SCHEME OF TEACHING AND EXAMINATION

B.TECH. TEXTILE TECHNOLOGY

V SEMESTER

Sl. No.	Sub. Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration	I. A.	Theory/ Practical	Total Marks
1	06AL51	Management and Entrepreneurship	Any Dept.	04	--	03	25	100	125
2	06TX52	Woven Cloth Construction & Textile Design	Textile / Silk	04	--	03	25	100	125
3	06TX53	Yarn Manufacture-III	Textile / Silk	04	--	03	25	100	125
4	06TX54	Fabric Manufacture-III	Textile / Silk	04	--	03	25	100	125
5	06TX55	Chemical Processing of Textiles – I	Textile / Silk	04	--	03	25	100	125
6	06TXL56	Yarn Manufacture Lab.-III	Textile / Silk	--	03	03	25	50	75
7	06TXL57	Woven Cloth Construction and Textile Design Lab	Textile / Silk	--	03	03	25	50	75
8	06TXL58	Chemical Processing of Textiles lab.–I	Textile / Silk	--	03	03	25	50	75
TOTAL				**20**	**09**	**24**	**200**	**650**	**850**

SCHEME OF TEACHING AND EXAMINATION

B.TECH. TEXTILE TECHNOLOGY

VI SEMESTER

Sl. No.	Sub. Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration	I. A.	Theory/ Practical	Total Marks
1	06TX61	Statistical Applications to Textiles	Textile / Silk	04	--	03	25	100	125
2	06TX62	Advanced Fabric Structure & Design	Textile / Silk	04	--	03	25	100	125
3	06TX63	Fashion Design & Garment Manufacture	Textile / Silk	04	--	03	25	100	125
4	06TX64	Chemical Processing of Textiles – II	Textile / Silk	04	--	03	25	100	125
5		**Elective-I (Group A)**	Textile / Silk	04	--	03	25	100	125
6	06TXL66	Advanced Fabric Structure & Design Lab	Textile / Silk	-	03	03	25	50	75
7	06TXL67	Fashion Design & Garment Manufacture Lab	Textile / Silk	--	03	03	25	50	75
8	06TXL68	Chemical Processing of Textiles Lab – II	Textile / Silk	--	03	03	25	50	75
TOTAL				**20**	**09**	**24**	**200**	**650**	**850**

Elective-I (Group A)

06TX651 - Garment Surface ornamentation
06TX652 - Smart Textiles
06TX653 - Textile Mechanics & Calculations

SCHEME OF TEACHING AND EXAMINATION

B.TECH. TEXTILE TECHNOLOGY

VII SEMESTER

Sl. No.	Sub. Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration	I. A.	Theory/ Practical	Total Marks
1	06TX71	Apparel Marketing & Merchandising	Textile / Silk	04	--	03	25	100	125
2	06TX72	Sericulture & Silk Technology	Textile / Silk	04	--	03	25	100	125
3	06TX73	Knitting Technology	Textile / Silk	04	--	03	25	100	125
4	06TX74	Chemical Processing of Textiles - III	Textile / Silk	04	--	03	25	100	125
5	06TX75x	**Elective-II (Group B)**	Textile / Silk	04	--	03	25	100	125
6	06TX76x	**Elective-III (Group C)**	Textile / Silk	04	--	03	25	100	125
7	06TXL77	Knitting Technology Lab	Textile / Silk	--	03	03	25	50	75
8	06TXL78	Chemical Processing of Textiles Lab– III	Textile / Silk	--	03	03	25	50	75
TOTAL				**24**	**06**	**24**	**200**	**700**	**900**

Elective-II (Group B)
06TX751 - Non Mulberry Silk Technology
06TX752 - Total Quality Management
06TX753 - Fibre Reinforced Composites

Elective-II (Group C)
06TX761 - Yarn Manufacture - IV
06TX762 - Recycling of Textiles
06TX763 - Erection and Maintenance of TextileMachinery

SCHEME OF TEACHING AND EXAMINATION

B.TECH. TEXTILE TECHNOLOGY

VIII SEMESTER

Sl. No.	Sub. Code	Title of the Subject	Teaching Dept.	Teaching Hrs / Week		Examination			
				Theory	Practical	Duration	I. A.	Theory/ Practical	Total Marks
1	06TX81	Industrial Management	Textile / Silk	04	--	03	25	100	125
2	06TX82	Technical Textiles	Textile / Silk	04	--	03	25	100	125
3	06TX83x	**Elective-IV (Group D)**	Textile / Silk	04	--	03	25	100	125
4	06TX84x	**Elective-V (Group E)**	Textile / Silk	04	--	03	25	100	125
5	06TX85	Project Work	Textile / Silk	--	12	03	100	100	200
6	06TX86	Seminar on Project	Textile / Silk	--	03	--	50	--	50
TOTAL				**16**	**15**	**15**	**250**	**500**	**750**

Elective-IV (Group D)
06TX831 - Human Resource Management
06TX832 - Financial Management
06TX833 - Non Woven Technology

Elective-V (Group E)
06TX841 - Pollution Control in Textile Industry
06TX842 - Elementary Mechanics of Textile Structures
06TX843 - Electronic Controls in Textile Machines

V SEMESTER

MANAGEMENT AND ENTREPRENEURSHIP

Subject Code	:	**06AL51**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

MANAGEMENT

UNIT - 1

MANAGEMENT: Introduction – Meaning – nature and characteristics of Management, Scope and functional areas of management – Management as a science, art or profession – Management and administration – Roles of management, Levels of management, development of management thought – early management approaches – modern management approaches.

7 Hours

UNIT - 2

PLANNING: Nature, importance and purpose of planning process – objectives - Types of plans (Meaning only) - Decision making – importance of planning – steps in planning, Planning premises – Hierarchy of plans.

6 Hours

UNIT - 3

ORGANIZING AND STAFFING: Nature and purpose of organization, principles of Organizations – Types of organisation - Departmentation – Committees Centralization vs. Decentralisation of authority and responsibility, span of Control, MBO, and MBE(Meaning only) Nature and importance of Staffing – process of selection and recruitment (in brief).

6 Hours

UNIT - 4

DIRECTING & CONTROLLING: Meaning and nature of directing – Leadership styles and motivation theories, communication – Meaning and importance – Coordination, meaning and importance and Techniques of Co – ordination. Meaning and steps in controlling – Essentials of a sound control system – Methods of establishing control (in brief)

7 Hours

PART - B

ENTREPRENEURSHIP

UNIT - 5

ENTREPRENEUR: Meaning of Entrepreneur, Evolution of the Concept, Functions of an Entrepreneur, Types of Entrepreneur, Intrapreneur – an emerging Class. Concept of Entrepreneurship – Evolution of Entrepreneurship, development of Entrepreneurship steps in entrepreneurial

process, Role of entrepreneurs in Economic Development: Entrepreneurship in India; Entrepreneurship – is Barriers.

6 Hours

UNIT - 6

SMALL SCALE INDUSTRY: Definition; Characteristics; Need and rationale: Objectives: Scope; role of SSI in Economic Development. Advantages of SSI. Steps to start in SSI – Government policy towards SSI; Different Policies of S.S.I.; Government Support for S.S.I. during 5 year plans. Impact of Liberalization, Privatisation, Globalization on S.S.I., Effect of WTO/GATT Supporting Agencies of Government for S.S.I., Meaning; Nature of Support; Objectives; Functions; Types of Help; Ancillary Industry and Tiny Industry (Definition only)

7 Hours

UNIT - 7

INSTITUTIONAL SUPPORT: Different Schemes; TECKSOK; KIADB; KSSIDC; KSIMC; DIC Single Window Agency: SISI; NSIC; SIDBI; KSFC.

6 Hours

UNIT - 8

PREPARATION OF PROJECT: Meaning of Project; Project Identification; Project Selection; Project Report; Need and Significance of Report; Contents; formulation; Guidelines by Planning Commission for Project report; Network Analysis; Errors of Project Report; Project Appraisal. Identification of Business Opportunities:

Market Feasibility Study; Technical Feasibility Study; Financial Feasibility Study & Social Feasibility Study

7 Hours

TEXT BOOKS:

1. **Principles of Management** – P.C. Tripathi, P.N. Reddy; Tata McGraw Hill, 2nd Edition.
2. **Dynamics of Entrepreneurial Development & Management** – Vasant Desai–Himalaya Publishing House
3. **Entrepreneurship Development** – Small Business Enterprises – Poornima M Charantimath – Pearson Education –2006, 2nd Edition.
4. **Management and Entrepreneurship** – N.V.R. Naidu & T. Kirshna Rao, I.K. International, New Delhi – 2008.

REFERENCE BOOKS:

1. **Management Fundamentals - Concepts, Application, Skill Development** – 1st Edition , Robert Lusier – Thomson ,
2. **Entrepreneurship Development** – S S Khanka – S Chand & Co.
3. **Management – Stephen Robbins** – Pearson Education / PHI -17th Edition, 2003.

WOVEN CLOTH CONSTRUCTION AND TEXTILE DESIGN

Subject Code	:	**06TX52**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Classification of woven fabrics. Elements of woven fabric structure. Construction and analysis of thread interlacing diagrams and cross-sectional diagrams. Methods of weave representation. Conditions and requirements of various drawing in drafts (DID)

6 Hours

UNIT - 2

Characteristics of fundamental weaves and fabrics. Ornamentation of plain fabrics. Modification of plain weaves. Special Rib & Cord structures. Twill weaves and fabrics, Twist & twist interactions. Derivatives of twill weaves.

