting, Warp printing and Air brush printing, Preparation of printing paste – role of thickeners, method of application, after treatment of printed fabrics.

#### **UNIT III Computer colour analysis**

Anatomy of a colour measuring instrument - spectrometer, Special features employed in colour systems, Softwares and hardwares for systems, Objective specification of colour: tristimulus values, The CIELAB system of specification of colour, Colour difference, The pass/ fail system, Shade Sorting, Strength analysis of dyes from solution. Assessment of whiteness index, degree of yellowness, Computer Colour Matching.

#### **UNIT IV Textile Finishes**

Finishes, types, Recent trends in finishes - Calendaring, tentering, stiffening, gabbing, Decanting, Beetling, Glazing, Schreinerizing, Embossing, Moiering, Ciering, Raising, Napping, Giggling, Shearing. Water Proofing, Water repellency, Sanforizing, antimicrobial finish, antcrease, Wash and Wear, fire proofing silk Weighing, Crepe and Crinkle effect. Softening, durable press.

#### **UNIT V Recent trends in wet processing**

Study of enzymes, Role of enzymes for various textile processes-desizing, scouring, bleaching, softening, biopolishing, degumming.

**Reference:**

1. Shenai, V.A. Technology of Textile Processing, Chemistry for Dyes and Principles of Dyeing, A Sevak Publication, Bombay, 1993
2. Manivsakam.N. Treatment of Textile processing Effluents, Sakthi Publications, Coimbatore, 1995.
3. Gulrajani, M.L. Deepti Gupta, Natural dyes and their application to Textiles, Indian Institute of Technology, New Delhi, 1992
4. Prayag, R.S. Technology of Textiles printing, L.R. Prayag, Dharwad, 1995.
5. Shenai, V.A. History of Textiles Design, Sevak Publications, Mumbai, 1995.
6. Sule, A.D. - ATIRA, Computer colour analysis- Textile applications, New Age International Private Limited, New Delhi, 2002.
7. Nalankilli.G., Textile Finishing, SSM Publication, Komarapalayam.2000.

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## **CORE PRACTICAL I**

### **TEXTILE WET PROCESSING (P)**

1. Desizing, Scouring, Sizing, Calendaring and Mercerizing of cotton.
2. Bleaching of cotton, silk, wool and synthetic textiles with hydrogen peroxide.
3. Degumming and weighting of silk. Felting and chlorination of wool.
4. Dyeing of cotton, silk, wool and synthetic textiles with different synthetic dyes.
5. Extraction and application of natural dyes on cotton silk, wool and synthetic textile.
6. Printing of cotton and silk using different techniques

#### **References:**

1. Shenai, V.A., Technology of Textiles Processing, Chemistry of Dyes and Principles of Dyeing, A Sevak Publication, Bombay, 2002
2. Manivasakam.N. Treatment of Textiles Processing, Effluents, Sakthi Publications, Coimbatore, 1995.
3. Gulrajani,M.L., Deepti Gupta, Natural Dyes and their Application to Textiles, Indian Institute of Technology, New Delhi, 1992.
4. Prayag, R.S., Technology of Textiles Printing, L.R.Prayag, Dharwad, 1985.
5. Shenai, V.A., History of Textiles Design, Sevak Publications, Mumbai, 1995.

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**CORE COURSE V**  
**FASHION CONCEPTS**

**Objectives:**

1. To enable the students to learn fashion concepts and terminologies
2. To facilitate the understanding of product design development

**UNIT I Introduction to Fashion design**

Introduction to Fashion design - Elements of Design- Principles of design – Classification of design – structural and decorative design – Sources of Fashion – Terms related to Fashion Industry – Boutique Collection.

**UNIT II Fashion terminology**

Fashion terminology – factors influencing fashion – origin and procedures of fashion – profile of fashion industry. Fashion cycle – trends based on climate – age groups. Classic seasons in fashion industry and calendar of events

**UNIT III Fashion design needs**

Design needs, extract from verbal and visual understanding – describing statistical information and solving problems through designs – description of situation by various means of communication –text – drawing- graphics- photographs.

