BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI – 620 024.
B.Sc. Textile Science – Course Structure under CBCS
(For the candidates admitted from the academic year 2010-2011 onwards)

Semester	Part	Course	Title	Instr. Hours/ Week	Credit	Exam. Hours	Marks		Total
							Int.	Extn	
I	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)	Fibre Science	5	5	3	25	75	100
		Course – II (CC)	Fibre Science Practical	5	4	3	40	60	100
		First Allied Course – I (AC)	Textile Arts and Crafts	5	3	3	25	75	100
		First Allied Course – II (AC)	Traditional Indian Textile and Costumes	3	-	*** *	-	-	-
				30	18				500
II	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 – III (CC)	Yarn Manufacture – I	6	5	3	25	75	100
		First Allied Course – II (AC)	Traditional Indian Textile and Costumes	2	3	3	25	75	100
		First Allied Course – III (AC)	Introduction to Fashion Designing	5	4	3	25	75	100
	IV	Environmental Studies		3	2	3	25	75	100
		Value Education		2	2	3	25	75	100
				30	22				700
III	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 – IV (CC)	Yarn Manufacture – II	6	5	3	25	75	100
		Second Allied Course – I	Basic Engineering for Textile	6	3	3	25	75	100
		Second Allied Course – II	Computer Aided Fashion Designing	4		***	-	-	-
	IV	Non Major Elective – I for those studied Tamil under Part I a) Basic Tamil for other Language students b) Special Tamil for those who studied Tamil up to +2 but opt for other languages in degree programme	Management and Entrepreneurship	2	2	3	25	75	100
				30	16				500
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 – V (CC)	Yarn Manufacture Practical	4	4	3	40	60	100
		Core Course – VI (CC)	Fabric Manufacture I	4	4	3	25	75	100

		Second Allied Course – II	Computer Aided Fashion Designing	2	3	3	25	75	100
		Second Allied Course – III	Textile Testing	4	4	3	25	75	100
	IV	Non Major Elective – II for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil up to +2 but opt for other languages in degree programme	Marketing and Merchandising	2	2	3	25	75	100
		Skill based Elective – I		2	4	3	25	75	100
				30	27				800
V	III	Core Course – VII (CC)	Textile Chemistry	6	5	3	25	75	100
		Core Course – VIII (CC)	Fabric Manufacture II	5	5	3	25	75	100
		Core Course – IX (CC)	Fabric Manufacture Practical	5	5	3	40	60	100
		Core Course – X (CC)	Textile Chemistry Practical	5	5	3	40	60	100
		Major based Elective – I	Process Control in Spinning and Weaving	5	5	3	25	75	100
	IV	Skill based Elective – II		2	4	3	25	75	100
		Skill based Elective – III		2	4	3	25	75	100
				30	33				700
VI	III	Core Course – XI (CC)	Knitting	6	5	3	25	75	100
		Core Course – XII (CC)	Garment Manufacture	6	4	3	25	75	100
		Core Course – XIII (CC)	Knitting and Garment Manufacture Practical	6	4	3	40	60	100
		Major based Elective II	Modern Textile Manufacture	6	5	3	25	75	100
		Major based Elective III	Fabric Analysis	5	4	3	25	75	100
	V	Extension activities		-	1	-	-	-	-
		Gender Studies		1	1	3	25	75	100
				30	24				600
			Total	180	140				3800

Note:

	Internal Marks	**External Marks**
1. Theory	25	75
2. Practical	40	60

3. Separate passing minimum is prescribed for Internal and External marks

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 those who studied Tamil upto +2 (Regular Stream)

** Syllabus for other Languages should be on par with Tamil at Degree level

those who studied Tamil upto 10^{th} or +2, but opt for other languages in degree level under Part I should study special Tamil in Part IV

*** Examination at the end of the next semester.

Extension activities shall be out side the instruction hours.