6 Hours

UNIT - 3

Diamond and diaper designs. Satin & Sateen weaves. Simple fancy weaves such as honeycomb, brighten honeycomb, Huck a back, sponge-weaves, Mock leno, crepe & corkscrew weaves.

7Hours

UNIT - 4

Distorted tread effects. Combined weaves to construct longitudinal stripes, cross stripes, check effects. Bed ford cord weaves and fabrics.

7 Hours

PART - B

UNIT - 5

BIS standards for the important commercial fabrics. Application of different design and their utility in textile fabrics. Colour and weave effects. Classification of colour and weave effects and their application in textile fabrics.

6 Hours

UNIT - 6

Various bases of textile design for figured arrangements. Light and pigment colour theory. Classification of colours. Attributes of colours.

06 Hours

UNIT - 7

Modifications of colours. Color harmony and color contrast. Mixed colored effects with the aid of fibre mixtured yarns, twist yarn mixtures and combined colored threads in the fabrics.

7 Hours

UNIT - 8

Application of special weaves and special yarns in special colour and weave effects. Brief study of history of textile design. Brief study of various historical designs with respect to their main features.

7 Hours

TEXT BOOKS:

1. **Woven Cloth Construction, ATC Robinson and Marks-**extile Institute Pub, Manchester, 1973
2. **Watson Design and Colour**- Z. J. Grosicki, Universal Pub Corp, 1988

REFERENCE BOOKS:

1. **Grammar of Textile Design**-H. Nisbet pub, D. B. Taraporewala and sons, 1985
2. **Design of Woven Fabrics**-Blinov, Shibabaw Balay, MIR Pub 1989
3. **Fundamentals of woven Structure**-Edward I Golec, ITT Pub Lowell Mass 1958
4. **Modern Textile Design and Production**- R. H. Wright, National Trade Press, London 1970
5. **History of Textile Design**- V. A. Shenai, Sevak Pub Ltd, 1974.

YARN MANUFACTURE – III

Subject Code	:	**06TX53**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Objects of ring spinning, study of different drafting systems and type of draft. Roller setting draft and its importance. Principles of twisting, factors affecting the twist calculation. Actual and practical TPI, Principal of winding and types of builts.

7 Hours

UNIT - 2

Rings and Travelers. Different types of rings, selection of rings and manufacture of rings. Types of travelers, traveler numbering both in direct

and indirect system. Manufacture of travelers. Functions of lappets and separators. Forces acting on traveler. Faulty packages of Ring frame and remedial measures.

6 Hours

UNIT - 3

Modern developments of Ring frame and salient features of the present day ring frame. Calculations of Ring frame such as production efficiency and count etc. Various quality control studies at Ring frame such as breakage study, idle spindle study, snap study and yarn parameter such as U%, CV%, Neps etc

7 Hours

UNIT - 4

Doubling frame – objects of doubling and conditions to get balanced double yarn. Preparation of doubling, Types of doubling systems. Threading different types of doubling systems. Defects in doubling and remedies. Properties of cabled, voile and poplin yarn.

6 Hours

PART - B

UNIT - 5

Detailed study of sewing threads such as manufacture properties and applications of sewing threads. Hosiery yarn and its application, Fancy yarns and its production

6 Hours

UNIT - 6

Open-end spinning – principle and objects of open-end spinning. Classification of open-end spinning. Comparison of open-end and ring spinning. Technique of rotor spinning and detailed study of rotor spinning such as initial drafting, transport zone, twisting and yarns formation.

7 Hours

UNIT - 7

Types of opening rollers and rotors and their effect on the performance of OE machine. Calculations of OE machines and comparison of OE and Ring yarn. Modern developments in OE machine.

7 Hours

UNIT - 8

Quality control in Ring spinning, Doubling & OE Spinning.

6 Hours

TEXT BOOKS:

1. **Manual of Cotton Spinning**-Vol V, Ed, AFW COULSON 1958, Textile Institute, Manchester

2. **Technology of short staple spinning**- Vol III and IV, W Klein, 1989, Textile Institute Pub. Manchester
3. **Spun Yarn Technology-** Oxteby 1987, Butterworths, London
4. **Cotton Spinning Calculations**- T. K. Pattabhiraman, 1979, Soumaya Pub, Bombay
5. **O. E. Spinning**- R. Rajgopalan, 1981, Textile Association of India, Delhi
6. **Spinning in 70s**-P.R. Lord, 1970, Merrow Pub. Co. Ltd. London

REFERENCE BOOKS:

1. **Contemporary Textile Engineering**-F Happy, 1981, ACADEMIC press Inc.
2. **Hand book of Cotton Spinning**-William Taggart, 1979, Universal Pub. Corp.
3. **Essential facts of Practical Cotton Spinnning**-T. K. Pattabhiraman, 1979, Soumaya Pub, Bombay.
4. NCUTE Publications on spinning.

FABRIC MANUFACTURE – III

Subject Code	:	**06TX54**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

DOBBY LOOMS-Mechanical design and working principles of different types of dobbies such as negative, positive, cam, paper, rotary, cross border dobbies.

6 Hours

UNIT - 2

Lattice pegging methods, cyclic diagram of operation of the dobby mechanism.

JACQUARD-Mechanical design and operating principles of single lift single cylinder. Double lift single cylinder. Double lift Double cylinder and cross border jacquard.

6 Hours

UNIT - 3

Methods to increase the figuring capacity. Piano card cutting machine. Card punching. Card lacing, casting out in jacquard. London and Norwich harness mounting systems. Cyclogram of the jacquard shedding.

7 Hours

UNIT - 4

DIFFERENT TYPES OF TIE-ups. Review of developments in jacquards. Introduction to Electronic Jacquard, Principle & working of Electronic Jacquard.

7 Hours

PART - B

UNIT - 5

SHUTTLE-LESS WEAVING: Study of special features of rapier, projectile, water-jet, Air-jet looms.

6 Hours

UNIT - 6

STUDY OF ABOVE TYPES OF SHUTTLE-LESS WEAVING MACHINES WITH REFERENCE TO: Types of weft supply creels, Types of weft tensioning devices, Weft feed system, Types of weft insertion systems.

6 Hours

UNIT - 7

Different carrier breaking system, Consolidation of picking force in air jet picking systems. Weft mixing systems, Systems of weft beat up, Types of selvedges.

7 Hours

UNIT - 8

Modern Multiphase fabric formation, Circular looms, Multiphase flat looms, Tri-axial weaving machines.

7 Hours

TEXT BOOKS:

1. **Principles of Weaving-**By ATC Robinson, R. Marks, 1976, Textile Institute, Manchester, London
2. **Shuttleless Weaving Machine**-Oldrich Talavasek and Uladimin, Svary, Elsevlin, 1981 Scientific Pub. Co., New YORK
3. **Modern Weaving Theory and Practice**-,ISHIDA
4. **Weaving, Machines, Mechanisms & Management-** D.B.Ajgaonkar, Talukdar

REFERENCE BOOKS:

1. **Modern Preparation and weaving Machinery**-A Ormerod, 1983, Butterworths London.
2. **Cotton Weaving by** -V. Gordev, P Volkov, L Blinov 1987. Mir PUB.
3. **Weaving Mechanism-** Vol I & II, Prof. N N. Banerjee 1982, Textile Book House, WEST BENGAL.
4. NCUTE Course material-Woven Cloth Production-IIT, New Delhi, 2000

CHEMICAL PROCESSING OF TEXTILES – I

Subject Code	:	**06TX55**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

An overview of wet processing operations and sequences Chemicals and auxiliaries used for textile wet processing and their functions. Introduction to shearing and cropping.Objects of shearing and cropping.

6 Hours

UNIT - 2

Objects of singeing, methods of singeing by various singeing machines, precautions to be taken during singeing, latest developments in singeing Objects of desizing, methods of desizing, continuous desizing, desizing of cotton and other blends, latest developments in desizing

6 Hours

UNIT - 3

Objects of scouring, mechanism of scouring, methods of scouring, scouring of natural cellulose fabrics, degumming of silk, scouring of wool and jute, scouring of synthetic fibres, modifications required to scour knitted fabrics, latest developments in scouring.

7 Hours

UNIT - 4

Objects of Bleaching, mechanism of bleaching, methods of bleaching, bleaching of cellulose fibres, bleaching of natural protein fibres, bleaching of common manufactured fibres, bleaching of common fibre blends.

7 Hours

PART - B

UNIT - 5

Latest developments in bleaching. Objects of optical whitening, optical whitening process for common fibres. Chemistry of optical whitening agents.

Faults in scouring and bleaching and their remedies, quality control methods for testing scoured and bleached materials. Methods used for determination of degradation of cotton, during scouring and bleaching.

6 Hours

UNIT - 6

Machines used for desizing, scouring and Bleaching. Batch processes, semi continuous processes and continuous processes. Objects of mercerization, history and developments of mercerization, physical and chemical changes in cotton due to mercerization, various factors affecting mercerization's.

6 Hours

UNIT - 7

Methods of mercerization - yarns and fabrics, machines used for mercerization, slack mercerization.

7 Hours

UNIT - 8

Hot mercerization, Faults in mercerization and their remedies, Test methods for mercerized materials. Latest developments in mercerization. Brief study on eco-friendly preparatory processes.Water and energy management in preparatory processes.