**UNIT IV Product profile design generation**

Product profile design generation – intentions of design – psychological – sociological – economical influence of dress – texture- live colours – shape – form & design for clothing, evaluation of ideas against specifications. Generating a range of design solutions using sketches, diagrams with existing materials. Product design presentation using combination of texts, graphics & computer generated images. Conducting tests and trails for decision making with respect to material production, analysis and reasons for selection / rejection of chosen design proposal for the product development.

**UNIT V Colour and fashion illustration**

Colour, dimension of color, hue, value, intensity, colour schemes, its importance and application. Fashion Illustration - 4 ½ heads -8 -head figure and 10 head figure -How to draw *lay* figures -front back and side view of mens, women's and kids-proportions of measuring 8 -head figure and 10 head figure.

**References:**

1. Castelino, M. Fashion Kaledioscope, Rup & Co., 1994.
2. John Wiley, "Theory of Fashion Design" John Wiley and sons. Inc, New York, 1990
3. Stecker P, " The Fashion Design manual" Macmillan, Australia, 1997
4. Sharon Lee Tate, Inside Fashion Design, Harper & Row Pub, NY.1998
5. Leslie Devis Burns & Nancy O Bryants, Business of Fashion, Oregon State Univ. publishers

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**CORE COURSE VI**  
**PATTERN MAKING AND CLOTHING CONSTRUCTION**

**Objectives:**

1. To train the students in pattern making
2. To introduce the students to pattern grading and alteration

**UNIT I Introduction to Pattern Making**

Introduction to Pattern Making – Workroom Terms and Definitions – Fabric Terms, Land Marks – Balance Line Terms – Seams – Notches- Grain lines. Industrial Form Measurement Chart – Personal / Model Measurement Chart. Measuring Techniques for Industrial Form and Human Figures. Organisation and Fitting

**UNIT II Methods of pattern making**

Methods of pattern making – Drafting – Draping and flat pattern making. Principles of Pattern Making ,Drafting the Basic Patterns – The Basic Bodice Block – The Skirt – The Sleeve Draft.

**UNIT III Draping techniques**

Draping the Basic Patterns – The Basic Drape – The Skirt Drape – Transferring the Muslin Drape to Pattern Paper. Design through draping – draping principles and methods – Basic procedures for draping in blouse and skirt area. Preparation of dress form.

**UNIT IV Flat Pattern Making**

Major Three types of Flat Pattern Making – Dart Manipulation by Pivotal method, Slash and Spread Method, measurement method.  
Elimination of darts into Princess line, added fullness for cowls & built up Mechanisms. Pattern Alteration – Length and Width – shoulder – bust – waist and adjustment.

**UNIT V Pattern grading**

Introduction to grading – Pattern grading and its significance – grading to 1 size up or down – Grading to 4 size up or down – Grading techniques and methods.  
Pattern for Knitted Garments – T-shirts – Track suits – Swim Suits.

**References:**

1. Winifred Aldrich “ Metric Pattern Cutting” – Third Edition Blackwell Science.2003
2. Mary Matthews “Designing, drafting and tailoring” – Practical Clothing Construction Part I and Part II.1981.
3. Shoben Martin “Graidng” Batsford Pub, UK2002
4. Goulbern Margaita “ Introducing pattern cutting, grading and modeling.Batsford Pub, UK, 2000
5. Bane Allyne, Flat pattern design, McGraw Hill USA. 2002

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**CORE COURSE VII**  
**APPAREL MERCHANDISING**

**Objectives:**

1. To explain the students about concepts of merchandising and its system
2. To explicate the market environment and consumer behaviour

**UNIT I Merchandising concepts**

Merchandising concepts: Definition of merchandising – merchandising as a business function – Behavioral Theory of the Apparel Industry – Relationship within the apparel Industry and between the environment and the industry – Evolution of merchandising in Apparel Industry – Merchandising Technology : Role – quick response business system – sources and capabilities – making quick response into accurate response.