கற்பிக்கும் கால அளவு

மோழிப் பாடங்கள் - 1 மதிப்பீடு = 2 மணிநேரம் கற்பித்தல் வகுப்பு
கலை மற்றும் அறிவியல் பாடங்கள் :1 மதிப்பீடு = 1 மணிநேரம் கற்பித்தல் வகுப்பு
[Lecture]

= 2 மணிநேரம் பயிற்சி வகுப்பு
[Tutorial]

= 2-3 மணிநேரம் செய்முறை வகுப்பு
[Practical]

****

Semester – I (CC-I) - Fibre Science

Major Division

1. Vegetable fibres
2. Animal Fibres
3. Regenerated fibres
4. Synthetic fibres
5. Special Synthetic fibres & Texturisation

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 woolen 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 end uses carbon fibre.
Texturisation – Importance of Texturisation on synthetic fibres – Properties of textures yarn.

Identification of fibres: Cross sectional and Longitudinal views of Cotton, Wool, Silk, Viscose Rayon, Nylon, Polyester and Acrylic fibres.

Reference Books:

1. Fibre Science and Technology by S.P.Mishra
2. Textile fibres by V.A Shenai, 2nd Revised edition, 1997 Vol. I in the series,
3. Technology of Textile Processing Seavk publications, Bombay. Manmade fibres by P.W.Moncrieff, 6th edition 1975 Newnes- Butterworths London
4.Textile Science by E.P.C Gohle and L.D Vilensty, 1st Indian edition 1987,CBS Publishers and Distributors Delhi, India.

****

I Semester (CC-II) - Fibre Science practical

1) Identification of Textile Fibres

- Cotton
- Silk
- Wool
- Nylon
- Polyester
- Linen
- Rayon
- Jute

Methods of Identification

- Microscopic Method
- Flame Test
- Chemical Test

2) Determination of moisture content and moisture regain for various textile fibres
3) Determination of Fibre Strength
4) Determination of Trash content in cotton Fibre
5) Determination of Fibre length using Baer sorter

****

I Semester – First Allied Course (FAC-I)

Textile Arts and Crafts

Unit- I

Introduction to Textile: Textile – Definition – Textile – Fibers- Classification of Fibres – Properties of Fibres.

Unit- II

Basic Design: Design - Definition – Elements of Design – Principles of Design – Colours

Unit- III

Stylized Sketches: Stylized sketches – Rendering of Textures –Use of Mediums in Garmented – Experiment with Pencils.

Unit- IV

Was Crayons – Water colours – Poster Colours – Facial Features – Symbol and Logotype.

Unit- V

Different types of Fabrics, Fabric Painting – Types of brushes – Types of needles.

Reference Book:

1. Susheela Dantyagi, Fundamentals of Textiles and Their Care''. orient Longman 1998.
2. Stella Soundarajan '' Text Book of Household Arts''.
3. Ray Faulkner, Susan katz, Inside Today Home'' 1986.
4. Rayon Faulkner & Edwing ziegfeld, Art Today 1960.
5. Lovis Helda, ''Guide to Arts and Crafts'' J.G.Ferguson and Associate change - 1954

****

I Semester – First Allied Course (FAC-II)

Traditional Indian Textiles and Costumes

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 Textiles of India and ‘ traditional dyed textiles of India: Dacca Muslin – Jamdani – Chanderi – Brocades – Balucher and Kashmir Shawls – Bandhani – Patola – Ikkat – Techniues o Dyeing Adopted.

Unit – III

Traditional printed Textiles of India – Embroideries of India :
Traditional Printed Textiles of India, Kalamakari and Fabric Painted Materials block Printed Fabrics of India – Phylkari, Chikankari, Kantha, Kutch, Kathiawar and sind embroidery, Kasuti- Kashmir (Kashida) – Chamba – Roomal.

