



(Applicable to the candidates admitted from the academic year 2016 -2017 onwards)

Sem.	Part	Course	Title	Ins Hrs	Credit	Exam Hours	Marks		Total
							Int.	Ext.	
<b>I</b>	I	Language Course – I (LC) –Tamil*/Other Languages +#		6	3	3	25	75	100
	II	English Language Course - I (ELC)		6	3	3	25	75	100
	III	Core Course – I (CC)	Fabric Science	6	4	3	25	75	100
		Core Practical I (CP)	Fabric Science (P)	4	2	3	40	60	100
		First Allied Course –I(AC)	Introduction to Fashion Designing	6	4	3	25	75	100
	V	Value Education	Value Education	2	2	3	25	75	100
<b>TOTAL</b>				<b>30</b>	<b>18</b>				<b>600</b>
<b>II</b>	I	Language Course – II (LC) - Tamil*/Other Languages +#		6	3	3	25	75	100
	II	English Language Course – II (ELC)		6	3	3	25	75	100
	III	Core Course – II (CC)	Yarn Manufacture - I	6	6	3	25	75	100
		First Allied Course – II (AP)	Fashion Sketching (P)	4	3	3	40	60	100
		First Allied Course – III (AC)	Traditional Indian Textiles and Costumes	6	5	3	25	75	100
	V	Environmental Studies	Environmental Studies	2	2	3	25	75	100
<b>TOTAL</b>				<b>30</b>	<b>22</b>				<b>600</b>
<b>III</b>	I	Language Course – III (LC) Tamil*/Other Languages + #		6	3	3	25	75	100
	II	English Language Course - III (ELC)		6	3	3	25	75	100
	III	Core Course – III (CC)	Yarn Manufacture - II	6	5	3	25	75	100
		Core Practical II (CP)	Yarn Manufacture (P)	6	3	3	40	60	100
		Second Allied Course – I (AC)	Computer Aided Fashion Designing	4	2	3	25	75	100
	IV	Non Major Elective I – for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto 10th +2 but opt for other languages in degree programme	Management and Entrepreneurship	2	2	3	25	75	100
<b>TOTAL</b>				<b>30</b>	<b>18</b>				<b>600</b>

IV	I	Language Course –IV (LC) Tamil*/Other Languages +#		6	3	3	25	75	100	
	II	English Language Course – IV (ELC)		6	3	3	25	75	100	
	III	Core Course – IV (CC) –	Fabric Manufacture - I	6	6	3	25	75	100	
		Core Practical – III (CP)	Fashion Portfolio Presentation (P)	4	4	3	40	60	100	
		Second Allied Course – II (AC) (Practical)	Computer Aided Fashion Designing (P)	4	3	3	40	60	100	
	IV	Non Major Elective II – for those who studied Tamil under Part I a) Basic Tamil for other language students	Marketing and Merchandising	2	2	3	25	75	100	
		b) Special Tamil for those who studied Tamil upto 10 <sup>th</sup> +2 but opt for other languages in degree programme								
		Skill Based Elective - I	Skill Based Elective - I	2	2	3	25	75	100	
	<b>TOTAL</b>				<b>30</b>	<b>23</b>				<b>700</b>
	V	III	Core Course – V (CC) -	Textile Chemistry	5	5	3	25	75	100
Core Practical – IV(CP) –			Textile Chemistry (P)I	4	3	3	40	60	100	
Core Course – VI (CC) –			Fabric Manufacture - II	5	5	3	25	75	100	
Core Practical – V (CP)			Fabric Manufacture (P)	5	5	3	40	60	100	
Major Based Elective – I			Textile Testing	5	5	3	25	75	100	
IV		Skill Based Elective – II	Skill Based Elective - II	2	2	3	25	75	100	
		Skill Based Elective – III	Skill Based Elective - III	2	2	3	25	75	100	
		Soft Skills Development	Soft Skills Development	2	2	3	25	75	100	
<b>TOTAL</b>				<b>30</b>	<b>29</b>				<b>800</b>	
VI	III	Core Course – VII (CC) –	Knitting	6	6	3	25	75	100	
		Core Course – VIII (CC) –	Garment Manufacture	6	6	3	25	75	100	
		Core Practical – VI (CP)	Knitting and Garment Manufacture (P)	6	6	3	40	60	100	
		Major Based Elective II	Modern Textile Manufacture	6	6	3	25	75	100	
		Major Based Elective III	Fabric Analysis	5	4	3	25	75	100	
	V	Extension Activities	Extension Activities	-	1	-	-	-	-	
		Gender Studies	Gender Studies	1	1	3	25	75	100	
		<b>TOTAL</b>				<b>30</b>	<b>30</b>			
<b>GRAND TOTAL</b>				<b>180</b>	<b>140</b>	-	-	-	<b>3900</b>	

**Internship for 15 days during summer vacation after the II year in Textile & Processing unit or Garment Manufacturing unit, prepare & submit the report.**

Language Part – I	-	4	
English Part –II	-	4	
Core Paper	-	8	
Core Practical	-	6	
Allied Paper	-	3	
Allied Practical	-	2	
Non-Major Elective	-	2	
Skill Based Elective	-	3	
Major Based Elective	-	3	
Environmental Studies	-	1	
Value Education	-	1	
Soft Skill Development	-	1	
Gender Studies	-	1	
Extension Activities	-	1	(Credit only)

\* for those who studied Tamil upto 10<sup>th</sup> +2 (Regular Stream)

+ Syllabus for other Languages should be on par with Tamil at degree level

# those who studied Tamil upto 10<sup>th</sup> +2 but opt for other languages in degree level under Part I should study special Tamil in Part IV

\*\* Extension Activities shall be out side instruction hours

Non Major Elective I & II – for those who studied Tamil under Part I

- Basic Tamil I & II for other language students
- Special Tamil I & II for those who studied Tamil upto 10<sup>th</sup> or +2 but opt for other languages in degree programme

**Note:**

	Internal Marks	External Marks
1. Theory	25	75
2. Practical	40	60
3. Separate passing minimum is prescribed for Internal and External marks		

**FOR THEORY**

The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks]  
The passing minimum for University Examinations shall be 40% out of 75 marks [i.e. 30 marks]

**FOR PRACTICAL**

The passing minimum for CIA shall be 40% out of 40 marks [i.e. 16 marks]  
The passing minimum for University Examinations shall be 40% out of 60 marks [i.e. 24 marks]

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## **CORE COURSE I**

### **FABRIC SCIENCE**

#### **Objectives:**

1. To understand the end uses of various fibres.
2. To enable students to learn fibre production methods and properties.

#### **Unit I Vegetable Fibres**

Definition of Textile fibre – Classification of Textile fibres-Desirable properties of an Ideal Textile fibre – Staple fibre and filament. Cotton: Chemical composition of Cotton fibre – Varieties of cotton – Physical and Chemical properties and end uses of cotton. Bast Fibres : Different varieties of bast fibres – Physical and Chemical properties and end uses of Jute and Flax (linen)

#### **Unit II Animal Fibres**

Introduction to animal Fibres - Wool: Different types and grades of Wool. Production of clean wool from raw wool – characteristics of woollen and worsted yarn. Physical and Chemical properties and end uses of wool. Felting of wool. Silk: Different types of silk, wild, Cultivated Life cycle of silkworm. Method of extraction of silk from Cocoon and the process for the preparation of filature silk. Degumming and weighting of silk. Outline of the process for production of Spun silk – Physical and Chemical Properties and end uses of silk.