7 Hours

TEXT BOOKS:

1. **Technology of Textile Processing-** Vol. III, V A Shenai, 1975, Sevak Publications
2. **Technology of Bleaching and Dyeing of textile fibres**- Chakraborthy, 1972, Coxtown publications
3. **Mercerization-** J T Marsh, 1979, B I Publications.
4. **Scouring and Bleaching of Cotton**- J.T. Marsh, 1979, B I Publications.
5. **Dyeing and Chemical Technology of textile Fibres-** E.R.Trotman,

REFERENCE BOOKS:

1. **Chemical Technology of Fibrous Materials-** MIR Publications, 1978.
2. **Textile Auxiliaries and Finishing Chemicals-** ATIRA Publications.1975
3. **Textile Chemistry-**Vo. I, II and III R H Peters, Elsewhere Publishing Co.New York.
4. **Modern techniques of textile Bleaching**- Dyeing, and Finishing, SITRA Publication.
5. **Chemical Processing of Cotton, Polyester Cotton Blends**- J.R.Modi and A.R. Garde, 1980, TAI Publications.
6. **Recent processes of Textile Bleaching, Dyeing and Finishing**- S B Srivastava, 1978, SBP Publications.

YARN MANUFACTURE LAB- III

Subject Code	:	**06TXL56**	IA Marks	:	25
No. of Practical Hrs./ Week	:	03	Exam Hours	:	03
Total No. of Practical Hrs.	:	42	Exam Marks	:	50

1. Study of passage of material through Ring Frame and demonstration of its working and functions of each parts.
2. Calculation of spindle speed, front roller speed TPI through gearing diagram and also by changing the pulleys and concerned change wheels
3. Calculation of Twist constant through gearing and also TPI calculation for different TCP
4. Break Draft, Main Draft and Total draft calculation through gearing diagram.
5. Calculation of Draft constant and break draft constant, calculation of DCP for different counts of yarn
6. Study of building mechanism and different types of builds.
7. Working of Ring Frame and calculation of count of yarns for the roving fed by changing the wheels
8. Maintenance schedule of Ring Frame
9. Passage of material through Ring Doubler and demonstration of its working
10. Calculation of Spindle Speed, TPI through gearing on doubling frame
11. Calculation of twist constant, TPI & TPM for different TCP.
12. Demonstration and calculation on O.E. Spinning machine.
13. Practicing and piecing on Ring Frame and study of end breaks

WOVEN CLOTH CONSTRUCTION AND TEXTILE DESIGN LAB

Subject Code	:	**06TXL57**	IA Marks	:	25
No. of Practical Hrs./ Week	:	03	Exam Hours	:	03
Total No. of Practical Hrs.	:	42	Exam Marks	:	50

1. Analysis of Plain wave fabrics
2. Analysis of Twill weave fabrics
3. Analysis of Honey comb weave fabrics
4. Analysis of Huck back weave fabrics
5. Analysis of Mock leno weave and other toweling fabrics
6. Analysis of Satin weave fabrics
7. Analysis of Sateen weave fabrics
8. Creation of stripes and checks effect on paper using suitable colours
9. Creation of floral design on paper by suitable colours
10. Creation of animation patterns and other designs on paper by suitable colours
11. Study of working of Dobby & Jacquards.
12. Creation of suitable designs on dobby looms
13. Creation of suitable designs on jacquard

CHEMICAL PROCESSING OF TEXTILES LAB-I

Subject Code	:	**06TXL58**	IA Marks	:	25
No. of Practical Hrs./ Week	:	03	Exam Hours	:	03
Total No. of Practical Hrs.	:	42	Exam Marks	:	50

1. Desizing of cotton yarn/fabric using acid and enzymes
2. Scouring of cotton using alkali method
3. Degumming of silk using soap-soda and enzymatic methods.
4. Scouring of wool, jute fibres
5. Bleaching of cotton using Hydrogen Peroxide
6. Bleaching of PC blends
7. Bleaching of silk and woolen goods
8. Mercerization of cotton in taught and slack forms
9. Treatment of bleached goods with optical whiteners
10. Determination of scouring / bleaching efficiency using cuprammonium fluidity, methylene blue absorption etc.
11. Determination of efficiency of mercerized goods using BAN and strength measurements

VI SEMESTER

STATISTICAL APPLICATIONS TO TEXTILES

Subject Code	:	**06TX61**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

The concept of individual population and samples-Frequency distribution and its representation- Construction of frequency diagrams with applications.

6 Hours

UNIT - 2

Statistical measures and their practical applications. Measures of central tendency. Measures of dispersion.

7 Hours

UNIT - 3

Random sampling errors, relations between samples and populations, confidence interval.

6 Hours

UNIT - 4

The normal distribution- counts of proportions and counts of random events, binomial and Poisson distributions.

7 Hours

PART - B

UNIT - 5

Control charts, their uses and limitations in control of quality.

7 Hours

UNIT - 6

Test of significance. For means and dispersions, chi- square test.

7 Hours

UNIT - 7

Analysis of variance-One way & two way

6 Hours

UNIT - 8

Correlation and Correlation co- efficient. Regression Analysis. Time series.

6 Hours

TEXT BOOKS:

1. **Textile Testing,**-J.E. Booth, CBS Publishers, New Delhi, 1996
2. **Statistics For Textile Technologists-** L.H. C. Tippet, Textile Institute, Manchester 1973
3. **Handbook of Textile Testing and Quality control**- Hamby Grower, Wiley Eastern Pvt. Ltd. Delhi 1969.
4. **Practical Statistics for Textile Industry**-Part-1 & 2, Gave-Leaf, Textile Institute, 1984

ADVANCED FABRIC STRUCTURE & DESIGN

Subject Code	:	**06TX62**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Welts & pique fabrics, figured pique Fabrics.

6 Hours

UNIT - 2

Extra warp and extra weft fabrics. Backed weaves and fabrics.

6 Hours

UNIT - 3

Double cloths- Classification, selection criteria for threads, weaves etc., self stitched double cloths & Interchangeable double cloths

7 Hours

UNIT - 4

Center stitched double cloths. Principle of designing simple damask and brocades.

7 Hours

PART - B

UNIT - 5

Gauze and leno structures, principles of leno structure, basic sheds in leno structure, leno weaving with flat steel doupes with an eye, Russian cords design, simple net leno, Easing action shaker device.

6 Hours

UNIT - 6

Weft pile fabrics- allover or plain velveteen, corded velveteen.

6 Hours

UNIT - 7

Terry pile structures- formation of pile, terry weaves, figured terry pile fabrics.

7 Hours

UNIT - 8

Warp pile fabrics produced with the aid of wires and by face to face principle. Narrow fabrics. Uncommon woven structures- Lappet & Swivel fabrics.

7 Hours

TEXT BOOK:

1. **Watsons Advanced Textile Design-** Z.J Grosicki, Universal Publishing Corporation, Bombay 1988

REFERENCE BOOKS:

1. **Grammar of Textile Design**-H. Nisbet, Tareporewala and Sons, 1985

FASHION DESIGN AND GARMENT MANUFACTURE

Subject Code	:	**06TX63**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Terms and definitions used in fashion and Garment Industries. The art and techniques of Body measurements and standard sizes and measurements prevalent in Garment industries. Psychological and sociological influences of dress, fashion design as applied to clothing and appearance. Texture column-trends, shapes, forms and design associated with clothing. Selection of fabrics for suitable end uses.

6 Hours

UNIT - 2

Principles and practices of pattern making, Grading, Computer applied pattern making and grading. Pattern making for men, women and children ware. Production operations- Initiation of pre-production operation, Marker planning, Marker making, spreading, cutting, Numbering & bundling.

6 Hours

UNIT - 3

Stitches seams & thread-classes of seams and stitches, seam appearance & performance.

Equipment assembly & pressing- Stages of technology advancement, purpose of operation of equipment, sewing machine fundamentals, work aids, pressing equipment

7 Hours

UNIT - 4

Fusing, Advantages of fusing, Requirements of fusing, Fusing process, Fusing Equipment

And materials, Methods of fusing, Quality control in fusing. Fabric quality & perfomance –selection of piece goods, quality, aesthetics & performance of piece goods, evaluation of fabric quality.

7 Hours

PART - B

UNIT - 5

Sourcing of materials & production- Role of sourcing, make or bye decisions, sourcing materials, responsibilities of materials buyers, sourcing production.Inspection of fabrics under 4 point & 10 point systems.

6 Hours

UNIT - 6

Production planning & management- Production planning, productivity, resource management. Apparel Engineering- Basic concepts, work flow, apparel production systems, production control, work study, ergonomics.

7 Hours

UNIT - 7

Costs, Costing, Pricing & profit.- Cost & profits, stages of costing, methods of costing, determining product costs, pricing strategies.

6 Hours

UNIT - 8

Support materials- Purpose of support materials, interlinings, linings, other support materials. Closures- Purposes of closures, zippers, button & button holes, snaps, hooks & loop tape, elastic. Trims- types & sources of trims, knit trims, embroidery, appliques, insert trims, lace, screen printing, heat transfer prints, labels. Garments Quality Control- Inspection of garments under different AQL standards like 2.5, 3.0 & 4.0. Introducing AATCC and ASTM standards for garments quality control, metal detecting in garments.

7 Hours

TEXT BOOKS:

1. **The Technology Of Clothing Manufacture**- Carr H. & Latham B., 1988, Blackwell Scientific Publication, Oxford England
2. **Metric Pattern Cutting**- Aldrich W 1992, blackwell Scientific Publication, Oxford England
3. **Apparel Manufacturing-** Ruth E. Glock, Grace I. KunzPHI Publication, UK

REFERENCE BOOKS:

1. **Pattern Cutting for Womens Outwear-** Gerry Cooklin, 1994, Blackwell Scientific Publications, Oxford England.
2. **The NIFT Book of Grading and sizing-** Vol I and II, Published by NIFT, New Delhi
3. **Fashion Source Book**- by Kathryn Mikelvey, 1996, Blackwell Scientific Publication, Oxford England
4. **Fusing Technology**- Cooklin G, 1990, The Textile Institute, Manchester, England

CHEMICAL PROCESSING OF TEXTILES – II

Subject Code	:	**06TX64**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Classification of dyes and principles of dyeing Chemicals and auxiliaries used for textile dyeing and their functions. Chemical constitution of dyes. Effect of fibre structure on dyeing behavior. Theories of dyeing, action of electrolytes, effect of dye bath temperature, Effect of material to liquor ratio, Effect of dye bath pH, Mechanism of dyeing, various factors affecting dyeing, selection of dyes for specific end uses

6 Hours

UNIT - 2

Evaluation of fastness properties of dyed materials.