Unit- V

South Indian Costumes – North Costumes.
Costumes of Typical South India
Costumes of Typical North India

Unit – V

Costumes of different states of East and West in India

Reference Book:

1. Jamica Brij Bhushan, Indian Embroidery, Publication dn- Ministry of Information and Broadcasting , Govt of India
2. Master piece of Indian Textiles D.B.Taraporevala Sons and Co.Pvt Ltd. Bombay – 1970
3. Textiles and Ornametns of India Museum of Modern Art New York – 1956.
4. Durga Deulkar House hold textiles and Laundry work Atma Ram and Sons – 1988.
5. Dorris Flyn – Costumes of India Oxford IBH Publishing Company Calcutta, Bombay , New Delhi – 1971.
6. Kay Ambrose, Classical Dances and Costumes of India’’ Adam and Charles Black.
7. 100 embroidery , Madura Coats.
8. ANCC. Madura Coats.

****

II Semester (CC –III) - Yarn Manufacture – I

Major Division

1. Blow room
2. Carding
3. Drawing
4. Combing
5. Speed frame

Unit - I

Blow room

Ginning – Objects and Types of gins
Blending – Objects
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 chute feed system.

Unit - II

Carding

Objects and principles of carding. Passage of material through card - 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 frames 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.

Reference Books:

1. Opening and cleaning – W.A.Hunter
2. Cotton spinning – W.S. Taggert
3. Cotton Opening & Picking – G.R.Merrill
4. Manual of cotton spinning textile institute volume 1,11,111- Butters Wroth
5. Spun yarn technology – volume 1 & 11 A.V. Mani
6. Klein Series.
7. Textile fibres by V.A Shenai, 2nd Revised edition, 1997 Vol. I in the series, Technology of Textile Processing Seavk publications , Bombay.
8. Manmade fibres by P.W.Moncrieff, 6th edition 1975 Newnes- Butterworths London
9. Textile Science by E.P.C Gohle and L.D Vilensty, 1st Indian edition 1987,CBS Publishers and Distributors Delhi, India.
10. Fibre Science and Technology by S.P.Mishra

****

II Semester – First Allied Course (FAC-II)
Traditional Indian Textiles and Costumes
(Basic and Embroidery Stitches)

Unit – I

Collection of traditional woven motifs

Unit – II

Visit to Printing Units

Unit – III

Study on the Traditional Embroideries of India

Unit – IV

Display of Indian Costumes

Unit – V

Use of Traditional motifs in Latest Fashion

Reference Books:

1. Sumathi. G.J., " Fashion Designing" New Age International.Pvt.Ltd., Chennai.
2. Susheela Dantyagi, "Fundamentals of textiles and Their Care", Orient Longman, New Delhi, 1998.

****

II Semester – First Allied Course (FAC-III)

Introduction to Fashion Designing

Unit- I

Fashion – Style – Fad Definition – Sources of Fashion – Terms related to Fashion Industry – Boutique collection. Classic Chic Fashion Shows, Fashion Trends and High Fashion- Style Fashion and Example, Fad – Definition and Example.

Manufacturing Processes of Major Textile fibre – Cotton – Silk – Wool – Linen – blends – nylon – polyester – viscose materials used for apparel – Properties and end use textile falerics.

Unit - II

Yarn Classification – Simple and Novelty yarn – Types of spinning
Finishes: Preparatory Processes, Basic & Special Finishes

Unit – III

Design and Principles of Design
Definition Types of Design – Structural and Decorative Design Characteristics of a good design Elements of Design Principles of Design – Definition – Harmony – Proportion – Balance – Rhythm – Emphasis – Meaning types and its application.

Unit – IV

Colour and Colour Harmonies – Development of Design or Motif.
Colour – Definition, Qualities of Colour – Value chart – Standard colour harmonies – Factors influencing Colour Choice developing designs for spot all over – Border .
Importance of Background in Design – Placement of Design – Organization repeat system and their limitations.

Unit – V

Family clothing and care of clothing
Clothing budget, factors affecting clothing needs of the family, selection of clothing for Family – Different Age Groups. Wardrobe planning for Family members – Maintaining different types of Fabrics – Cotton – Silk – Synthetic Washing drying – pressing and Storing

Care of Clothing – Water – Soap – Bleaching – Stiffening Agents – Blues – Stain removal – Washing – Pressing dry cleaning .