#### **Unit III Regenerated Fibres**

Definition and terminology related to fibre molecule – monomer – repeat unit – Polymer – Polymerization – Degree of Polymerization – Types of Polymerization – Addition and condensation Polymerization. Regenerated Cellulosic fibres: Names of various rayons – Viscose rayon: Chemical reactions in the manufacturing of viscose rayon polymer – Process sequence in the manufacture of Viscose rayon. Properties and uses of Viscose Rayon. Brief study of the manufacture of Polynosic Rayon. Outline of the manufacture of Acetate rayon – Properties and uses.

#### **Unit IV Synthetic fibres**

Synthetic fibres –Nylon 6- Chemical reaction in the manufacture of Nylon 6 – Brief study on the properties and uses of Nylon 6 .Nylon 66- Manufacturing of Nylon 66 polymer – Properties and uses of Nylon 66. Aramid fibres – Brief study of Nomex, Kevlar fibres. Polyester – Outline of the manufacturing of polymer and the production of filament and staple fibres Properties and uses of polyester

## **Unit V      Special Synthetic fibres & Texturisation**

Polyacrylonitrille fibre – Outline of the manufacturing of acrylic fibres – Properties and uses. Polypropylene fibres – Brief study on properties and uses of polypropylene fibres and polyethylene fibres – Brief study on polyurethane fibre – Properties and uses Lycra fibres. Special application of carbon fibres – Properties and uses carbon fibre. Texturisation – Importance of Texturisation on synthetic fibres – Properties of textured yarn. Identification of fibres: Cross sectional and Longitudinal views of Cotton, Wool, Silk, Viscose Rayon, Nylon, Polyester and Acrylic fibres.

### **Reference Books:**

1. Premony Ghosh, Fibre science and Technology, Tata McGraw- Hill Publishing company limited, 2004.
2. Amarjit S.Basra, Cotton Fibres- Developmental Biology, Quality Improvement and Textile Processing, CBS Publishers and Distributors, 2002.
3. N.S.Kaplan, A Practical Guide to Fibre Science, First Edition, Abhishek Publications, 2002.
4. Akira Nakanura, Fibre Science and Technology (Translated from Japanese), Oxford and IBH Publishing Co. Pvt. Ltd, 2000.
5. N.S.Kaplan, Textile Fibres, Abhishek Publications, 2008.
6. Meenakshi Rastogi, Fibres and Yarn, Sonali Publications, 2009.
7. Bernard.P.Corbman, Textiles Fiber to Fabric, sixth Edition, McGraw Hill international Editions, Home economics series, 1983.

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**CORE PRACTICAL I**  
**FABRIC SCIENCE (P)**

**Objectives**

1. To identify textiles fibres.
2. To gain skill in determining the physical properties of fibres.

**Unit I Identification of Textile Fibres**

- i. Cotton
- ii. Silk
- iii. Wool
- iv. Nylon
- v. Polyester
- vi. Linen
- vii. Rayon
- viii. Jute

**Methods of Identification**

- i. Microscopic Method
- ii. Flame Test
- iii. Chemical Test

**Unit II**

Determination of moisture content and moisture regain for various textile fibres

**Unit III**

Determination of Fibre Strength

**Unit IV**

Determination of Trash content in cotton fibre

**Unit V**

Determination of Fibre length using Baer sorter

**References:**

1. N.S.Kaplan, Textile Fibres, Abhishek Publications, 2008.
2. Meenakshi Rastogi, Fibres and Yarn, Sonali Publications, 2009.
3. Bernard.P.Corbman, Textiles Fiber to Fabric, sixth Edition, McGraw Hill international Editions, Home economics series, 1983.

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**FIRST ALLIED COURSE I**  
**INTRODUCTION TO FASHION DESIGNING**

**Objectives:**

1. To gain knowledge about Fashion design.
2. To know the structure and decorative designs.
3. To understand the Design and color wheel.

**Unit I Introduction to Fashion**

Meaning of Fashion, Origin of Fashion, Meaning of Fashion Designing, Classification of Fashion – style, basic, or classic, fad, Fashion trend and Fashion forecasting. Influence of Fashion; Fashion illustration and Fashion cycle.

**Unit II Fashion Industry and Fashion Promotion**

Fashion Industry - Boutique and its importance, present structure of Fashion industry; Textiles and materials in Fashion industry; the structure of the Fashion market. Fashion Promotion – Impact of Fashion promotion; Fashion Advertising, Fashion journalism; Conferences, Trade fairs & exhibition, Fashion show; Window display. Important Fashion designers and their famous labels.

**Unit III Design & Colour**

Design – Definition, types of design, decorative design – Structural design, decorative design, basic silhouette. Elements of art – line, form, shape, texture and colour and principles of design – balance, emphasis, harmony, proportion, rhythm. Application of principle of design in dress.

Color - Introduction, color wheel (Prang & Munsell system) Properties and qualities of color, color scheme Theories of color harmony, color and garment, color selection. Principles of combining color.

**Unit IV World Fashion trends**

Centres of Fashion in the world, Emergence of Fashion Designers, Contribution of well known designers from France, America, Europe, Paris and India - color, silhouette and design.

**Unit V Career in fashion**

Scope of Fashion business, choosing a career in Fashion, Career in Manufacturing, Designing, Career in Retailing, Residential Buying office careers, Career in Fashion service organizations, Freelancing.

**References:**

1. Suzanne G. Marshall, Hazel O. Jackson M. Sue Stanley, Mary Kefgen, Individuality in clothing Selection and Personal Appearance, Phyllis Touchie Specht, New Jersey, 2000.
2. Kitty G. Dickerson, Inside the Fashion Business, Pearson Education, Singapore, 2003.
3. Kathryn Mokolvey, Janine Munslow, Fashion Design Process, Innovation And Practice, Black Well Science Ltd, U.K, 2005.
4. Dudeja, V.D. Professional Management of Fashion Industry, Gangandeeep Publications, New Delhi, 2005.
5. Jenny Davis, (2006) A Complete Guide to Fashion Designing, First Edition, Abhishek Publication.

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**CORE COURSE II**  
**YARN MANUFACTURE I**

**Objectives:**

1. To enable students to learn the yarn manufacture.
2. To study the objectives of various stages in yarn production

**Unit I            Blow room**

Ginning – Objectives and Types of ginning, blending Objectives, Comparison between mixing and blending. Blow room - Objectives of blow room process, principles of opening and cleaning machines - Description and working of openers and beaters. Study of scutcher Lap forming device – salient feature of modern blow room process, Calculation relating to speed, production and efficiency of machines, Brief Study of feed system.

**Unit II            Carding**

Objectives and principles of carding, passage of material through carding, study of different parts of the carding machine and their functions. Defects in card sliver, causes and remedies. Salient features of modern high production cards. Brief study of Auto leveler - Open and closed loop auto levelers. Calculations related to speed, draft production and efficiency in cards.

**Unit III          Draw frame**

Objects of drawing – Principles of doubling and drafting at draw frame. Functions of different sections of draw frame. Draft and its distribution, Roller settings, Drafting systems - Salient features of modern draw frame. Calculations related to speed, draft, hank production and efficiency in draw frame. Method of Blending at draw frame stage.