Properties, Selection and application of various dyes like direct dyes, basic dyes, acid dyes..

6 Hours

UNIT - 3

Sulphur dyes, Azoic dyes, Vat dyes, Sol-vat dyes, Mordant dyes, Reactive dyes.

7 Hours

UNIT - 4

Disperse dyes, Modified basic dyes on important natural and manufactured fibres. Various after treatments given to dyed goods. Introduction to natural dyes and their methods of application

7 Hours

PART - B

UNIT - 5

Preparatory process for garment dyeing, specialty chemicals and dyes used for garment dyeing. Different types of dyeing practices for various types of garments, precautions to be taken for effective dyeing of garments.

6 Hours

UNIT - 6

Quality control in garment dyeing. Working principles of dyeing machinery for yarns, fabrics and garments. Latest developments in dyeing machinery.

6 Hours

UNIT - 7

Brief study on eco-friendly dyeing processes.
Dyeing of blends and knitted fabrics

7 Hours

UNIT - 8

Introduction to colour measurement and computer colour matching. Developments in dyes, chemicals & dyeing practices.

7 Hours

TEXT BOOKS:

1. **Dyeing and Chemical Technology- of textile Fibres**, E.R. Trotman,
2. **Technology of Textile Processing-** Vo. III, V A Shenai, 1975, Sevak Publications.
3. **Technology of Bleaching and Dyeing of textile fibres-** Chakrawarthy, 1972, Coxtown publications.
4. **Textile Chemistry**- Vo.I&II, R H Peters, Elsewhere Publishing Co., New York
5. **Technology of Textile Processing** -Vo.II, Chemistry of Dyes and Principles of Dyeing, V.A. Shenai, 1993, Sevak Publications.

REFERENCE BOOKS:

1. **Textile Auxiliaries and Finishing Chemicals-** ATIRA Publications.
2. **Modern techniques of textile Bleaching-** Dyeing, and Finishing, SITRA Pub.
3. **Chemical Processing of Cotton, Polyester Cotton Blends**- J.R.Modi and A.R.
4. **Grade-** 1980, TAI Publications.
5. **Dyeing of Polyester Blends**- M L Gulrajani, 1980, TAI Publications.
6. **Principles and practice of Dyeing-** V A Shenai, 1993 Sevak Publications.

ELECTIVE-I (GROUP-A)

GARMENT SURFACE ORNAMENTATION

Subject Code	:	**06TX651**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Introduction to embroidery. study of simple embroidery stitches

6 Hours

UNIT - 2

Traditional embroideries of India- Kantha of Bengal, Kasuti of Karnataka, Pulkari of Punjab, Chikankari of Uttara Pradesh.

8 Hours

UNIT - 3

Commercial embroidery- mochi of kutch, zardozi with traditional influence, symbolism, decorative techniques, stitches and colour combinations.

6 Hours

UNIT - 4

Basic fabrics, decorative techniques and stitches used in commercial embroidery. metal embroidery.

6 Hours

PART - B

UNIT - 5

Tribal embroidery- Thodas of Tamil nadu, lambadi of Andra Pradesh, their decorative stitches and colour combinations.

7 Hours

UNIT - 6

Kashida of Bihar, embroidery of Gujarat, chamba rumal of Himachal.

6 Hours

UNIT - 7

Appliqué crafts of Orissa, embroidery of Rajasthan, kashida of Kashmir.

6 Hours

UNIT - 8

Embroidery of Manipur, Nagaland, their decorative techniques, stitches and colour combinations. salient features of Kathiwar, Sindh embroideries.

7 Hours

TEXT BOOKS:

1. **Traditional Embroideries of India**- Dr.(Mrs) Shailaja D. Naik
2. **Embroidered Textiles**- Sheila Paina
3. **Indian Embroidery** – Savithri Pandit

REFERENCE BOOK:

1. **Ethnic Embroideries of India**- Usha Shrikanth.

SMART TEXTILES

Subject Code	:	**06TX652**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Introduction to Smart Textiles. An Overview on smart textiles

6 Hours

UNIT - 2

ELECTRICALLY ACTIVE POLYMER MATERIALS - applications of non-ionic polymer gel and elastomers for artificial muscles

7 Hours

UNIT - 3

HEAT-STORAGE and thermo-regulated textiles and clothing. Thermally sensitive materials.

7 Hours

UNIT - 4

CROSS - linked polyol fibrous substrates as multifunctional and multi-use intelligent materials.

6 Hours

PART - B

UNIT - 5

Mechanical properties of fibre bragg gratings. Optical responses of FBG sensors under deformations.

6 Hours

UNIT - 6

Smart textile composites integrated with optic sensors. Embroidery and smart textiles

6 Hours

UNIT - 7

Adaptive and responsive textile structures (ARTS). Wearable technology for snow clothing

7 Hours

UNIT - 8

Bio-processing for smart textiles and clothing Tailor-made intelligent polymers for biomedical applications. Textile scaffolds in tissue engineering.

7 Hours

TEXT BOOKS:

1. **Smart Fibres, Fabrics and clothing**-Ed. Xiaoming Toa,woodhead publishing Ltd., England, 2001.

TEXTILE MECHANICS AND CALCULATIONS

Subject Code	:	**06TX653**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Equations of Motion- Motion in a circle- Transmission of motion by wheel gearing. V-Belt Drives - Comparison of flat and V-belts, Belt slippage, Effect of belt thickness, effect of initial tension on the belt. Effect of centrifugal force, horse power transmitted. Belt materials. Factors affecting the selection of V- belts, Joints in belting.

6 Hours

UNIT - 2

Brief explanation of fast and loose Pulleys, guides, jockey or rider and grooved pulleys. Rope and Chain Drives: Driving by gears, determination of speed ratios in simple and compound gear train. .

6 Hours

UNIT - 3

Draft factor, rack and pinion and screw traversing mechanisms, determination of speed ratio in epicyclic gear train. Sun and Planet gears as transmission gear- application in spinning and weaving machinery. Stepped pulleys

7 Hours

UNIT - 4

Construction of heart shaped 3- leaved and combined build cams for spinning machinery. Different between Tappets and cam construction for 1/1,2/1,1/2 and 1/3 weaves.

7 Hours

PART - B

UNIT - 5

Study of eccentricity and its effects, construction of displacement, velocity and acceleration diagrams.

6 Hours

UNIT - 6

Brief study of clutches and brakes - Application in Textile machineries, kinetics and dynamics of shedding, picking beating - up ,take up and let-off mechanism Derivation showing frictional force F is directly proportional to the distance of weight from the fulcrum in friction let off mechanisms.

6 Hours

UNIT - 7

Essential weaving calculations like winding rate in double flanged bobbins, cheese, cone, precision winders. Production related to winding, warping, sizing, reed calculations. Problems related to loom production and efficiency.

7 Hours

UNIT - 8

Yam calculations, yarn count, systems, conversion from one count to other, within the system and between the system. Details about average count and resultant count. Cloth calculations, Calculation of fabric weight, average count, warp and weft calculations.

7 Hours

TEXT BOOKS:

1. **Textiles Mathematics**- Vol .1,2,3" J .E.Booth, f Butterworths Pub London., 1950. .
2. **Textile Mechanics** -Vol 1&2,K.Slater, Textile Institute I Pub., 1979'
3. **Weaving Calculation-**Sen Gupta ,D.B. Tarparwala & Sons .,1956

REFERENCE BOOK:

1. **Mechanics of Textile Machinery**- W .A. Hanton, Longmans, Green and Co., London, 1950.

ADVANCED FABRIC STRUCTURE & DESIGN LAB

Subject Code	:	**06TXL66**	IA Marks	:	25
No. of Practical Hrs./ Week	:	03	Exam Hrs	:	03
Total No. of Practical Hrs.	:	42	Exam Marks	:	50

1. Analysis of dobby design fabrics.
2. Analysis of fancy woven design fabrics.
3. Analysis of jacquard design fabrics.
4. Analysis of printing design fabrics.
5. Generating of geometric, abstract, floral, animation and combined designs.
6. Application of paint brush and other related software in colour mixing.
7. Utilization in design software for creating textile designs intended for dobby.
8. Utilization in design software for creating textile designs intended for jacquard.
9. Utilization in design software for creating textile designs intended for printing.
10. Simulation of fabric appearance of woven designs by varying fabric set and yarn count.
11. Analysis of colour and weave fabrics and simulating the appearance using computer.
12. Scanning of fabric and simulating the appearance of the same.
13. Scanning of yarn and imitating the appearance of a yarn in woven fabric form.
14. Transformation of design to production particulars.

FASHION DESIGN & GARMENT MANUFACTURE LAB

Subject Code	:	**06TXL67**	IA Marks	:	25
No. of Practical Hrs./ Week	:	03	Exam Hrs	:	03
Total No. of Practical Hrs.	:	42	Exam Marks	:	50

Consideration of essential and desirable properties for selecting fabrics for garment with suitable examples. Review of old fashion and new fashions with supporting examples.