Reference Book:

1. Sumathi. G.J.Fashion Designing New Age International Pvt. Ltd ., Chennai.
2. Susheela Dantyagi, Fundamentals of textiles and their care, orient Longman, New Delhi, 1998.

3. Joseph M.L. Essential to textiles – Halt publishers New York – 1980
4. Mary L.Cowan & Martha E.Jimgaman, Introduction to textiles , D.B.Taraparawala sume India, 1980.
5. Seigertlyle D., Modern textiles, John Wiley & Sons Inc., New York – 1976.
6. Potter & Corbman Fibre to Fabric , Craig publishing Co., New York – 1990
7. Foster Betty , Introduction Fashion Hainnerman Professional Publishing Ltd., Helley court Oxfort – 1988.
8. Harriet TMC. Jimsey, Art and Fashion in Clothing Selection Iowa State University Press 1973.
9. Elizabeth Rouse, Understanding Fashion BSP Professional Books' A Division of Blackwell Scientific Publication Ltd., London –1989.

****

III Semester (CC –IV) - Yarn Manufacture – II

Major Divisions:

1. Ring frame
2. Modern ring frame
3. Doubling, Reeling, bundling and baling
4. Open end spinning
5. Texturisation

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 such 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.

Objects and methods of doubling. Passage of material through dry & 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 – objects and types of reeling. Object of bundling and baling. Gassing – Objects 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 O E 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. Manual of Cotton spinning volume IV & V – Textile Institute Manchester. LONDON.
2. Cotton spinning – Taggart
3. Cotton ring spinning – G.R. Merril
4. Cotton waste industry –H.V. Srinivasamoorthy
5. Roller spinning – Eric Dyson
6. Textile Institute, Manchester - Klein Series.

****

III Semester – Second Allied Course-I (SAC-I)

Basic Engineering for Textiles

UNIT – I

Elements of Mechanical Engineering – I

Fuels: Definition – types of fuel –merits and demerits of liquid and gaseous fuel.
Boilers: Definition – Types of fire tube and water tube boilers
Suction: Principles of suction, wet and dry vacuum cleaner.
Pumps: study of working of reciprocating pump and centrifugal pump comparison between hem.
Air Compressors**:** Definition – study of working of reciprocating Air Compressor. Uses of compressed air in textile industry.
Refrigeration: Definition –study of refrigerator – study of air conditioner – Principles of humidification.
Bearings**:** Need for bearings – Type – Bush, Ball and Roller, needle bearings for different working conditions.

UNIT - II

Elements of Mechanical Engineering – II

Lubrication – Purpose of lubrication – types of lubricants
Clutch – functions of clutch
Brakes – function – principle and working of Hydraulic and pneumatic brake – difference between a clutch and a brake.
Transmission of Motion and power – Belt, drive – Flat belt , V- belt, advantages of each belt system
Chain drive Types – advantages
Gear drive: Applications of spur, bevel, helical gears.
Worm and worm wheel – and epicyclical gear — PIV variable speed drive.
Cams: Definition – types of cams – types of followers and their functions.

UNIT - III

Elements of Electrical Engineering.

Electro Magnetism and its application in Textile industry – Induction – Lenz's law Fleming's right hand & left hand rule.
D. C. generator – working principle – type of D.C generators – Principles and brief study of D.C. Motor – 3 Point and 4 point generator.
Altering Current – Definitions – frequency, time period, Amplitude cycle RMS value, Power factor, Peak factor – idea inductance and capacitance in A.C. Circuit.

Comparison of single phase with three phase AC star system
Types of AC Motor – Principle of working of synchronous motor – Principles of Induction Motor – Starters of Induction motor.