**UNIT II Market environments**

Market environments – political – legal – technical – social and cultural environments, basic aspects of culture, analytical approach to culture factors- cross-cultural challenges. Apparel market and environment of marketing – micro and macro marketing environment trends- development – size and structure of Apparel and Fashion Market- apparel market – study of markets and segments. Contribution of Fashion markets to the Apparel Industry. Major fashion markets of the world – Italy- Paris- U.S.A.- Japan.

**UNIT III Consumer behavior and Product development**

Consumer behaviour in Apparel and Fashion Market – Fashion Buyer – Decision Making – Psychological and sociological aspects – Product Planning and development – Development of new product. Apparel and Fashion Market practices and Procedures.

**UNIT IV Merchandising system**

Merchandising System: Planning – developmental presentation – merchandise planning- fundamental overview of line process – traditional line planning – forecast based merchandise planning. Merchandising perspective on pricing and profits – planning and controlling merchandising budget, components of merchandising budget and its mechanics.

**UNIT V Merchandise sourcing**

Introduction to Sourcing – Apparel Costing & Quality Assurance for merchandising, Introduction to retail merchandising & visual merchandising

**References:**

1. Castelino, M. Fashion Kaleidoscope, Rup & Co., 1994
2. Mike Casey, Fashion Marketing, Blackwell Science UK 1995
3. Merchandise buying and management: Fairchild Publications1998.
4. Grace I. Kunz, Merchandising: Theory, principles and Practices. IOWA state university, fair child books2003
5. Oleon Peter, Consumer behaviors and marketing strategy, McGraw Hill Publications.2000
6. Leslie Devis Burns & Nancy O Bryants, Business of Fashion, Oregon State Univ. pub 2000
7. Fashion: From concept to consumer, Frings G.S., Prentice Hall 6th edition, 1998

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## **CORE COURSE VIII**

### **ENTREPRENEURSHIP DEVELOPMENT**

#### **Objectives:**

1. To provide an understanding of entrepreneurship
2. To facilitate the students to formulate project proposal to start business

#### **UNIT I Principles of Management**

Principles of Management: Process of Management: Planning -types & strategies, Organizing business - organization & types, office management, Actuating- leadership, motivation & Communication and Control- authority, power, centralization / Decentralization, delegation.

#### **UNIT II Entrepreneurship**

Entrepreneurship: Introduction - Management strategies - Starting a new venture, essentials of a successful centre. Activities of a modern business entrepreneurship. Project planning - formulation & appraisal.

#### **UNIT III Location of enterprises**

Location of enterprises - Guidelines on location – factors influencing plant location- availability of labor - raw material – transportation - market & Govt. policies.

#### **UNIT IV Plant layout**

Plant layout-building structure – lighting - ventilation & heating - material handling SISI- DIC- handloom – Textile Committee.

#### **UNIT V Financial planning**

Financial planning - Role of Government & financial institution in entrepreneurship development. Industrial sickness & remedies - Tax planning -knowledge of exemptions & deductions.

A new project proposal to start an Apparel Industry

#### **References:**

1. Harell, For entrepreneurs only, Career pub., New Jersey, 1995
2. Vikram Sarabhai, Management for Development, Vikas pub., 1974
3. Rajagopal, Entrepreneurship and Rural markets.1998
4. Ormerod A, Textile Project Management, The Textile Institute, 1992.
5. Terry & Franklin, Principles of Management, AITBS, 2002

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## **ELECTIVE COURSE I**

### **ADVANCED GARMENT DESIGNING (P)**

- I. Designing and constructing a garment for
  - a) Visually disabled / Polio
  - b) Pregnant Women
  - c) Party wear
  - d) Stage wear
  - e) Bridal wear
  - f) Fashion wear using recent fabrics
  - g) Fancy Saree blouse
  
- II. Develop designs based on themes and construct at least three garments.