1. Method of inspecting fabrics for visual defects under different points.
2. Analysis of fusible interlinings and coated interlinings for their characteristics and applications.
3. Study of various buttons, labels and decorative materials for their characteristics and applications.

4. Study of different types of sewing machines
5. Analysis of sewing and embroidery threads and polyester bags
6. Practice of manual cutting method for different fabrics- for men, women and children
7. Practice of stitching methods - types of stitched seams, stitching of garments, different varieties like woven, knitted and silk fabrics
8. Fashion illustration & preparation of garments as per the design
9. Selecting of different garments & preparation of drafts and garments.
10. Development of garment components for Men's, Women's and Children's wear.
11. Computer aided marker preparation for Men's, Women's and Children's Wear.
12. Calculation of marker efficiency using manual and CAD method.
13. Grading of garment for Men's and Women's wear.
14. Digitization of garment components using readymade garment and grading the same

CHEMICAL PROCESSING OF TEXTILES LAB-II

Subject Code	:	**06TXL68**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	03	Exam Hrs	:	03
Total No. of Lecture Hrs.	:	42	Exam Marks	:	50

1. Dyeing of Cotton yarn / fabric using direct dyes
2. Dyeing of Cotton yarn / fabric using reactive dyes
3. Dyeing of Cotton yarn / fabric using Vat/ soluble vat dyes
3. Dyeing of Cotton yarn / fabric using Azoic colours
4. Dyeing of Cotton yarn / fabric using Sulphur dyes
5. Dyeing of silk with acid and basic dyes
6. Dyeing of silk with metal complex dyes
7. Dyeing of acrylic using basic dyes
8. Dyeing of polyester using disperse dyes with carrier, HTHP and Thermosol dyeing technique
9. Dyeing of garments with various classes of dyes
10. Dyeing of cotton, silk and wool using important natural dyes
11. Determination of K/S and matching of shades using spectrophotometer
12. Analysis of dyes, chemicals and auxiliaries
13. Measurement of washing / rubbing fastness of dyed goods

VII SEMESTER

APPAREL MARKETING AND MERCHANDIZING

Subject Code	:	**06TX71**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

ORGANIZATION OF THE APPAREL BUSINESS- Nature of Apparel, Organization of the Apparel Industry- Business Concepts Applied to the Apparel Industry- International Issues- Cooperation in Manufacturing and Distribution

6 Hours

UNIT - 2

MARKETING OBJECTIVES AND STRATEGIES-Functional organization of an apparel firm, responsibilities of marketing division strategic plan, marketing objectives & strategies, Retail and Wholesale Strategies of Merchandise Distribution-Labeling and Licensing.

7 Hours

UNIT - 3

MERCHANDISING STRATEGIES & PROCESS- Concepts apparel production lines, dimensions of product change, nature & timing of merchandising responsibilities, business & marketing plans, line planning, line development line presentation, sourcing

7 Hours

UNIT - 4

ANALYSIS OF GARMENT DEVELOPMENT- Role of garment analysis, process of garment analysis, professional perspectives on garment analysis.

6 Hours

PART - B

UNIT - 5

PRODUCT STANDARDS AND SPECIFICATIONS: Sources of Product and Quality Standards- Standards for Quality, Fit, and Performance- Use of Specifications- Writing Specifications for Apparel Manufacturing.

6 Hours

UNIT - 6

APPAREL DESIGN: Product Development and the Design Function- Role of Product Change in the Design Process- Post adoption Style. Development- Apparel Design Technology

6 Hours

UNIT - 7

EXPORT MARKETING: Outlook for export marketing, International agreement & agencies for promoting exports. Export import policy. Export assistance. Current pattern of India's foreign & world trade, Export barriers-tariff & non tariff, Export Assistance.

7 Hours

UNIT - 8

Export marketing channels, physical distribution- transportation, packaging & marine insurance for exports. Management of risk & export financing, Quality control & pre-shipment inspection, documents for exports. An Introduction to retail marketing. Consumer behavior & retail operation. The retail marketing mix. Management of a retail brand. Application of IT in retail marketing.

7 Hours

TEXT BOOKS:

1. **Apparel Manufacturing-**Ruth E. Glock, Grace I. Kunz-**,** PHI Publication, UK
2. **Export Marketing-** B.S.Rathore & J.S.Rathore, Himalaya Publishing house, Bombay, 1997

REFERENCE BOOKS:

1. **The Technology of Clothing manufacture**-Herold Carr and Barbara Latham
2. **Individuality**-Mary Kefgan, Phylliss Touchies Specht
3. **Apparel Manufacturing and Sewn Product Analysis**-Ruth E Clock
4. **Quality Control in Apparel Industry-**By Pradip V. Mehta
5. **Fabulous fit**-By Judith Rashand
6. **Marketing Management-**Phillip Kotler
7. **Retail marketing management –** David Gilbert

SERICULTURE AND SILK TECHNOLOGY

Subject Code	:	**06TX72**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

PRE-COCOON TECHNOLOGY

UNIT - 1

Introduction to sericulture and silk industry. status of sericulture and growth of silk industry in India and abroad

3 Hours

Sericulture: mulberry cultivation – practices, environmental conditions, types of mulberry, diseases and pest of mulberry.

6 Hours

UNIT - 2

General principles of silk worms rearing. Environmental conditions for silk worm rearing, various methods, precautions during rearing. Rearing equipments and their maintenance. Primary requisites for successful silk worm rearing. Chawki rearing practices and recent developments in bivoltine silk rearing.

8 Hours

UNIT - 3

Silk worm seed production and activities in a Grainage house. Diseases and pests of silk worm Uzi-fly menace and its control.

4 Hours

UNIT - 4

COCOONS: different types of cocoons, physical and commercial characteristics- sorting of cocoons- cocoon testing- storage of cocoons

3 Hours

PART - B

UNIT - 5

POST-COCOON TECHNOLOGY PRE-TREATMENT OF COCOONS: Stifling of cocoons- objects, various methods, merits and de-merits. Cocoon cooking- objects, various methods such as open pan, three-pan, conveyor cooking etc., merits and de-merits

6 Hours

UNIT - 6

SILK REELING- Systems of silk reeling- Charaka-cottage basins-multi end filatures, semi automatic and automatic types. Re-reeling and recent developments in reeling of silk.

8 Hours

UNIT - 7

SILK THROWING – objects- winding, doubling, re-winding and twisting. Manufacture of yarns for use in ordinary, chiffon, crepe, georgette fabric-recent developments in silk throwing machinery Silk Weaving preparation of warp and weft yarn- different machinery employed in small scale and organized sectors- Hand loom and Power loom weaving- special features of silk looms. Modifications required on power loom to weave silk fabrics.

7 Hours

UNIT - 8

INTRODUCTION TO SPUN SILK MANUFACTURE- sequences of operations in spun silk mill- end uses of spun silk yarns

Chemical processing of silk- De-gumming, Bleaching an Dyeing of silk fabrics.Printing and Finishing of silk fabrics. Recent Developments in wet processing of silk

7 Hours

TEXT BOOKS:

1. **Hand book of Practical Sericulture**- by S R Ullal and M N Narasimhanna, 1987
2. **Silk manual**- F.A.O Publication
3. **Hand book of silk technology**- T.N. Sonwalkar.
4. **Mulberry Silk Reeling Technology**- D. Mahadevappa, V.G. Halliyal, D.G. Shankar, Ravindra Bhandiwad, Oxford and I B H Publishing company Pvt.,Ltd.,2000

REFERENCE BOOK:

1. **Silk weaving** – Compiled by Zhejiang silk engineering institute,

KNITTING TECHNOLOGY

Subject Code	:	**06TX73**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Introduction to knitting. Evaluation of knitting technology, knitting industries position in India , general terms and principals of knitting technology. Knitting Elements, Elements of knitted loops structures. Comparison of warp and weft knitting

6 Hours

UNIT - 2

WEFT KNITTING: Weft knit structures & their characteristics. The four primary based structures – Introduction, Plain, Production of Single Jersey fabric on a circular latch needle machine, knitting head, knitting action cam system, sinker timing, rib fabric, needle timing, interlock, production of interlock fabric, example of interlock system, purl fabric

7 Hours

UNIT - 3

Various types of weft knitting machines – Fabric machine & garment length machines, straight bar frames, flat machines circular machine. Stitches produced by varying the timing of the needle loop intermeshing.-Held loop, drop stitch, float stitch, float plating, tuck stitch,

7 Hours

UNIT - 4

Ornamentation of weft knit structures. Colour stitch designs in weft knitting- Horizontal striping, intarsia, plating, individual stitch selection, weft knitted jacquard, accordion fabric, rib jacquard. Multiple cam track system, Pattern and selection devices, production of weft knitted fabrics

6 Hours

PART - B

UNIT - 5

Aspects of knitting science- Knitted loop shape & loop length control, loop length warp, warp let-off, knitted fabric geometry, tightness factor, robbing back, needle bounce & high speed knitting. Knitted fabric properties, Star fish project and their implications, relaxation of weft knitted fabrics

7 Hours

UNIT - 6

Different cams used, linear and non-linear cams and their advantages and disadvantages. Properties of hosiery yarns, advantages of positive feed motion. Different types of positive feed mechanism, development in weft knitting

6 Hours

UNIT - 7

Warp Knitting-Basic warp knitting principle- Construction of warp knitted fabrics, warp beams, guide bar, guides, single needle bar structure, pattern mechanism, chain link.