UNIT - IV

Elements of Electrical And Civil Engineering :

Transformer – working principles - types .
Brief study of electrical measuring instruments – Voltmeter, Ammeter ,watt water – Energy meter.
Brief Study on the Preparation of foundation for Textile machine – super structure – fibre prevention doors and windows for textile industry, roofing and its advantages, false roofing
Requirement for textile buildings to control floods and fire.

UNIT - IV

Elements of Electronic Engineering:

Introduction : Atomic structure – Electron flow – Evolution of the Electron tubes.
Electron emission - different methods – Photo eclectic effect working principle of photo electric cell and its uses.
Conductor – Isolator – semi conductor – extrinsic and intrinsic semi conductors – N types and P type semi conductors. PN Junction – Forward bias and Reverse Bias – Rectifiers – half wave, full wave & rectifiers – Zener diode – Principles and uses.
Transistors : NPA & PNP transistors – Uses of transistors. Electronics instruments – Cathode Ray Tube – Digital multimeter.
Transducers: Advantages of transducers – Classification transducers – Principles of Strain Gauge.

Reference Books:

1. A.S.Saro, Thermal Engineering Sathiya Prakasan Publisher
2. R.S.Kumar A Text Boo of Hydraulics Fluid Mechanics and Hydraulic Machines Publisher
3. V.Sivarajan Mechanical Technology V.K.Publisher Publisher
4. S.K. Battacharya Elements of workshop technology Vol.11 Publisher

****

III Semester – Second Allied Course-II (SAC-II)

Computer Aided Fashion Designing

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 ouput 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.

****

Non Major Elective I

Management and Entrepreneurship

Major Divisions:

1. Organisation and Factory Planning
2. Production and Financial Management
3. Personnel Management
4. Factory Act, Industrial safety and Entrepreneurship Development.
5. Export Marketing

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 it's 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. Dinakar pagar – Principles of Management
2. Balasundaram.K – Industrial Engg. & Management Sri Ramalinga sowdeswari Publication, 329 Lingappachetty St, Coimbatore -1.
3. Tripati – Personal Management & Industrial Relations
4. V.S.P.Rao & Narayana – Organisation theory and Behaviour.
5. Banga.T.R ETAL – Industrial Engineering & Management Science,1979
6. Singa.J.C & Mugali.V.N –Business Management : Theory and Practice, Edition 5, 1982.
7. ILO – Introduction to work study,Editions 5, 1977.

****

IV Semester (CC –V)

Yarn Manufacture Practical

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.

****

IV Semester (CC –VI)

Fabric Manufacture – I

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 machinesexpanding 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 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. The Mechanism of Weaving - Thomas W.Fox
2. Principles of Weaving - Marks & Robinson (ATC)
3. Weaving Mechanism Vol. I - N.N.banerjee
4. Elementary Design and Colour - Z.Grosicki
5. Weaving Calculations - R.Sengupta
6. Modern preparation and Weaving - A.Ormerod
7. Mechanism of Weaving Vol I & II - Prof. J.C.Charkravarthy
8. Fabric Forming - B.Hasmukrai

****

IV Semester – Second Allied Course (SAC-III)

Textile Testing

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 Finess – 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 – Shirley Thickness Gauge, Determination of fabric weight per unit area, Count determination by Beesley's Balance. Cover factor and it's importance.

Study on – Shirley stiffness Tester, 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, Stand Deviation, Co – efficient of Variation. Normal Distribution Frequency Curve and it's importance in Textiles.