**Unit IV          Combing**

Principles and objects of preparatory machines to combing – different sequence of process in the preparation to the combers– Comber lap preparatory machines, -Ribbon Lap machine and super lap former. Objects of combing -Degree of combing, characteristics of combed yarn. Salient features of modern comber.

**Unit V            Speed Frame**

Principles and objects of speed frame. Functions of different parts of the speed frame, drafting and twisting and their relationship to the material being processed. Roller settings, principles of winding, salient features of Modern speed frame. Calculation related to production and efficiency.

**References:**

1. Klein W., “A Practical Guide to Opening and Carding “, The Textile Institute, Manchester, 1999
2. Salhotra K.R. and Chattopadhyay R., “Book of papers on Blowroom and Card “, Indian Institute of Technology, Delhi, 1998
3. Doraiswamy I., Chellamani P. and Pavendhan A., “Cotton Ginning, Textile Progress”, The Textile Institute, Manchester, 1993
4. Textile fibres, V.A Shenai, 2<sup>nd</sup> Revised edition, 1997 Vol. I in the series, Technology of Textile Processing Sevak Publications, Bombay.
5. Textile Science, E.P.C Gohle and L.D Vilensty, 1<sup>st</sup> Indian Edition, CBS Publishers and Distributors Delhi, India. 1987.

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## **FIRST ALLIED COURSE II**

### **FASHION SKETCHING (P)**

#### **Objectives:**

1. To learn the basic techniques of sketching.
2. To learn the drawing methods of fashion figures.
3. To develop the sketches of different dresses and accessories.

#### **I. BASIC SKETCHING**

- \* Pencil grading and smudging techniques.
- \* Human figures in proportion using 8-head theory.
- \* Drawing eyes, nose, ears and lips.
- \* Drawing of face and hair style.
- \* Sketching of different angles of foot and palm.
- \* Sketching of pleats and gathers.
- \* Sketching of drapes and fringes.
- \* Sketching of frills and flounces.
- \* Sketching of hemlines and waist bands.
- \* Sketching of seams and shirring.

#### **II. SKETCHING ON BASIC CROQUI**

- \* Sketching of sleeves and cuffs
- \* Sketching of necklines and collars.
- \* Sketching of pockets and yokes
- \* Sketching of pants and shirts
- \* Sketching of skirts and tops
- \* Sketching of belts and gloves
- \* Sketching of bags and hats
- \* Sketching of neckwear
- \* Sketching of bows and shoes.

#### **Reference:**

1. Bill Glazer, The Snap Fashion Sketch Book: Sketching, Design and Trend Analysis the Fast Way, Pearson Prentice Hall, New Jersey. 2007.
2. Bina Abling, Fashion Rendering with Colours, Prentice Hall, New Jersey. 2001.
3. Patrick John Ireland, Fashion Design Illustration- Men, Om Books International, New Delhi, 2005.
4. Patricia Lingane Rowe, Short Hand Fashion Sketching, Fairchild Publications, 2009.
5. Ritu Bhargae, Fashion Illustration and Rendering, B. Jain Publishers (P) Ltd., New Delhi, 2005

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## **FIRST ALLIED COURSE III**

### **TRADITIONAL INDIAN TEXTILES AND COSTUMES**

#### **Objectives:**

1. To give knowledge in traditional woven printed and embroidered textiles of India
2. To understand the early costumes of India.

#### **Unit I Evolution of clothing**

Introduction to Textiles: Beginning of dress, Development of costumes in ancient India – Indian Textiles Development – Khadi, Handloom, Power loom.

#### **Unit II Traditional Woven and dyed textiles of India:**

Traditional Woven textiles of India - Dacca Muslin. Jamdani. Chanderi, Brocades, Balucheri and Kashmir Shawls. Traditional dyed textiles of India - Bandhani, Patola, Ikkat Techniques and dyeing Adopted.

#### **Unit III Traditional printed Textiles and Embroideries of India :**

Traditional Printed Textiles of India – Kalamakari, Block printed fabrics of India. Traditional Embroideries of India - Phulkari, Chikankari, Kantha, Kutch, Kathiawar and Sind embroidery, Kasuti, Kashida, Chamba Roomal. Collection of traditional Woven motifs

#### **Unit IV Costumes of different states of South India and North India**

Costumes of typical South India  
Costumes of typical North India

#### **Unit V Costumes of different states of East India and West India**

Costumes of typical East India  
Costumes of typical West India

#### **Reference Books:**

1. Sumathi. G.J. "Fashion Designing" New Age International. Pvt. Ltd., Chennai.
2. Jasleen, Dhamija and Jyotindra Jain, Hand Woven Fabrics of India, Mapin Publishing Pvt Ltd. Ahmedabad, 2002.
3. James Laver, Costumes and Fashion, Concise History published by Thames & Hudson, London, 2002.
4. Premalatha Mullick, Textile Designing, Kalyani Publishers, New Delhi, 2007.
5. Parul Bhatnagar, Traditional Indian Textiles. Abhishek publications, Chandigarh, 2004.
6. Manmeet Sodhia, History of Fashion, Kalyani Publishers, New Delhi, 2000.

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**CORE COURSE III**  
**YARN MANUFACTURE II**

**Objectives**

1. To learn various method of spinning
2. To gain knowledge about texturisation of yarn

**Unit I      Ring frame**

Objects of Ring Spinning frame. Detailed study of ring frame, selection of top rollers, aprons, cots, spacers and their influence on yarn quality. Study of top arm drafting systems, principles of building motion. Brief study of different types of builds.

**Unit II      Modern Ring Frame**

Brief study of special attachments - automatic doffing, pneumafil and balloon control rings. Large package spinning - advantages and disadvantages. Brief study of twist factor, twist strength and count relationship for coarse, medium and fine counts. Common defects in spun yarn, causes and remedies. Salient features of modern ring frame. Calculations pertaining to production and efficiency.

**Unit III      Doubling, Reeling, Bundling & Baling.**

Objectives and methods of doubling. Passage of material through dry and wet doubling machines. Different methods of threading in dry doubling. Direction of twist in doubled yarn and its relation to single yarn. Calculation of resultant count. Reeling - objectives and types of reeling. Objectives of bundling and baling. Gassing - Objectives and methods of gassing. Principles of Two for One twister (TFO), Brief study of fancy yarns.

**Unit IV      Open End Spinning**

**Rotor Spinning:** Introduction - Classification - O.E Spinning - Basic principles and working of the Rotor spinning Machine - Study of the parts of Rotor Spinning - Structure of rotor yarn. Uses of OE yarns.

**Unit V      Texturisation**

Need for bulking of synthetic fibres - Texturing basic definition and classification of textured yarns. Basics of various methods of texturing. Properties and uses of textured yarns. Stuffer box and Edge crimping methods - principles, limitations and applications, Knit- de -knit and Gear crimping methods.

**Reference Books:**

1. Gowda R.V.M., "New Spinning Systems", NCUTE, IIT Delhi, 2003.
2. Ishtiaque, S.M., Salhotra K.R. and Gowda R.V.M., "Friction Spinning", Textile Progress, Vol. 33, No.2, Textile Institute, U.K., 2001
3. Chattopadhyay R. (Ed)., "Advances in Technology of Yarn Production", NCUTE, IIT Delhi, 2002.
4. Basu A., "Progress in Air-jet Spinning", Textile Progress, Vol. 29, No.3, Textile Institute, U.K., 1997.
5. Oxtoby E., "Spun Yarn Technology" Butterworths, London 1983.
6. W.Klein, "New spinning systems", The Textile Institute Manchester, U.K. 1993.