6 Hours

UNIT - 8

Tricot structures knitted with two full set guide bars- two bar tricot, lock knit, reverse lock knit sharkskin, queenscord, double atlas. Surface interest, relief and open work structures, laying in warp knitting. Multiguide bar machines and fabrics. Double needle bar warp knitting machines. Yarn counts, machine gauge, yarn quality for knitting, faults in knitting fabrics, causes and remedies

7 Hours

TEXT BOOKS:

1. **Knitting Technology-**David J Spencer, Pergamon Press 1985, New York
2. **Knitting Technology-**Ajgaonkar, Universal Publishing Company, Bombay 1998
3. **Circular Knitting**,-Mammel Schach

CHEMICAL PROCESSING OF TEXTILES – III

Subject Code	:	**06TX74**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

INTRODUCTION TO TEXTILE PRINTING - An overview of the printing process. Selection of dyes/pigments/auxiliaries and textile substrate to suit the end use of the printed textile materials.

6 Hours

UNIT - 2

The constituents and characteristic of printing paste. Brief study of different binders, thickeners, solvents, discharging agents and other ingredients of printing paste.

6 Hours

UNIT - 3

STYLES OF PRINTING – Direct, discharge, resist and special styles-chemical and mechanisms used for the above styles.

7 Hours

UNIT - 4

METHODS OF PRINTING – Printing by Hand block, Roller, hand screen, semi-automatic screen, flat bed and rotary screen printing methods. Developments in printing machinery.

7 Hours

PART - B

UNIT - 5

TRANSFER PRINTING – Principle, mechanisms and continuous transfer printing – Transfer printing machinery The print paste preparation and preservation. Printing of natural and synthetic fibre fabrics with various classes of dyes/pigments.

6 Hours

UNIT - 6

METHODS OF PRINT FIXATION – Drying, curing by dry heat, steam fixation etc. Finishing process an overview - objects and methods of finishing. Classification of various finishes – Various finishing chemicals used and their properties.

6 Hours

UNIT - 7

CALENDERING AND VARIOUS CALENDERING MACHINES USED. SANFORIZATION – principle and the process. Resin and anti-crease finish on cotton and protein fibre fabrics. Water repellent finishes, fire retardant and fire proof finishes.

7 Hours

UNIT - 8

Finishing of woolen materials, silk fabrics and blended products. Finishing of synthetic fibre fabrics - heat setting, de-lustering, anti-static, soil release, etc.Finishing of knitted fabrics. Fundamentals of computerized colour matching – K/S evaluation and principle of spectrophotometers.

7 Hours

TEXT BOOKS:

1. **Textile printing -** V.A.Shenai, Sevak publications, Mumbai,1996
2. **Textile printing –** L.W.C. Miles, Butterwoths publications
3. **An Introduction to Textile Finishing -** J T Marsh, B Publications, 1979

REFERENCE BOOKS:

1. **Rendering with Pen and Ink-**Thames and Hudson Publication
2. **Printed Textiles-** A Guide To Creative Design Fundamentals, Terry and Gentelle
3. **Chemical Processing** NCUTE Publications 2000 & 2001

ELECTIVE-II (Group B)

NON MULBERRY SILK TECHNOLOGY

Subject Code	:	**06TX751**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Scope for non-mulberry silk in India, mulberry Vs. Non-mulberry. Indias non-mulberry silk potential.

6 Hours

UNIT - 2

Food plants for non-mulberry silk for tassar, eri & muga

6 Hours

UNIT - 3

TASSAR SILK: Prerequisites for expansion tassar silk in India, varies of tassar silk, Morphology, anatomy, tassar cocoon production. Tassar silk reeling technology: reeling machines used, developments in reeling techniques.

7 Hours

UNIT 4

MUGA SILK: scope muga silk in Assam & other north east state, morphology, anatomy & rearing methods. Muga silk reeling & developments in silk reeling techniques.

7 Hours

PART - B

UNIT - 5

Eri silk: scope of eri in tropical & sub tropical regions, morphology, anatomy & reeling techniques,

6 Hours

UNIT - 6

Eri silk reeling & developments in silk reeling techniques.

6 Hours

UNIT - 7

SPIDER SILK: production of spider silk yarn, utilization in spider silk in technical textiles.Diseases & pests for non mulberry silk-causes & remedies.

7 Hours

UNIT - 8

Processing of non mulberry silks & blends-introduction to preparatory & dyeing of non mulberry silk.

7 Hours

TEXT BOOKS:

1. **Handbook of Practical Sericulture-** BY S R Ullal and M. N Narasimhana, 1987
2. **F.A.O Publication silk manual.**
3. **Hand book of silk Technology –** T.N. Sonwalkar
4. **Mulberry silk Reeling Technology** – D.Mahadevappa, V.G. Malliyal, D.G. Shankar, Ravindra Bhandiwad, Oxford and IBH Publishing co. Pvt. Ltd, 2000

TOTAL QUALITY MANAGEMENT

Subject Code	:	**06TX752**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Introduction TQM. Quality movement in Japan, US & India. Definition of quality. Small q & Big Q, Quality characteristics- weaves, Dimensions, determinants. Quality & profitability

6 Hours

UNIT - 2

QUALITY & MANAGEMENT PHILOSOPHIES-Deming Philosophy- Chain reaction, 14 points for management, triangle theory of variance, deadly diseases & sins, Demings wheel. Juran Philosophy- 10 steps for quality improvement, quality trilogy, universal breakthrough sequence.Crosby Philosophy- Crosby's 6 C's, Absolutes of quality, Crosby's 14 points for quality, Crosby triangle. Comparison of 3 major quality philosophies

7 Hours

UNIT - 3

MANAGING QUALITY- traditional Vs Modern quality management, the quality planning, road map, the quality cycle. Cost of quality- Methods to reduce cost of quality, Sampling plans, O.C. curve

6 Hours

UNIT - 4

QUALITY CONTROL - Objectives of quality control, Strategy & policy. Company wise quality control. Quality Assurance- Definition, concepts & objectives. Economic models for quality assurance. Statistical methodology in quality assurance. Process capability ratio, 6 sigma in quality assurance.

7 Hours

PART - B

UNIT - 5

QUALITY IMPROVEMENT, PRINCIPLES OF TOTAL QUALITY, EVOLUTION OF TOTAL QUALITY CONTROL & PRINCIPLES.TQM- Basic concepts & overview. Necessity of TQM. Elements of TQM, benefits of TQM, TQM in services, ISO 9000 & ISO 14000 in quality management system

7 Hours

UNIT - 6

FOCUSSING ON CUSTOMER- Importance of customer satisfaction, Kano's model of customers satisfaction, customers driven quality cycle, understanding customers needs & wants, customers retention.

6 Hours

UNIT - 7

LEADERSHIP- Introduction, characteristics of quality leaders, role of TQM in leadership.Tools & Techniques of TQM, Just in time system-Concepts, objectives, overview, characteristics, benefits. Benchmarking- Introduction, process of bench marking, benefits, advantages & limitations

7 Hours

UNIT - 8

SUPPLY CHAIN MANAGEMENT- Objectives, process tools, supply chain management for manufacturing organization & service organization world class manufacturing- becoming world class, relevance of TQM in world class manufacturing. World class supplier, world class customer, present global business conditions, world class companies in 21st century. Future of TQM

6 Hours

TEXT BOOK:

1. **Total Quality Management-** K. Shridhara Bhat Himalaya Publishing House

REFERENCE BOOKS:

1. **Norms For Spinning-**Weaving and Processing, ATIRA Publication, Ahmedabad 1990
2. **Handbooks manuals** – BIS, ASTM, ISO-9000
3. **Total Quality Management**- N.V.R. Naidu, K.M. Babu, G. Rajendra, New age international publishers

FIBRE REINFORCED COMPOSITES

Subject Code	:	**06TX753**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

INTRODUCTION TO COMPOSITES. BASIC NOMENCLATURES – reinforcing phase, continuous phase, matrix, interface etc. Classification of composites with respect to fibre used, matrix used, limitations of engineering metals.

7 Hours

UNIT - 2

Study of mechanical & thermal properties various fibres Viz. Carbon, glass, silicon carbide, boron, kevlar, polyethylene, thisozole etc. used in the production of fibre reinforced composites.

6 Hours

UNIT - 3

Study of major natural fibres (coir, jute) which are used in the production of fibre reinforced composites. Classification of resins, thermoset, thermoplastic metal matrix. There production properties, advantages, disadvantages (phenolic, epoxy, polyester, vinyl easters)

7 Hours

UNIT - 4

COMPOSITES MANUFACTURING TECHNIQUES-Introduction-Hand lay-up-spray-up-prepreg technology-centrifugal casting-filament winding.

6 Hours

PART - B

UNIT - 5

COMPRESSION MOULDING-INJECTION MOULDING-continuous manufacturing techniques. Study of mechanical and thermal properties of various composites viz. Glass, boron, carbon, aramid.

6 Hours

UNIT - 6

Study of various applications of composites mainly in the field like aerospa, medical, sports, ship building automobiles.

7 Hours

UNIT - 7

Brief outline on testing of composites

6 Hours

UNIT - 8

Composite mechanics derivations of various equations related to composite structures viz. Axial modulus, transverse modulus, breaking strength of both continuous filament, reinforced and staple fibre reinforced composites, effect of volume of fibres on mechanical properties of fibre reinforced composites. Fotigue process in fibre reinforced composites.

7 Hours

TEXT BOOKS:

1. **Fibre Reinforced Material Technology-**N.J.Parratt Van Nostrand Reinhold Co, Inc 1972
2. **High Performance Fibre Composites-** J.H.Morely,Academic Press

REFERENCE BOOKS:

1. **DST-polymers and composites-Recent trends-Proceedings of National Seminar**1989, Oxford IBH Pub Co Pvt. Ltd.
2. **Composites Engineering hand boos** -Ed. Mallik P.K., Marcell Dekker, N.Y., 1997.