Calculation in Tests of Significance – t- Text for Mean, Quality control cCharts – 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. Principles of Textile Testing., J.E Booth. 3rd Edition 1986, 4th Edition 1974, Butterworth Scientific, London
2. Hand Book of Textile Testing and Quality control., E.B Groover and D.S.Hamby., 1st U.S. Edition 1960. Wiley Eastern Ltd) New Delhi, India.
3. Hand Book of Methods of Test for Cotton Fibers, Yarns and Fabrics V.Sundaram and R.L.N. Iyengar 1968 Edition –CTRL, Mumbai.
4. The Characteristics of Raw Cotton –E.Loard,Vol II Part – I In the Series Manual of cotton spinning, 1961 Edition, The Textile institute and Butter worths, England.
5. ISI Hand book of Testile Testing …. SP, 15-1981. First Edition, 1982 Indian Standard Institution, New Delhi, India.
6. Methods of Test for Textiles –B.S Hand book No. 11, 1963 or B.S hand Book No.12,1974 – British Standards Intitution, London, England.
7. Statistical Methods, Gupta & Kapoor : S Chand & Co., New Delhi.
8. An Outline of statistical methods for use in the Textile Industry. A. Brearley & D.R. Cox, 8th Editions 1974, WIRA LEEDS, U.K

****

Non Major Elective II

Marketing and Merchandising

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. Marketing Management - Philip kotler & Armstrong
2.Exports by Prasram - Pub. By Anuram Publisher.
3.Fundamental of Modern Marketing - Cundigg & Still
4. Marketing Management - Sherlekar
5. Marketing Management - Stanton

****

V Semester (CC –VII) - **Textile Chemistry**

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 Bluing 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 lay out (process flow chart only) –Importance of eco-friendly processing – List of banned dyes and chemicals, Eco labels.

Reference Books:

1. Shenai. V.A Technology of Textile Processing Vol.e, Technology of Bleaching Edn, 3 1981., Sevak Publication 306, Shri Hanuman Ind. Estate Gousmbekar Road, Wadala, Bombay –37

2.Shenai .V.A Technology of Textiles Processing Vol. II Chemistry of dyes & principles of dyeing Edn.2 1983 Technology of Textiles Processing Vol. II Chemistry of dyes & principles of dyeing Edn.2 1983

3. Shenai.V.A Technology of Textile Processing Vol.6 Technology Technology of Textile Processing Vol.6 Technology

4. Shenai.V.A Technology of Textile Processing Vol.4 Technology of Printing Edn. 2 1979 Technology of Textile Processing Vol.4 Technology of Printing Edn. 2 1979

5. Shenai.V.A Technology of Textile Processing Vol.10 Technology of Finishing 1987 Technology of Textile Processing Vol.10 Technology of Finishing 1987

****

V Semester (CC –VIII)

Fabric Manufacture – II

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 dobby and its characteristics - Double lift dobby and its characteristics. Cross border Dobby – working –Cam dobby –working –Study of card punching machine. Study of Electronic dobby.

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) The Mechanism of Weaving - Thomas W. Fox
2) Principles of Weaving - Marks & Robinson (ATC)
3) Weaving Mechanism Vol – I - N.N.Banerjee
4) Elementary Design and Colour - Z.Grosicki
5) Weaving Calculations - R.Sengupta
6) Modern preparation and Weaving - A.Ormerod
7) Mechanism of Weaving Vol-I & II - Prof. J.C.Chakravarthy
8) Fabric Forming - B.Hasmukrai

****

V Semester (CC –IX)

Fabric Manufacture Practical

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.

****

V Semester (CC –X)

Textile Chemistry Practical

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.

****

V Semester Major Based Elective I

Process Control in Spinning and Weaving

Major Divisions:

1. Process Control in mixing
2. Process control in spinning preparatory
3. Process control in spinning
4. Processing control in weaving preparatory
5. Process control in weaving

Unit - I
Process control in mixing

Role and scope of process control in spinning. – Key variables for process control - Establishing norms or standards – collection and interpretation of data for process control –corrective action.
Control of mixing quality and cost instrument evaluation of cotton - Control of mixing quality through fibre characteristic simultaneous control of mixing cost and quality.

Unit - II
Process control in spinning preparatory

Control of waste and cleaning in blowroom and carding – determination of trash content and cleaning efficiency – Norms for cleaning efficiency of individual machines in blowroom.

Control of comber of comber waste - Optimim level of comber waste.
Control of sliver evenness – Control of stretch at fly frames.