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**CORE PRACTICAL II**  
**YARN MANUFACTURE (P)**

**Objectives:**

- To understand the stages of spinning
  - To draw develop the fibers in to yarn.
1. Drawing the passage of material through various opening and cleaning machines of the Blow room line.
  2. Drawing the gearing plan of various opening and cleaning machines of the Blow room line and calculation of speeds and production.
  3. Drawing the passage of material through carding machine.
  4. Drawing the gearing plan of carding machine and calculation of speeds, drafts and production.
  5. Drawing the passage of material through Draw frame.
  6. Drawing the gearing plan of draw frame and calculation of speeds, drafts and production.
  7. Drawing the passage of material through Comber.
  8. Drawing the gearing plan of comber and calculation of speeds, drafts and production.
  9. Drawing the passage of material through Speed frame.
  10. Drawing the gearing plan of speed frame and calculation of speeds, drafts and production.
  11. Drawing the passage of material through Ring frame.
  12. Drawing the gearing plan of ring frame and calculation of speeds, drafts, twist and production.
  13. Drawing the passage of material through Open end spinning machine.
  14. Drawing the gearing plan of open end spinning machine and calculation of speeds, drafts and production.
  15. Drawing the passage of material through Open end spinning machine.
  16. Drawing the gearing plan of open end spinning machine and calculation of speeds, drafts and production.

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**SECOND ALLIED COURSE I**  
**COMPUTER AIDED FASHION DESIGNING**

**Objectives:**

1. To learn the basics of computer and its classification
2. To acquire knowledge about the role of computer in textile and apparel industry.

**Unit I**

Classification of Computers – General and special purposes Computers – Computer Specifications – Computer components – Organisation of Computer Sections – Computer Peripherals Different type of Computer memory. Core – tape – Magnetic disc – Drum – input and output devices – graphical plotters – flow charts – Elements of Computers Programming

**Unit II**

Concepts of Computer integrated Manufacture (CIM) – Computer aided fabric design–woven and printed designs–Computer Aided Production Planning – Production Scheduling, Disposition, Order entry, Order Control.

**Unit III**

Computer Application in Fabric defect checking – Fabric laying –cutting –sorting labeling.

**Unit IV**

Computer application in pattern making and grading – Duplication – marker efficiency.

**Unit V**

Computer application in sewing technology – Garment Design and fashion design–Computer Aided colour Matching.

**Reference Books:**

1. “Computer Technology for Textile”. WRC Simty Publication & Co., Atlanta 1970.
2. “Summer School on Computer Application in Textiles” ISTE, VJTI, Bombay, June 1981.
3. Fashion Design: Process, Innovation and practice, Kathryn Mc Kelvey and Janine Munslow, Blackwell Science Ltd., Blackwell publishing company, 2005.
4. Individuality in Clothing Selection and Personal Appearance, Suzanne G. Marshall, Hazel. C, Jackson M,Sue Stanley, Mary Kelgen, Phullis Touchie Specnt, New Jersey, 2000.
5. The World of Fashion Merchandising, Mary G.Wolfe, The Goodheart- Wilcon Company,Inc, Tinley Park, Illinois, 2003.
6. Fashion Design on Computers,Kathleen Colussey M,N.J.Prentice Hall, Upper Saddle River, 2000.
7. Computer Aided Pattern Design and Product Development, Alison Beazley Terry bond, Black Wele, Amazon, 2003.

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## **NON MAJOR ELECTIVE I**

### **MANAGEMENT AND ENTREPRENEURSHIP**

#### **Objectives:**

1. To understand the need for management and entrepreneurship.
2. To gain knowledge on various acts relating to textile entrepreneurship.

#### **Unit I Organisation and Factory Planning**

Organisation – Definition – Different types of organization Structure – Line type, Line & staff type, Functional type. Relative merits and demerits, Organisation chart of a factory. Factors considered in selection of site for an Industry. Different types of building structures- Importance of Lighting, Ventilation, Humidification and Air Conditioning in the industries. Layout of machineries in the industries.

#### **Unit II Production and Financial Management**

Objectives of work study, Method study and work measurement. Procedure for conducting snap study and its applications in the industries. Objectives of production planning and control. Functions of PP & C Department – pre – planning, routing, scheduling, dispatching controlling, market research, product planning, product development and standardization. Financial management – objectives and sources of finance, Brief idea about capital cost and working capital, Importance and objectives of costing. Elements of cost. Determination of selling price. Over heads and different methods of Allocation of over heads, Break even chart. Definition and objectives of Depreciation. Inventory control – definition and objectives. Economic order quantity (E.O.Q), ABC Analysis.

#### **Unit III Personnel Management**

Importance and duties of personnel Management - Elementary idea about job analysis, job evaluation. Sources of recruitment. Selection procedure for employees,. Objectives of training – methods of training.

Wages and its components. Different methods, of wages payment. Incentives and its objectives.

Labour welfare activities and their objectives. Role of labour welfare officer.

Grievance and grievance procedure, causes and consequences of industrial dispute, Mechanism for settlement, Role of trade unions.

#### **Unit IV            Factory Act, Industrial safety and Entrepreneurship Development.**

Factory act pertaining to Health, Cleanliness, Ventilation, Safety, Welfare, working hours, Accident compensation. Importance, causes and consequences of Industrial accidents. Steps to bring down accidents. Guards and safety devices used in the industries. Fire prevention and control. Definition of an Entrepreneur – characteristics and function of an entrepreneur. Entrepreneurship Development Program. Role of education and training in EDP. Ideas about project identification. Role of trade fairs and exhibitions. Criteria for selection a Project. Study of feasibility report.

#### **Unit V            Export Marketing**

Importance of Export to National Economy. Globalization and it's importance to the industrial sector. GATT and WTO - Steps taken by the Government to meet Global market. Role of Industrial exports to Indian economy. Concept of Quality Circle and it's usefulness, Brief Idea about KAIZEN & 5-S system. Receipt of Overseas orders – various steps involved in it's execution. Export pricing – Different types – Free on Board (F.O.B) – Free Along side (F.A.S) – Cost Insurance Freight (C.I.F)

#### **Reference Books:**

1. Khanaka, S.S., Entrepreneurial development, S. Chand and Company Ltd., New Delhi, 2006.
2. Vasant Desai, Dynamics of entrepreneurial development and management, Himalaya Publishing House, 2003.
3. Philip Kotler and Kevin Lane, Marketing Management, Keller, Pearson Education Inc., Delhi, 2006.
4. 4 Singa.J.C & Mugali.V.N – Business Management : Theory and Practice, Edition 5, 1982.
5. ILO – Introduction to work study, Edition 5, 1977.