ELECTIVE-III (Group C)

YARN MANUFACTURE - IV

Subject Code	:	**06TX761**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

INTRODUCTION TO NEW SPINNING SYSTEMS. ELECTROSTATIC AND AIR-VORTEX SPINNING: Principle of yarn formation, problems associated with the production, specifications of the spinning machinery. Raw material requirement, advantages and range of yarn counts.

7 Hours

UNIT - 2

FRICTION SPINNING: Operating principle, kinds of friction spinning systems, technological interrelationships with respect to feed, opening, fibre transport, fibre collection, insertion of twist , yarn withdrawal and winding. Advantages and disadvantages, specialisation of the processes.

7 Hours

UNIT - 3

SELF TWIST AND WRAP SPINNING: Formation of a yarn, specifications of the spinning machines and technological

6 Hours

UNIT - 4

AIR-JET SPINNING: The false twist principle, operating principle of Air-jet spinning, raw material requirements, technical and economic interrelationships and machine specifications

6 Hours

PART - B

UNIT - 5

Study of SIRO spinning properties, variables affecting the properties and applications

6 Hours

UNIT - 6

Bobtex and twistless spinning, various methods, properties of yarn and application

6 Hours

UNIT - 7

Core and cover spinning properties of yarn and application

7 Hours

UNIT - 8

COMPARISON OF THE YARNS PRODUCED BY VARIOUS SPINNING SYSTEMS AND THEIR END USES.TECHNO-economic feasibility of modern methods of yarn production

7 Hours

TEXT BOOKS:

1. **Spun yarn technology**- Oxtoby.Butter Worths
2. **New spinning system,Short staple spinning series-** W.Klein, Textile Inst Vol.V, 1993

REFERENCE BOOKS:

1. **Spinning in the 70's-** P.R.Lord.Mero,Walford,England,
2. **Textile yarns-**B.C.Goswamy,J.G.Martindale-Wiley Intersc, 1995

RECYCLING OF TEXTILES

Subject Code	:	**06TX762**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

INTRODUCTION- Types of useful waste generated in cotton, woolen, silk mills- their origin and classification.

6 Hours

UNIT - 2

Fibre recovery from mixer rags including waste containing man-made fibres

10 Hours

UNIT - 3

Recycling of waste generated in cotton, woolen and silk

5 Hours

UNIT - 4

Waste cutting methods of fibre

5 Hours

PART - B

UNIT - 5

Recycling of man-made material as fibre

8 Hours

UNIT - 6

Recycling of man- made fibres in filament

6 Hours

UNIT - 7

Technological developments in natural fibres

4 Hours

UNIT - 8

Technological developments in man-made fibres.

8 Hours

TEXT BOOKS:

1. **Contemporary textile Engineering-** F. Happy (Ed), Academic press 1982
2. **New fibres from proteins-** Buttersworth Scientific Publications, WORMEU R. L., London 1954.

ERECTION AND MAINTENANCE OF TEXTILE MACHINERY

Subject Code	:	**06TX763**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Basic definitions related to mechanical design, vibration resistance, heat resistance, reliability, longevity, maintainability .Brief outline of engineering material.

6 Hours

UNIT - 2

Different kinds of tools and the devices employed for erection and maintenance. Erection of machines, hoisting - equipment, over head cranes, machine installation conditions. Functions, prerequisite of maintenance and its classification.

7 Hours

UNIT - 3

Function and classification of power transmission equipment and transmission members.

Methods and kinds of repairs of textile equipment used in different departments.

6 Hours

UNIT - 4

Cleaning and washing of parts. Various kinds of wears. Main factors influencing the wear of machine parts and methods increasing their wear resistance. Failure prediction of parts, units and mechanisms

7 Hours

PART - B

UNIT - 5

Basic concepts of maintenance, Study of different maintenance programme, routine and preventive predictive remedial restorative maintenance.

6 Hours

UNIT - 6

Maintenance of spinning, weaving, processing equipment as per the schedule

7 Hours

UNIT - 7

Function of prerequisite of lubricants, different lubricants used in the textile industry, method of lubrication.

6 Hours

UNIT - 8

maintenance of ledgers spare parts etc. machinery maintenance audit and its advantages. House keeping, overhauling.

7 Hours

TEXT BOOKS:

1. **Spinning Textile machinery maintenance-** Pub, SITRA Coimbatore 1980
2. **Weaving Textile Machinery maintenance Pub-** BITRA, Bombay 1980
3. **Spinning, Weaving- & processing machinery maintenance in textile mills-** B.B.Joshi, et al, Textile & Allied industry research organization, Baroda, 1970

REFERENCE BOOK:

1. **Repairs and maintenance**- Pub, MIR

KNITTING TECHNOLOGY LAB

Subject Code	:	**06TXL77**	IA Marks	:	25
No. of Practical Hrs./ Week	:	03	Exam Hours	:	03
Total No. of Practical Hrs.	:	42	Exam Marks	:	50

1. Study of the drive &parts of knitting machine.
2. Production calculations of Knitting machine
3. Study of different type of knitting needles and their dismantling and setting
4. Setting of the stitch cam for adjusting the stitch length
5. Setting of different types of cams to produce different structure like knit miss tuck cam
6. Dismantling and assembling of yarn feeders
7. Dismantling and assembling of positive tape motion
8. Dismantling and assembling of take up motion
9. Training on different knitting machines to produce knitted fabrics of different structures
10. Measurement of geometry of knitted structures
11. Study of the dimensional stability of knitted fabrics for different relaxation conditions
12. Study of different defects produced on different machines and their rectification
13. Study of modern knitting machine by visiting different industries in Bangalore and Tirupur

CHEMICAL PROCESSING OF TEXTILES LAB-III

Subject Code	:	**06TXL78**	IA Marks	:	25
No. of Practical Hrs./ Week	:	03	Exam Hours	:	03
Total No. of Practical Hrs.	:	42	Exam Marks	:	50

1. Preparation of colour charts by light, pigment, chromatic circle and Brewster's theory.
2. Preparation of printing paste using pigment colours
3. Printing practice using Hand blocks and screens with various classes of dyes
4. Preparation of screens for screen-printing.
5. Resist style (batik) of printing on fabrics
6. Discharge style of printing on cotton, PET and silk
7. Tie and dye printing
8. Anti-crease finishing of cotton using formaldehyde and non-formaldehyde based chemicals
9. Softening of cotton and wool
10. Water proof finishing on cotton
11. Experiments on fastness properties of dyed and printed fabrics
12. Evaluation of dye uptake- K/S using spectrophotometer
13. Experiments on Finishing of garments.

VIII SEMESTER

INDUSTRIAL MANAGEMENT

Subject Code	:	**06TX81**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

PRINCIPLES AND FUNCTIONS OF MANAGEMENT, SCIENTIFIC MANAGEMENT. ORGANIZATION: Concept, Importance, Structure, organization chart and types of organization

6 Hours

UNIT - 2

PLANT LOCATION AND LAYOUT: Selection of Site for Textile Mills, Layout for machines in different Unit of a Textile Mill. Principles of plant layout, Plant maintenance

6 Hours

UNIT - 3

WORK ENVIRONMENT: Light requirement, Air-Conditioning, humidification and ventilation for a Textile Mill

7 Hours

UNIT - 4

WORK STUDY: Introduction, objectives, Procedure, Advantages and Components Motion Study - Concept, objectives and Techniques.

7 Hours

PART - B

UNIT - 5

TIME STUDY - benefits, Limitations, procedure and work sampling Material Handling- Principles and Devices.

6 Hours

UNIT - 6

PRODUCTION, PLANNING AND CONTROL: Introduction, objectives, Functions and Procedure, Product Planning, Product Development and Standardization.

6 Hours

UNIT - 7

Importance of Industrial Safety- Causes and consequences of accidents - Safety devices used in Textile Mill. Factory Act pertaining to Safety

7 Hours

UNIT - 8

NATURE AND SCOPE OF ECONOMICS: Fundamental Concepts of Economics, Human wants, law of Supply and Demand. Economic Environment.

7 Hours

TEXT BOOKS:

1. **Management of Textile Industry -**by V.D. Dudeja, Pub., Textile Trade Press, Bombay 1981
2. **A Text book of Factory Organisation** - By Banga T.R. Chaand Publications.
3. **Introduction to Work Study** - Universal Publishing Copr., lIidia
4. **Macro and Macro Economics** - by Dr. Samelson- ELS Publications.

REFERENCE BOOKS:

1. **Management of Textile production** by Ormerod A, Butterwoths Pub. London 1980
2. **Business Management Theory and Practice** by Sinha I.C. and Magali V.N. – Verma Publication, Delhi
3. **Personnel Management** - By C.B. Mamoria, Himalaya Publishing House.

TECHNICAL TEXTILES

Subject Code	:	**06TX82**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

INTRODUCTION TO TECHNICAL TEXTILES. Requirements of fibres, yarns and fabrics for technical textiles. Classification of technical textiles. Study of properties of various fibres used for technical textiles. Agrotech: Textiles used for agriculture, Horticulture and animal husbandry.

6 Hours

UNIT - 2

MOBIL TECH - AUTOMOTIVE TEXTILES - Use of textiles in tires, top covers, upholstery, safety devices of automobiles. Requirements of fibres used for tires, various fibres used for tire cords, tire building, different types of tires, textiles used in Aerospace industry.

6 Hours

UNIT - 3

MEDICAL TEXTILES: Medical application of Textiles, requirements, classification, detailed study of application of textiles in implantable, non-implantable, extra corporal devices and health care hygienic products.