Unit - III
Process control in spinning

Measurement and analysis of productivity – definitions of indices of productivity – measurement productivity – productivity and profitability – means to improve productivity –Renovation at Ring frame to reduce end breaks – Recording and analyzing end breakage rate, Process control measures to be adopted for rotor spinning.

Types of yarn irregulatrity – Random irregularity – Periodic irregularity. - measurement and assessment of imperfections – causes of thick and thin places–check list of control of yarn unevenness and thick and thisn places, Yarn faults and package defects.

Unit - IV
Processing control in weaving preparatory

Process control in winding –optimizing quality of preparation in winding –control of quality of knot –producing good package –defects in cone –control of faults –process parameters.

Minimizing end breaks in warping – productivity in warping – process control in sizing – choice of size pickup – preparation of size recipe – control of size pickup – control on sizing conditions – control of yarn stretch — control on sizing conditions – control of yarns stretch – process control in pirn winding – minimizing end breaks.

Unit - V
Process control in weaving

Control of productivity in loom shed – control of loom speed – control of loom efficiency – stop due to end breaks and warp faults. Control of loss of efficiency by snap reading – loom performance – quality of yarns – loom allocation – control of quality of fabrics in weaving – control of fabric defects – Grey fabric inspections hard waste control.

Reference Books

1. Process control in spinning by A.R. Grade & T.A.Subramaniam, ATIRA SILVER JUBILEE NONOGRAPGS, Published at ATIRA – Ahamedabad. Pin: 380 015. India, Ist edition – 1974, II edition 1978.
2. Process control in weaving by M.C. Paliwal P.D.Kimothi, STIRA SILVER JUBILEE MONOGRAPHS, Published at ATIRA – Ahamedabad – 380 015, India.
3. End breaks in Ring Spining by Edition-1974- Authors – T.A. Subramaniam, A.R.Grade published at ATIRA Ahamedabad – India.

****

VI Semester (CC –XI)

Knitting

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. Knitting Technology by David J.Spencer
2. An Introduction to weft knitting by . J.A.Smirfitt
3. An Introduction to warp knitting by Thomson

****

VI Semester (CC –XII)

Garment Manufacture

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 – study of

accessories like buttons , zippers, interlining, lining, hooks, elastics, fasteners, seaming defects and rectification – study of pressing, finishing packing system –fabric and finished 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.

Types of collars, pockets, plackets etc.

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. Bonnita M.Farmer and Loid M.Gotwals –Concepts of fit, Concepts of an individual approach to pattern making, Mac Millan Publishining Co. inc., New York.
6. Hedge, K.M Scientific Garment cutting, K. Mhedge and Sons, Poona , 1983.
7. Aldrich, D. Metric Pattern Cutting for Children;s wear from 2-14 years:BSP Professional Book, London, 1989.

****

VI Semester (CC –XIII)

Knitting and Garment Manufacture Practical

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 skrit.

10. Using the given measurement chart prepare the required paper pattern for gents shirt and grade it to their next higher/ lower sizes.

****

Major Based Elective II

Modern Textile Manufacturing

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 form 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 interpretation of test results. Measurement and analysis of productivity.

Norms interpretation of test result. Measurement and analysis of productivity.

Reference Book :

1. Man made Fibres by P.W.Moncrieff, Newens Buttesworth London
2. Textile Fibres Vol – I by v.a.Shenoi
3. Open –end Spinning by W.A.Hunter
4. Modern Preparation and Weaving machinery by a.Ormerod, Buttterworth, London
5. Process control in Spinning by Grade and Subramanian
6. Open –end Spinning by Nield
7. Norms for Spinning SITRA publications
8. Norms for Spinning and Textile Wet Processing – ATIRA Publication

****

Major Based Elective III

Fabric Analysis

1. Analyse the constructional parameters of the given fabric samples:

    i. Fabrics used for body garments
    ii. Fabrics used for Leg garments and
    iii. 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

****