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## **CORE COURSE IV**

### **FABRIC MANUFACTURE I**

#### **Objectives:**

1. To gain knowledge in weaving
2. To understand yarn numbering and peg plan in paint paper.

#### **Major Divisions:**

1. Winding
2. Warping and Sizing
3. Loom –Primary motions
4. Loom – Secondary and Auxiliary motions
5. Calculations

#### **Unit I      Winding**

Warp winding: Brief study of sequence of process in weaving preparatory – Objects of warp winding. Faults in wound packages – Causes and remedies – Salient features of high speed and fully automatic winding machines. Weft winding: Objectives of rewinding the weft yarn – Direct weft and rewound weft - study of High speed and fully automatic pirn winders.

#### **Unit II      Warping and Sizing**

Objects of warping – Study of Beam warping machines expanding creel – Head stock – Salient features of Modern warping machine. Objects of sizing – sizing materials used for different type of yarns and their functions. Environmental and safety aspects in sizing, - Study of Multi cylinder sizing machine – Control systems used in sizing machines. Study of Drawing-in and denting.

#### **Unit III      Loom – Primary Motions**

Introduction to Weaving –Power loom – Types of looms. Primary motions of the loom. Shedding - Objects – Positive and negative shedding Types of sheds – Tappet shedding mechanism. Picking – Principles of picking – types of picking– Study of Cone over pick mechanism and Under pick mechanisms. Beat-up mechanism – Principle of Beat-up mechanism.

#### **Unit IV      Loom – Secondary and Auxiliary Motion**

Take – up motions - functions – types – positive take – up motion. Study of different take-up motions. Let of motions – objects – types – chain lever and weight negative let – off motion Weft fork motion – objects – types – side weft work motions – working. Study of center weft fork motion – comparison of side weft fork and center weft fork motions. Warp protecting mechanism – objects –



types – Loose reed motion and Fast reed motion. Study of Lease rod, Healds, Reeds and Temples. –Fabric defects, causes and remedies.

### **Unit V      Calculations:**

Different yarn numbering system. Conversion of counts from one system to another – Doubles and plied yarn calculation. Calculation pertaining to speed, efficiency and production of warp winding, weft winding, warping sizing and looms. Principles of design, draft and peg plan – use of point paper. Characteristics and uses of plain, Twill Satin, Honey comb, Brighton comb, Huck – back, Mock –leno fabrics.

### **Reference Books :**

1. John A. Iredale “Yarn Preparation: A Hand Book”, Textile Institute, Manchester, 1992.
2. Lord P. R. and Mohamed M.H., “Weaving: Conversion of Yarn to Fabric”, Merrow, 1992.
3. Ormerod A. and Sondhelm W. S., “Weaving: Technology and Operations”, Textile Institute, 1995.

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## **CORE PRACTICAL III**

### **FASHION PORTFOLIO PRESENTATION (P)**

#### **OBJECTIVES:**

1. To know how to give the presentation
2. To express the innovative ideas

Develop a collection on any one of the category

1. Women
2. Kid
3. Men

Each collection will incorporate supporting design process as follows.

- Mood board
- Story board
- Fabric design development
- Design development
- Range development
- Final collection
- Flats and specification
- Cost sheet

#### **References:**

1. Campbell, D et. al (2001) : How to develop a professional portfolio : Allyn & Bacon by Waterier, John W.
2. Aspelund Karl, 2010, Design Process, Fairchild Publication
3. Seivewright Simon 2012, Basics Fashion Design -Research and Design, Bloomsbury Publication India.
4. Bill Glazer, The Snap Fashion Sketch Book: Sketching, Design and Trend Analysis the Fast Way, Pearson Prentice Hall, New Jersey. 2007.
5. Bina Abling, Fashion Rendering with Colours, Prentice Hall, New Jersey. 2001.

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## **SECOND ALLIED COURSE II**

### **COMPUTER AIDED FASHION DESIGNING (P)**

#### **Objectives:**

1. To gain knowledge in creating motifs using Computer Aided Designing.
2. To illustrate different types of garments using Computer software.

Create the following designs

- Patterns for pattern making and grading
- Design library for garment details (skirts, sleeves, cuffs, collars, and pockets)
- Garment designs for children's garment with colour combination
- Garment designs for men's garment with colour combination
- Garment designs for women's garment with colour combination
- Texture mapping using computers (changing different textures of garment)
- Bringing variation in face framing details using computers
- Creating accessories hair style: hat, necklines, eye glasses and make ups.

#### **References:**

1. Fashion Design on Computers, Kathleen Colussey M,N.J. Prentice Hall, Upper Saddle River, 2000.
2. Computer Aided Pattern Design and Product Development, Alison Beazley Terry bond, Black Wele, Amazon, 2003.

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## **NON MAJOR ELECTIVE II**

### **MARKETING AND MERCHANDISING**

#### **Objectives:**

1. To study the concepts of marketing
2. To understand the merchandising concepts and export policies.

#### **Major Divisions:**

1. Basic concepts of Marketing & its Evolution
2. Marketing Environment, Segmentation & Buyer Behaviour
3. Product and Pricing
4. Placing and Promoting
5. Export Business Negotiations

#### **Unit I Basic concepts of Marketing & its evolution:**

Basics of Marketing – Need, Wants, demands, Product Exchange of satisfaction – Market, Marketing Management - Marketing philosophies and challenges ahead – Need for Export Marketing.

#### **Unit II Marketing Environment, Segmentation & Buyer Behaviour:**

Marketing firm's Micro Environment, Macro Environment– Market segmentation – Bases of segmentation - Criteria for effective segment selection strategies – consumer behaviour – buying roles – Buyer Decision Process – Segmentation of USA, UK & other European Market.

#### **Unit III Product and Pricing**

Components of Marketing Mix – Selection of Product for Exports – Basis – Product strategy: product Brand, package, services – New product – Product life cycle analysis – product line and levels – pricing consideration – product mix, adjustment pricing – price changes.

#### **Unit IV Placing and Promoting**

Nature, importance and behaviour of Distribution channels – Retailing and Whole sale marketing. Advertising: -copy, media –Budget. - Sales promotion, Public relations and Personal selling. Export Business Negotiations – Stages – Buying Agent, Foreign Agent, Fixing Commission, Selection & Appointment of Agent, Samples for Exports, Export Contract, Processing of export order.

## **Unit V      Export Business Negotiations**

Market research – identification of product for exports – Buyer, Seller Meet – Trade Delegation – Seminar & Workshops, Journal – Fair & Exhibition, Trend information of Market Intelligence – Director General of Commercial intelligence and Statistics –its Publications, Exports import Policy – Organization helpful for Export, Marketing – Objectives of the following : Ministry of Commerce, Ministry of Industries – Export promotion councils.

### **Reference Books:**

1. Elian stone, Jean A samples, “Fashion Merchandising”, McGraw Hill Book Company, New York, 1985.
2. Shivaramu.S, Export Marketing, A Practical Guide to Exporters, Wheeler Publishing, 1996.
3. Ruth E. Glock, Grace I. Kunz “Apparel Manufacturing Sewn Product Analysis” Fourth Edition, Pearson Education.
4. Marketing Management, Philip Kotler & Armstrong, Pearson Prentice Hall, 2015.

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## **CORE COURSE V**

### **TEXTILE CHEMISTRY**

#### **Objectives:**

1. To gain knowledge on fabric preparation dyeing and printing
2. To understand the quality problems and policy related to textile industry pollution

#### **Major Divisions:**

1. Preparation and Bleaching
2. Dyeing
3. Printing
4. Finishing
5. Quality control and pollution control

#### **Unit I Preparation and Bleaching:**

Impurities present in grey cotton and cotton fabrics. Objects of singeing – process of singeing. Objects of Desizing – Acid and Enzyme desizing Object of Scouring - Process of caustic scouring on Kier machine. Object of Bleaching- chlorine and peroxide bleaches, Concept of full bleach and use of Blueing agents and optical brightening agents. Drying on vertical drying range.