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## **CORE PRACTICAL II**

### **FASHION ILLUSTRATION AND PORTFOLIO (P)**

#### **Objectives:**

1. To create garment based on theme
2. To select the fabric, trims & accessories to sew garment

#### **I. Documents to be prepared;**

1. Design Research
2. Client profile.
3. Board – Theme, Colour, Fabric and Trim
4. Forecast board
5. Fashion Illustration board
6. Final presentation board
7. Garment construction - One men's wear/ womens wear/ kids wear

#### **References:**

1. Campbell, D et. Al: How to develop a professional Portfolio: Allyn & Bacon by Waterier, John W. 2001
2. Aspelund Karl, Design Process, Fairchild Publication, 2010.
3. Seivewright Simon, Basics Fashion Design -Research and Design, Bloomsbury Publication India, 2012.

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## **CORE PRACTICAL III**

### **COMPUTER APPLICATION IN APPAREL INDUSTRY (P)**

1. Introduction to Software and Hardware of apparel CAD
2. Development of croquies based on the head theories for men, women and children in various poses.
3. Texture mapping and virtual Fashion – mapping of original colour, transparent effect, designs, stripped, checks and prints.
4. Draping of Fabric on the croquies
5. Designing different types of accessories and its application on the drapes croquies.
6. Development of mood board using computer.
7. Designing garments for various occasions based on themes – male, female and children
8. Draft the pattern and grade using Spec sheets for knitted and woven garments.
9. Lay planning for knitted and woven garments
10. Digitizing the flat pattern to computer system.

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## **CORE COURSE IX**

### **RESEARCH METHODOLOGY AND STATISTICS**

#### **Objectives:**

1. To understand the fundamental principles and techniques of research methodology
2. To apply statistical procedure to analyze numerical data and draw inferences.

#### **UNIT I      Types of Research**

Types of Research – Different types of research and its applications. Methods of collecting data – conducting enquiries to collect primary data – sources of secondary data – preparation of schedules – questionnaires – pre testing and pilot study – interview method of enquiry – editing and coding the data.

#### **UNIT II      Data representation**

Classification by categories and measurements – discrete and continuous variables – tabulation scheme – preparation of tabular forms – methods of securing accuracy in tabulation. Representation of Data – Graphical representation – diagrammatic representation.

#### **UNIT III      Surveys and report writing**

Sample surveys – choice of the sample – simple random samples – systematic samples – cluster samples – multistage sample and quota sample – sources of bias and methods of reducing bias. Experimentation and thesis writing – Principles and planning of experiments – presentation of data – writing reports – footnotes and bibliography citations

#### **UNIT IV      Measures of central tendency, correlation and regression**

Measures of central tendency and variation – Mean – median – mode their relative advantages and disadvantages – measures of dispersion – mean deviation – standard deviation – quartile deviation – coefficient of variation – percentiles and percentile ranks. Correlation and regression – Correlation – coefficient of correlation and its interpretation – rank correlation – regression equations and predictions – association of attributes – contingency table.

#### **UNIT V      Probability and Tests of significance**

Probability – rules of probability and its applications – normal – binomial- their properties – Importance of these distributions in research studies. Test of Significance – large and small sample, ‘t’ and ‘F’ tests for independence using chi-square analysis of variance and applications.



## References:

1. Sidhu K.S. Methodology of Research in Education Sterling Publishers Pvt. Ltd., New Delhi 1987.
2. Best, J.M. and Kahn, J.V., Research in Education, Prentice Hall of India Ltd., NewDelhi, 1989.
3. Kothari, C.R., Research Methodology, methods and techniques, Wiley Eastern Limited, New Delhi, 1990.
4. Agarwal, Y.P., Statistical methods, Sterling Publishers Pvt. Ltd., 1990.
5. Richard, I. Wevin. et. Al., Statistics for Management, Prentice Hall of India Ltd., 1991.
6. Palanisamy.S. and Monaharan, M., Statistical Methods for Biologists, Paramount Publications, Palani, 1991.
7. Sancheti, D.C. and Kapoor, V.K., Statistics, Theory, Method and Application, Sultan Chand & Sons. New Delhi, 1993.
8. Gupta, S.P. Statistical Methods, Sultan Chand & sons, New Delhi, 1996.
9. Alice Mani, Fundamentals of Business Statistics, Supreme Publishing House, 1997

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**ELECTIVE COURSE II**  
**CLOTHING PRODUCTION MANAGEMENT**

**Objectives:**

1. To acquaint students with clothing production planning
2. To impart quality work and method study procedures

**UNIT I      Production Planning**

Production Planning & Balancing - Process analysis – breakdown of garment production – Production flow charts – improving process. Theoretical balancing – skills & inventory – balance & control – balancing calculations.