#### **Unit II Dyeing:**

Classification of dyes -- Dyeing of cotton with Reactive dyes, vat dyes and Sulphur dyes – Recipe and procedure– Dyeing of polyester with Disperse dyes – Recipe and procedure Dyeing of Wool, Nylon, Silk with Acid and Basic dyes, dyes, Dyeing of acrylic with basic dyes – Recipe and procedure .

#### **Unit III Printing**

Comparison between dyeing and printing – styles and methods of printing, Ingredients in printing paste. Batik style on cotton with reactive dyes. Screen and Rotary screen design preparation –Table screen printing , Flat bed screen printing machine, Rotary screen printing machine Study of curing machine and Steamer

#### **Unit IV Finishing**

Finishing of cotton fabrics with Stiffeners ( Starch, PVA, Polyvinyl Acetate) and softeners ( Anionic Cationic and Non-ionic) Anti-crease finish, Sanforizing ( Pre-shrinking) – Use of Silicones in finishing . Mercerisation – Mercerising of fabrics using any one type of fabric mercerizing machine – Damping and Calendaring – Finishing using Hot air stenters.

## **Unit V      Quality control and Pollution Control.**

Importance and Need of Quality control – Determination of wash fastness ISO test 3 and 4-Wet and Dry Rubbing fastness- Light fastness. Principle and relative merits and demerits and computer color matching.

Importance and need of environment protection – Air, water and Noise pollution – Constituents of air, water and noise pollutants with respect of textile industry – A brief study of effluent treatment with a suitable plant layout (process flow chart only) –Importance of eco-friendly processing – List of banned dyes and chemicals, Eco labels.

### **Reference Books:**

1. C.W. Pellow, Dyes and Dyeing, Abhishek publication, 2000.
2. Carbman B.P, Fiber to Fabric, International Students Edition MC Graw Hill Book Co., Singapore, 2000.
3. Clarke, W, An Introduction to Textile Printing, Wood Head Publishing Limited, 2004
4. J.L.Smith, Textile Processing, Abhisekh Publications, Chandigarh, 2000.
5. Shenai. V.A Technology of Textile Processing, Sevak Publication, 1987.

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## CORE COURSE VI

### TEXTILE CHEMISTRY (P)

#### List of Experiments:

1. Testing of fabric shrinkage.
2. Desizing of fabric using enzyme.
3. Scouring of yarn./fabric
4. Bleaching of yarn/fabric
5. Dyeing of cotton with Direct dyes.
6. Dyeing of cotton with sulphur dyes.
7. Dyeing of cotton with vat dyes
8. Dyeing of cotton with cold brand reactive dyes.
9. Dyeing of cotton with hot brand reactive dye.
10. Dyeing of polyester with Disperse dye.
11. Dyeing of wool and silk with acid dye.
12. Printing of cotton fabric with reactives (Direct style)
13. Finishing of cotton fabrics with stiffeners.
14. Finishing of cotton fabrics with softners.

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## **CORE PRACTICAL V**

### **FABRIC MANUFACTURE II**

#### **Objectives:**

1. To gain knowledge about various weaving techniques
2. To understand the concepts of looms and their functioning

#### **Major Divisions:**

1. Dobby Mechanism
2. Jacquard Mechanism
3. Multiple Box and Terry Motions
4. Automatic Loom
5. Cloth Structure

#### **Unit I Dobby Mechanism**

Objects – scope –classification – Brief study of Single lift dobbie and its characteristics - Double lift dobbie and its characteristics. Cross border Dobby –working –Cam dobbie –working –Study of card punching machine. Study of Electronic dobbie.

#### **Unit II Jacquard Mechanism**

Objects – principle –characteristics –types of Jacquard. Figuring capacity of Jacquard –single lift single cylinder jacquard –working.– uses. Study of Double lift double cylinder jacquard.–Piano card cutting Machine – card cutting and lacing. Uses of Cross border jacquard uses. Brief study of electronic jacquards.

#### **Unit III Multiple Box and Terry Motions**

Multiple box motions – objects - classification. Eccle's Drop box motion. Lifting plan of Eccle's Drop box motion – card saving devices. Weft-mixing motion. Brief study of pick – at will motion. Defects of drop boxes and remedies. Terry motion – object –principles of terry motions. Study of any one loose reed terry motion

#### **Unit IV Automatic loom**

Introduction - characteristic features of Automatic loom – Advantages of Automatic looms over non – automatic looms – Weft feelers – Types. Study of Cop changing mechanism. Positive warp let-off motion – objects – Types –uses- Roper let-off motion Warp stop motion –object – Types –principles of working. Study of Cop changing and shuttle changing looms.

## **Unit V      Cloth structure**

Design, draft and peg plan for the following weaves, Quality particulars and loom required and end uses, Bedford cords and piques – Extra warp and weft figuring – Terry pile structures – Velvet, Corduroys. Double and Treble cloth – Gauge and Leno structures – Development of motif on point paper for jacquard.

### **Reference Books:**

1. Marks R. and Robinson T.C., “Principles of Weaving”, The Textile Institute, Manchester, 1989.
2. Sabit Adanur, “Handbook of Weaving”, Technomic Publishing Co. Inc., 2001
3. Talukdar M.K., Sriramulu P.K. and Ajgaonkar D.B., “Weaving: Machines, Mechanisms Management”, Mahajan Publishers, Ahmedabad, 1998.
4. “Weaving: The knowledge in Technology”, Papers Presented at the Textile Institute Weaving Conference, Textile Institute, 1998.
5. Lord P.R. and Mohamed M.H., “Weaving: Conversion of Yarn to Fabric”, Merrow, 1992.
6. Vangheluwe L., “Air- Jet Weft Insertion”, Textile progress, Vol. 29, No. 4, Textile Institute Publication, 1999.

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## **CORE COURSE V**

### **FABRIC MANUFACTURE (P)**

#### **Objectives:**

1. To understand the basic machines in weaving
2. To enable students to have an exposure to the functioning of looms.

#### **List of Experiments**

1. Sketching the gearing plan of a High speed cone winder and calculation of the drum shaft and cam shaft speed and production / Spl/hr
2. Passage of material through a cone winder Study of the Broken thread stop motion and the Anti Ribboning device.
3. Gearing plan of the pirn winder and estimating a number of traverse per minute.
4. Passage of material through a pirn winding machine and calculation of the spindle speed and production.
5. Working of the bunch bulding mechanism and automatic devices in the automatic pirn winder.
6. Study of tensioning device in the pirn winder.
7. Passage of material through a sectional warping machine and study of creel, drum and split reed.
8. Drawing the gearing plan in the sectional warping machine and calculation of no of sections, revolutions of each section, drum speed, beaming speed and production.
9. Study of various parts of the power loom and drawing the sketches
10. Calculation of speeds and production of power loom
11. Study of various parts of automatic looms and drawing the sketches.

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## **MAJOR BASED ELECTIVE I**

### **TEXTILE TESTING**

#### **Objectives:**

1. To gain skills in testing of fibre, yarn and fabric
2. To understand the statistical quality control in textile

#### **Major Divisions:**

1. Moisture Relation
2. Testing of Fibers
3. Testing of Yarns
4. Testing of Fabric
5. Statistical Quality Control

#### **Unit I      Moisture Relation and Identification of Fibers**

Humidity and its importance in textiles, Measurement of humidity by wet and dry bulb hygrometer and sling hygrometer. Moisture and its relations to textile materials. Idea on the terms Moisture content, Moisture regain and Standard regain. Values of standard regain for common Textile fibers. Factors affecting fibers regain. Effects of regain on fibre properties. Estimation of moisture content and regain by Conditioning oven

#### **Unit II      Testing of Fibres**

Length – Importance of fibre length. Methods of measuring fibre length by Hand- stapling method, Baer sorter and Digital Fibrograph.

Fibre Fineness – Importance of fibre fineness. Methods of fineness measurement importance of Maturity. Relationship between Maturity and Fineness.

Fibre Strength – Importance of fibre strength. Measurement of strength by Stelometer.

Brief idea about Uster HVI – spectrum. Stress Strain curves for different fibres. Method of Nep counting on Card web.

Analysis of Trash content in raw cotton by Shirley Analyzer. Fibre Quality Index.

#### **Unit III      Testing of Yarns**

Yarn count determination by knowle's Balance, Quadrant Balance. Importance to Twist. Estimation of twist by Twist contraction method and Doubled yarn twist by Take-up twist tester. Relationship between yarn count and twist.

Importance of yarn strength. Principles of constant Rate of Loading (CRL) and constant Rate of Extension (CRE).

Yarn Evenness – Random and periodic variations in yarn. Short term, Medium term and Long term variations.

#### **Unit IV      Testing of Fabric**

Brief study on – Thickness, Determination of fabric weight per unit area, Count determination by Beesley's Balance. Cover factor and its importance.

Study on – Stiffness, Drape meter, Crease resistance and abrasion resistance. Importance to Tensile, Tearing and Bursting Strengths of fabric.

Brief study – Definitions of Fabric Air – Permeability and Fabric Air Resistance.

#### **Unit V      Statistical Quality Control**

Classification and Tabulation of data. Types and construction of Frequency Diagram and its application. Measures of Dispersion – Mean Deviation, Standard Deviation, Co-efficient of Variation. Normal Distribution Frequency Curve and its importance in Textiles.

Calculation in Tests of Significance – T- Test for Mean, Quality control Charts – Concept of quality and Meaning of Control. Construction of Control charts for Averages and Ranges. Interpretation of control Charts. Application of X – Bar Chart to suit textile processes.

#### **Reference Books:**

1. Booth J.E., "Principle of Textile Testing", Butterworth Publications, London, 1989.
2. Saville B.P., "Physical Testing of Textiles", Textile Institute, Manchester, 1998.
3. Kothari V. K., "Testing and Quality Management", Progress in Textile Technology Vol.1, IAFL Publications, New Delhi, 1999.
4. Ruth Clock and Grace Kunz., "Apparel Manufacture – Sewn Product Analysis", Upper Sadle River Publications, 2000.
5. Sara J. Kadolph., "Quality Assurance for Textiles and Apparels", Fair child Publications, 1998.
6. Methods of Test for Textiles –B.S Hand book No. 11, 1963 or B.S hand Book No.12, 1974 – British Standards Institution, London, England.
7. Statistical Methods, Gupta & Kapoor : S Chand & Co., 2014.

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## **CORE COURSE VII**

### **KNITTING**

#### **Objectives:**

1. To gain knowledge about basic knitting
2. To understand the types of knitting and recent trends.

#### **Major Divisions:**

1. Basics of Knitting
2. Knit Structures
3. Weft Knitting
4. Warp Knitting
5. Modern Knitting Techniques

#### **Unit I      Basics of Knitting**

Knitting – definition – classification – comparison between knitting and weaving – comparison between knitted and woven fabrics.

Important terms in knitting – course – Wales – gauze-face loop – back loop – loop length – texture.

Loop forming elements – needles latch, beard and compound needles – sinker – jack cam

#### **Unit II      Knit Structures**

Structure of knitted fabrics – Plain – Detailed study of Single jersey, Double jersey structures.

Rib structure – various ribs and rib derivatives. Interlock structure and its features.

Purl structure and its features. Application of various structured knit fabrics.

#### **Unit III      Weft Knitting**

Different types of weft knitting machines – plain , rib and inter lock. Passage of material through single jersey – weft knitting machine – knitting action of the same machine – passage of the material through double jersey weft knitting machine – knitting action of the same machine.

Weft knitted structures and their fabric characteristics – uses study of knit, miss tuck stitches.

Flat knitting – definition – passage of material through flat knitting machine.

#### **Unit IV      Warp knitting**

Importance features – different types – warp knitting elements – knitting action of raschel warp knitting machine – comparison between raschel and tricot machine – comparison between warp and weft knitting.

Calculation pertaining to speed, production of the knitting machines. Knit fabric defects, causes and remedies.

#### **Unit V      Modern knitting Techniques**

Modern developments in knitting – Figured patterns in knitted structures – Computerised Knitting machines. Salient features of computerized knitting machines. Merits and Limitations. Seamless knitted garments.

#### **Reference Books:**

1. Spencer, D.J, Knitting Technology, Wood Head Publication Pvt. Ltd., England, 2001.
2. Kanwar Varinder Pal Singh, Introduction to Textiles, Kalyani Publishers, 2004.
3. Corbman B.P, Fibre to fabric, International Students Edition Mc Graw Hill Book Co., Singapore, 2000.
4. Sharad Mathur and Venkatraj, R, Knitting Technology, NCUTE, Delhi, 2000.
5. Sukumar, K. Knitting and Apparel Technology, S.S.M.I.T.T. Staff & Students Co-operative stores Ltd, Komarapalayam, 2004.

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## **CORE COURSE VII**

### **GARMENT MANUFACTURE**

#### **Objectives:**

1. To enable students to know about body measurement and its role in garment manufacturing
2. To gain knowledge on pattern making and construction.

#### **Major Divisions:**

1. Measurements
2. Pattern Making
3. Pattern Layout and Cutting
4. Garment Making
5. Computerised Garment Manufacture

#### **Unit I      Measurements**

Body Measurements – Importance, Preparation for measurements (girth, arc, Vertical width and length) measurement needed for men’s women’s boy’s, girl’s and infants dresses; Standardizing body measurements. Importance and Techniques; A practical exercise in Standardizing for any one garment / age group. Eight heads theory. Relative girth measures in gentlemen and relative girth measures in ladies. Relative length measures in gentlemen

#### **Unit II      Pattern Making**

Ladies garments. Importance of paper patterns – types of paper patterns – principles for pattern drafting – pattern grading – drafting pattern for gent’s shirt, ladies skirt, finding of arm hole and body rise measurements. Human figure analysis – proportion – disproportion and deformity of human figuration – glossary of apparel terms –body rise, armhole depth. notches, pleats, darts, gatherings, tuck etc.

#### **Unit III      Pattern Layout and Cutting**

Different types of woven fabric –napped, pile, plain, striped, checked, printed, one way design and two way design – different types of lays – pattern layout – rules striped, checked and one way designs – economy of fabrics in placing patterns – rules for placement of pattern if the fabric is not sufficient. Importance lay length in garment industries.