**UNIT II      Productivity measurement and improvement**

Productivity measurement in International, National, Enterprise Level – Benefits of higher productivity – productivity in the individual enterprise. Technique for productivity improvement – improving productivity by reducing work content – ineffective time – management of productivity

**UNIT III      Work Study**

Work Study – Basic procedures – pre-requisites of conducting a work study – Factors affecting working conditions – Management & supervision – role in work study – Lighting – Climate – Noise – Vibration – Conditioning

**UNIT IV      Method Study**

Method Study – Definition & Objectives – Work Measurement – work sampling – time study – equipment – selecting & timing the job. Time study – rating & standard time.

**UNIT V      Movements in the work place**

Methods and movements in the work place – introduction – Principles of motion economy – classification of movements – work place layout – design of figures – tools and fixtures – machine controls and display of dials. Process charts – two handled – micro motion study. Use of films in method analysis & other recording techniques. Development of improved methods and methods laboratory.

**References:**

1. A.J.Chuter, Introduction to Clothing Production Management, Blackwell science.
2. Harold Carr, The Clothing Factory, Clothing and footwear Institute, 1972.
3. Kilgus, R. Clothing technology; From Fibre to Fashion, Verlag Europa Lehrmittel, 1996.
4. Tarlos, E. Clothing matters; Questions of dress and identity in India, Hurst 1996.
5. Gaetan, M. Sewn product engineering and reference manual, Bobbin publications. 1977
6. Ruth E Clock, Apparel Manufacturing & sewn product analysis
7. Tyles D J, Material Management in Clothing Production, Blackwell Science Pub.

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## **ELECTIVE COURSE III**

### **APPAREL EXPORT MANAGEMENT & GLOBAL MARKETING**

#### **Objectives:**

1. To Analyze the steps involved in apparel export business
2. To understand the process of global marketing

#### **UNIT I Introduction to apparel trade**

International apparel trade and its significance. Role of WTO in international trade. Statistics of textiles and apparel International trade. Introduction to global marketing for apparel, factors influencing global marketing – economic, social and cultural. Limitations to global marketing and global competition.

#### **UNIT II Apparel export business**

Setting up of apparel export business and marketing, product planning for apparel export markets, pricing and costing, Export correspondence and negotiations for export business. The determinants of apparel exports – national policies, difference in culture and competitive advantage. Principles of sourcing strategy, contracts and incentives, supplier strategies. Sourcing data and reports.

#### **UNIT III Apparel export promotion**

Foreign Direct Investment - advantages to host and home countries, Exim Policy from 2008 – 2013 and various schemes for apparel export promotion – duty drawback, duty exemption and duty remission. Special Economic Zones and Free Trade Zones, assistance for marketing and brand promotion. Positioning a new brand, positioning a global brand. Global product and services and distribution strategies and promotion.

#### **UNIT IV Finance in apparel exports**

Apparel export and import financing, export promotion and apparel trade. Basic concepts and functions of foreign exchange, risk management in foreign exchange. International Payment procedures- Terminologies and Letter of Credit, regulations for imports and exports - Export Financing – Pre and Post shipment finance, EXIM Bank of India.

#### **UNIT V Apparel import and export procedure and documentation**

Export Procedure- shipping formalities - pre-shipment inspection – packing - mechanical tests - Climatic tests – International care labeling. Type of containers, freight forwarders, cargo insurance, custom clearances. Import licensing, pass book scheme and import of capital goods.

Import and Export Documentation - types - transport documents, commercial documents, and regulatory documents. Negotiation of documents and realization of export proceeds, procedure for obtaining various import and export incentives.