Brief study of cutting process and cutting machine uses in industries – straight knife, band knife, round knife cutting machine drills, notchers and die cutters.



## **Unit IV      Garment Making**

Tools required for clothing construction- parts of sewing machine and its importance, selection of threads and needles, types of stitches and seams, types of collars, pockets and plackets, study of fasteners like buttons, zippers, hooks, elastics, seaming defects and rectification – study of pressing, finishing packing system, interlining, lining, garment defects, measurements and their sequence required for body leg garments – quality control in garment industry. Construction details of men’ s shirt – full sleeve with cuff, stand –up collar, double pocket with flap . Construction details of ladies skirt with elastic waist band..

## **Unit V      Computerised Garment Manufacture**

Computer application in pattern making and grading – duplication – marker efficiency. Computer application in sewing technology – Computer Aided Garment Designing – Merits and Limitations, Study of Garment CAD software packages.

### **Reference Books:**

1. Hollen Norma : Flat Patten Methods, Burgers Publishing Minnnerote, 1970.
2. A Mershal carendish collection in 26 Parts “Make it easy” Patterns 1-34, Mix and Match Pattern wardrobe and sewing Guide, 1993.
3. Ladbush, Anna,A. Complete Guide to practical sewing orsbis Publishing Ltd., Kondon, 1985.
4. Hillery Campbell “Designing patterns” Standley Thornes Publishers, England, 1980.
5. Hedge, K.M Scientific Garment cutting, K. Mhedge and Sons, Poona, 1983.
6. Aldrich, D. Metric Pattern Cutting for Children;s wear from 2-14 years:BSP Professional Book, London, 1989.
7. Carr H., and Latham B., “The Technology of Clothing Manufacture”, Blackwell Science Ltd.,Oxford, 1994.
8. Gerry Cooklin, “Introduction to Clothing Manufacture” Blackwell Science Ltd., 1995.
9. Harrison.P.W Garment Dyeing, The Textile Institute Publication, Textile Progress, Vol .19, No.2, 1988.

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## **CORE PRACTICAL VI**

### **KNITTING AND GARMENT MANUFACTURE (P)**

#### **Objectives:**

- To gain skill in basic knitting and its manufacturing techniques
  - To understand the concepts of pattern making and construction of garments.
1. Study of single jersey plain knitting machine – Passage of material, Driving arrangements and knitting action of the needles.
  2. Study of Rib Knitting machine – Passage of material, driving arrangements and knitting action of the needles.
  3. Study of interlock Knitting machine – Passage of material, Driving arrangement and knitting action of the needles.
  4. Study of weft flat knitting machine – Passage of material, Knitting action of the needles.
  5. Study of warp knitting machine – Passage of material, Knitting action of the needles.
  6. With the help of given measurements prepare the required patterns for gents shirt
  7. With the help of given measurements prepare the required patterns for ladies skirt.
  8. Using given paper patterns construct, finish and press gents shirt.
  9. Using given paper patterns construct, finish and press ladies skirt.
  10. Using the given measurement chart prepare the required paper pattern for gents shirt and grade it to their next higher/ lower sizes.

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## **MAJOR BASE ELECTIVE II**

### **MODERN TEXTILE MANUFACTURE**

#### **Objectives:**

1. To learn the modern techniques of yarn formation
2. To understand modern weaving and non woven techniques.

#### **Major Divisions :**

1. Texturisation and Spinning of Staple fibres & Blends.
2. Modern trends in yarn formation
3. Shuttle less weaving
4. Non wovens and knitting
5. Project Planning and Process control in Textile Industry

#### **Unit I Texturisation and Spinning of Staple fibres & Blends:**

Texturing basic definition and classification of false – twist Texturing – texturability of various fibres – basics of Air jet texturing – types of yarn produced - feed material, structure and properties of Air jet textured yarns. Stuffer box and Edge crimping methods – principles, limitations and applications, Knit- de –knit and Gear crimping methods.

Methods of processing of manmade staple fibres (Viscose and polyester) in cotton system. Settings, speeds and other important changes to be made from blow room to ring frame control or static charges while processing man made fibres and Blend.

#### **Unit II Modern Trends in yarn formation :**

Rotor Spinning: Introduction – Classification – O.E Spinning – Basic principles constructional details and working of the Rotor spinning Machine – Study of all the parts of Rotor Spinning. Structure of rotor yarn – yarn faults and Remedial measures – end uses. Friction Spinning : False twist Spinning– Operating principle- Dref – 2 spinning process – features. Study of Murata – Jet Spinner and Dref – 3 spinning process. Brief study of other spinning system like twist spinning, self twist and warp spinning etc., Comparison of yarn quality of Rotor, Dref and Air jet yarns – adoption of New spinning system in India.

#### **Unit III Shuttleless Weaving :**

Preparation of warp for shuttleless weaving – Advantages and disadvantages of Shuttleless weaving machine – classification. Study of Projectile weaving machine. Rapier looms – principles – Types. Jet looms – types –principles. – Study of Water jet looms – Study of Air jet looms.

#### **Unit IV      Non-Woven fabrics :**

Non – Woven – definitions – comparison with woven fabrics –classification – methods of manufacture – types of fibre web – Production of fibre web in pneumatic web former. Production of Non – woven fabric – mechanical, chemical and spun boding methods.

#### **Unit V      Project planning**

Balancing of machineries of processing fine, medium and coarse count from blow room to spinning machinery. Balancing of machinery for 12,000 –25,000 and 36,000 spindles capacity. Norms and interpretation of test results. Measurement and analysis of productivity. Norms and interpretation of test result. Measurement and analysis of productivity.

#### **Reference Book:**

1. Morton W. E. and Hearle J. W. S., “Physical Properties of Textile Fibres”, The Textile Institute, Washington D.C., 2008.
2. Wilson J., “Handbook of Textile Design”, Textile Institute, Manchester, 2001.
3. Horne C.E., “Geometric Symmetry in Patterns and Tilings”, Textile Institute, Manchester, 2000.
4. Seyam A. M., “Structural Design of Woven Fabrics, Theory and Practice”, Textile Institute, Manchester, 2002.
5. Open –end Spinning by Nield.
6. Norms for Spinning SITRA publications.
7. Norms for Spinning and Textile Wet Processing – ATIRA Publication.

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## **MAJOR BASE ELECTIVE III**

### **FABRIC ANALYSIS**

#### **Objectives:**

- To acquire skills in calculation of fabric requirements for different garments
  - To understand the methods of planning and preparation for weaving.
1. Analyse the constructional parameters of the given fabric samples:
    - a. Fabrics used for body garments
    - b. Fabrics used for leg garments and
    - c. Fabrics used for children wear
  2. Draw the design, draft and peg plan of the given fabric samples:
    - a. Plain and its derivatives
    - b. Twill and its derivatives
    - c. Honey comb
    - d. Huck - a-back
    - e. Mock leno
    - f. Satin
    - g. Sateen
  3. Draw the warp pattern and weft pattern of the given fabric samples
    - a. Striped patterns
    - b. Checked patterns
  4. Analyse the given printed fabric and write the fabric specifications
  5. Analyse the given Jacquard fabric and write the fabric specifications

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