#### **References:**

1. Francis Cherunilam, International Trade and Export Management, HPH, 2004.
2. Govt. of India's, Foreign Trade Policy, 2007.
3. D.C. Kapoor, Export Management, Vikas Publications, 2009
4. Globalization: Technological, Economic and Environmental Imperatives, The Textile Institute, 1995.
5. P.K.Khurana, – Export Management, Galgotia Publishing Company, 2003.

## **CORE COURSE X**

### **KNITTING GARMENT TECHNOLOGY**

#### **Objectives :**

1. To outline the structure and properties of knitted fabrics
2. To acquire knowledge on various knit structures

#### **UNIT I Introduction to knitting**

Introduction to knitted fabrics. Difference between knits and woven's, Indian knitting industry – past, present and future.

#### **UNIT II Types of knitting**

Hand knitting, terms used in knitting, weft knitting & warp knitting – introduction and comparison. Parts and functions of weft knitting and warp knitting – calculations used in knitting

#### **UNIT III Knit structures**

Wefts knit structures – single jersey or plain – rib – purl – interlock – Knit- float- tuck and stitch structures – designing of weft structures. Warp Knit Fabrics –warp knit structures – under lap – overlap – closed lap and open lap stitches.

#### **UNIT IV Knitting machines**

Latest Knitting machines, weft knitting machines: Flat bar, straight bar, circular- warp knitting machines: Raschel, Tricot-Knitted fabric defects- Drop Stitches, Barriness, Streakiness, Imperfections, Contaminations, Surface hairiness & pilling, Dyeing patches, Stains, Color fading, Shade variations, High shrinkage.

#### **UNIT V Knitted garment manufacture**

Knitted garment manufacture: marker planning, spreading, cutting, stitching, checking, quality control, pressing(or)ironing, packing, final inspection, shipping- knit wear garment designs and developments.

#### **References:**

1. David J Spencer, Knitting Technology, Pergoman Press, 1983.
2. Terry Brackenbury, Knitted Clothing Technology, Cambridge University Press, 1992.
3. Samuel Raz, Flat Knitting: The New Generation, Meisenbach, 1991.
4. John Arthur Smirfitt, An Introduction to Weft Knitting, Mellow, 1975.
5. Cegielka L, The knitting Industry: Present needs, future requirements, Textile Institute, 1988.

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**CORE COURSE XI**  
**TEXTILE ECONOMICS**

**Objectives:**

1. To make the students to understand the growth and development in textile industry
2. To know the competency of textile industries in global business era

**UNIT I      Indian Textile Industry**

Origin, growth and development of Indian Textile Industry - Cotton, Wool, Silk, Rayon, Man Made Textiles and Readymade garments.

**UNIT II      Development in Textile Industries**

Technological developments in Fiber and Yarn sectors, knitting, weaving – Handloom and Power loom, non woven, garment and textile processing Industries.

**UNIT III      Organization and Association Related to Textile Industry**

WTO, GATT, Research Associations, Financial Institutions, Technological Institutions and Mills Association. Role of government bodies and Export Promotion Council.

**UNIT IV      Five year plans and textile Industry**

Planning strategy, Allocation and Utilization of funds, TUF and Textile policy, Organizations related to the Textile and clothing Industry - GATT, MFA, WTO and others.

**Unit V      Market Research and Fashion Forecasting**

Growth of apparel retailing, marketing research, forecasting and its techniques, trend analysis for fashion and Colour.

**References :**

1. Dr. Anupam Agrawal, Pratiyogita Darpan, Indian Economy P.110, Upkar Prakashan, Agra 2008.
2. Dudeja V. D. Professional Management of Fashion Industry, Gagandeep Publications, Delhi, 2005.
3. Nirupama Pundir, Fashion Technology Today and Tomorrow, Mittal Publications, New Delhi, 2007.
4. Manmeet Sodhia and Pooja Chately, Fashion Marketing and Merchandising, Kalyani Publishers, 2003.
5. Textile Committee, Economic Survey, 2007.
6. Vasant Desai, Problems and Prospects of Small Scale Industries in India, Himalaya Publishing, 2004.
7. Economic Survey
8. Textile Reviews

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## **ELECTIVE COURSE IV**

### **FASHION COMMUNICATION AND VISUAL MERCHANDISING**

#### **Objectives:**

1. To acquaint students with knowledge of fashion communication.
2. To make them understand the importance of visual merchandising

#### **UNIT I Fashion promotion**

Fashion promotion and need for communication process – Media planning and production. Communication through different media – electronic media – photography – print media. Clothing culture and communication - men and women clothing – groups - role & status of clothing. Clothing culture & communication based on conservative –labor – liberal – social – democrat - customs and marital status

#### **UNIT II Communication Practice**

Scripting source – conducting interviews – event reporting fashion critics – case studies – designing catalogues and brochure – visualization of décor and ambience – fashion choreography. Individual & dress - personal communication - personal expression - image building. Psychological & sociological influence on clothing

#### **UNIT III Window display**

The Store window – Mannequins and Display settings – exterior of the store – window display – masking – mannequins and alternatives – 3D dressing - Elements of visual Merchandising.

#### **UNIT IV Props in fashion communication**

Props, Promotion and Signage – Attention getting devices and familiar symbols – Visual Merchandising planning and colour palletes – furniture as props and signage display – sale ideas and setting display shop

#### **UNIT V Store interior planning**

Store planning and design – store interiors and display locations – fixtures and dressings – store planning systems – pointing purchase display – exhibit –trade show design, industrial display – fashion shows – trade organization and sources.

#### **References:**

1. Castelino, M. Fashion Kaleidoscope, Rup & Co., 1994
2. Kathryn Mikelvey, Fashion Source, Blackwell Science Publication, Oxford, England.2000.
3. Laura L Bliss, Study Guide Visual Mechandising and Display third edition, 1955 – Fairchild’s Publication Newyork1997
4. Martin M Pegler ( S V M) Visual Mechandising and Display third edition, 1955 – Fairchild’s Publication Newyork.1997
5. Jetwany J N Advertising, (1999)
6. Roundy N & Maid D, Strategies for technical communication 1985, little Brown & Company., Boston

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## **ELECTIVE COURSE V**

### **HOME TEXTILES**

#### **Objectives:**

1. To acquire knowledge about home furnishing types and materials
2. To outline the knowledge on suitability of home furnishing linens for different end use

#### **UNIT I Introduction to home textiles**

Definition, need for home textiles, types of home textiles-woven and non-woven fabric used in home textiles, factors influencing the selection of home textiles, recent trends in home textiles.

#### **UNIT II Wall Covering**

Definition, need and maintenance of wall covering, types, uses and care. Floor Covering: Definition, need and maintenance, types, uses and care

#### **UNIT III Living room furnishing**

Introduction, choosing colour, pattern & texture for interiors, types of living room furnishing, Sofa types, Sofa covers, wall hanging, cushion & cushion covers, upholstery materials, bolster & bolster covers, care & maintenance, advantages and disadvantages.

#### **UNIT IV Bed linens**

Introduction, types of mattresses and mattress covers, types of bed linens-blankets, Pillow, Quilts and comforters, Care & cleaning of bed & bed spreads advantages and disadvantages.

#### **UNIT V Kitchen and Table Linens**

Introduction to kitchen linens, definition of kitchen linens, types of kitchen linens-hand towels, dish cloth, kitchen apron, Mixer and grinder covers, their uses and care. Introduction to table linens, definition of table linens, types of table linens, table cloth, table mats, Table napkins, Doilies, runners, protective pads, Silence cloth, Selection of towel & table line their uses and care.

#### **REFERENCES**

1. Joan. C. Branson, Margaret Lennox, Hotel, Hostel and House Keeping, Edward Arnold, 1988.
2. Henry Wilson, India: Decoration, Interiors, Design, Watson-Guptill Publications, 2001.
3. Jay Diamond and Ellen Diamond, – Fashion Apparel, Accessories, Home Furnishings, Pearson Prentice Hall, New Jersey, 2007.
4. Hamlyn, Bed and Table linen, Octopus Publishing Group Ltd, New York 2001.
5. Emma Callery, –The Home Decorator's Colour Source Book, Apple Press Ltd, London, 2006.

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