7 Hours

UNIT - 4

GEO TEXTILES: Textiles for civil engineering - Road Railway, bridge, dam construction, functions of geo textiles. Fibre reinforced composites : Introduction, classification of composites, types of fibres, matrix used, applications of composites

7 Hours

PART - B

UNIT - 5

FILTER FIBRES: Introduction, types of filtration requirements, filtration mechanism, cleaning mechanism, Effect of yarns and fabric construction on filtration. Coated fabrics: Introduction, chemistry of coated textiles, coating techniques, fusible interlining.

6 Hours

UNIT - 6

HEAT AND FLAME AND CHEMICAL PROPERTIES**:** Introduction to flammability, thermal behavior of fibres, fire retardant finishes, thermal resistant fibres. Chemical resistant fibres.

7 Hours

UNIT - 7

TEXTILES IN DEFENSE: Introduction, historical back ground, criteria for modern military textiles, textiles for environmental protection, Ballistic protective materials, water proof materials, application of textiles in camouflage. Application of Textiles in Packing, Power transmission, fish nets, sports, electrical industry.

7 Hours

UNIT - 8

SMART TEXTILES: Introduction, concept of smart textiles, various application of smart textiles. Introduction to nanotechnology in textiles. Application of nanotextiles in various field. Production and properties of nanofibres. Prospects of technical textiles in India.

6 Hours

TEXT BOOKS:

1. **Hand book of Technical Textiles**- Ed. A.R.Horrocks, S.C, Anand. Wood Head Pub., England, 2000.

2. **Hand book of Industrial Textiles-** Ed S.Adanur, Technomic Pub., Lancaster-Basel, 1995.
3. **Smart Fibres- Fabris, & Clothig-**Ed. Xiaoming Toa, Wood Head, England, 2001.
4. **Design of Textiles For Industrial**- Applications, ED P.W. Harrison, Pub Textile Institute 1977 Manchester

REFERENCE BOOKS:

1. **Handbook of Industrial Textiles**-e. R. Kaswell, Pub Willington, New York 1963
2. **Industrial Textiles-** P.K.Badami.
3. **International Seminar on Technical Textiles** -by SASMIRA, 2000.

ELECTIVE –IV (Group D)

HUMAN RESOURCE MANAGEMENT

Subject Code	:	**06TX831**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Human resource management, importance and impact on Textile Industry.

6 Hours

UNIT - 2

Understanding and Management of Human behavior at work, individual and group behavior, attitudes. motivation, communication and factors affecting behavioral changes to achieve higher production and profitability.

10 Hours

UNIT - 3

Importance of job analysis and job specifications.

4 Hours

UNIT - 4

Different types of evaluation, basis of promotion, demotion, transfers, methods of training personnel for higher performance and productivity. Advantages and disadvantages of line and group performance in garment Industries.

6 Hours

PART - B

UNIT - 5

Modern methods of recruitment, labour management relation, employ grievances and handling methods.

10 Hours

UNIT - 6

Welfare measures and implementation.

4 Hours

UNIT - 7

Latest amendments in Factories Act, wage and salary administration, incentive scheme. case studies on the above topic

8 Hours

UNIT - 8

Analysis and suggestions. Problem solving and remedies.

4 Hours

TEXT BOOKS:

1. **Personal Management**- Edvin B. Flippe
2. **Personal Management**- Subratha Ghosh.
3. **Personal Management**- Duck Torington.

REFERENCE BOOK:

1. **Management of personnel in India** – N.N Chattargee.

FINANCIAL MANAGEMENT

Subject Code	:	**06TX832**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Finance function, goals of finance management, Financial planning, Major financial decision areas.

6 Hours

UNIT - 2

CAPITAL STRUCTURE: measure of leverage, effects of lever- I, traditional approaches, MM theory of financial leverage and value of the forms. Designing of capital structure- EBIT- EPS analysis, risk-return trade-off.

6 Hours

UNIT - 3

INVESTMENT DECISION: Method of capital budgeting- traditional and time adjusted methods, risk and un-certanity in capital ties, creditor-ship securities. Convertible and tradable warrant.

7 Hours

UNIT - 4

DIVIDEND POLICY: Factors affecting dividend policy relevance of the dividend policy- Walters model, Gordon's model- M.M. theory, types of dividend policies- Bonus shares - corporate dividend policy in practice.

7 Hours

PART - B

UNIT - 5

Market for corporate securities, trading procedures in stock exchange, financial services, leasing, mutual funds, SEBI and market regulation. Working capital management, receivables, inventories and cash management, Merger and take-overs.

6 Hours

UNIT - 6

OBJECTS OF COSTING-elements of costs-types of overheads, Allocation of factory over heads by different methods- determination of selling price. Definition and objects of depreciation-break-even analysis.

6 Hours

UNIT - 7

Definition and Advantages of Cost Accounting. Elements of cost. Introduction, classification, elements and allocation of Material cost. Labour cost and over head cost.

7 Hours

UNIT - 8

PROCESS COST CALCULATION- introduction, special features of Textile processing and its cost calculation. Introduction to standard costing and Budgetary control. Statutory guidelineson the maintenance of cost records.

7 Hours

TEXT BOOKS:

1. **Financial Management-** M.Y. Khan and Jain
2. **Financial Management and Policy-**James Varn Horny
3. **Financial Management-**Keown Scott

ELECTIVE –IV (Group D)

NON WOVEN TECHNOLOGY

Subject Code	:	**06TX833**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Introduction to non-woven fabric, comparison with other fabric forming methods, Classification of non-woven (various approaches).

6 Hours

UNIT - 2

Fibres used in non-woven and their testing, Characteristic features and properties of non-woven fabrics, Identification of non-woven.

6 Hours

UNIT - 3

MANUFACTURE OF NON-WOVEN: Dry methods- various methods of web preparation (opening, blending and cleaning machines used)technology used in production of parallel, cross-laid and random laid webs, web laying, machines.

7 Hours

UNIT - 4

WET METHODS: principles and raw materials, web laying, concept of drift deposition. Adhesive bonding: bonding agents and their application, bonding mechanisms, factors influencing the process, conditions for providing necessary adhesions, various method of adhesive bonding. Mechanical bonding: introduction to needle punching, passage of material though needle loom, pre-needling, specification of a needle, various constructional details of needles.

7 Hours

PART - B

UNIT - 5

various types of needle arrangements, technical particular like needling density, web weight, depth of needle penetration and their relation, needling speed and its effects, fabric structure and properties, patterning major uses of needled fabrics. Research studies on needle punching.

6 Hours

UNIT - 6

Brief outline of thermal and cohesive methods of non-woven production, Details of spun bonding and spun lacing methods, Melt blown technology in non-woven production.

FINISHING OF NON-WOVEN: methods, dyeing and, printing, coating, lamination and special finishing techniques.

6 Hours

UNIT - 7

STRUCTURE AND PROPERTY RELATION IN NON-WOVEN: Structure of non woven, effect of fibre, web and processing parameters on the non- woven fabric properties, theory of mechanics of non-woven, testing of non-woven.

7 Hours

UNIT - 8

APPLICATION OF NON-WOVEN: A detailed study of application on non woven in medical field, home applications, shoes and leather industries" electrical industry, Applications as technical textile in automobiles etc.

7 Hours

TEXT BOOKS:

1. **Non woven** -Radko croma, Textile Trade Press, Manchester, 1971.
2. **Non woven bonded fabrics**- J.Lunenscoloss, Et aI, Ellis Hotwood, London, 1985.
3. **Needle Punching** - Purdy, The Textile Institute, Manchester, 1980.
4. **Research Study on Needle Punched Fabrics**- Subramanyam and Madhusudhanan, International Conference, 1.1. T Delhi, 1993.
5. **Needle punching** - Mrstina and Tejqi, Elsevier,New-York,1990.
6. International Seminar on Non-Woven Book of Papers Published by BITRA, 1990.
7. Non-Woven in 71-John and Willey Eastern publications, 1980.
8. **Non -Woven Materials and Recent Developments**- Gilies Noyes by Dara Corporation, New-Jersey, USA, 1979.
9. **MeltBlown Technique of Non Woven**, Sanjeev Malkan, 1987.
10. **Non-Woven Manufacture** -Prof.N.N. Banerjee.
11. **Non-Woven Manufacture** -Encyclopedia of Textiles, Textile Institute, London.

ELECTIVE-V (Group E)

POLLUTION CONTROL IN TEXTILE INDUSTRY

Subject Code	:	**06TX841**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Quality of Water, BIS standard for drinking water, factors affecting the quality of water and causes of other pollution and remedies.

7 Hours

UNIT - 2

SEWAGE- DEFINITION- characteristics of sewage, general methods of treatment of sewage, disposal of sewage.

6 Hours

UNIT - 3

INDUSTRIAL EFFLUENTS: The disposal of industrial effluents in to streams. Characteristics of textile mill effluents, disposal and effect on the receiving streams.

7 Hours

UNIT - 4

Noise pollution, causes of noise pollution, effects of noise pollution, remedial measures. Methods of noise control in textile mills.

6 Hours

PART - B

UNIT - 5

Brief discussion about different instruments used in analysis of effluents.

7 Hours

UNIT - 6

Pollution and its impact on ecology, environment and society

6 Hours

UNIT - 8

Sources of pollution and its control. Various methods of industrial waste water treatment. Treatment of effluents received from textile wet processing industries.

7 Hours

UNIT - 7

Role of filter fabrics in pollution control. Indian pollution acts, their role and effectiveness. Recent developments in pollution control in various processes in textile mills and manufacturing plants.

6 Hours

TEXT BOOKS:

1. **Water Supply and sewage**-Mc Graw Hill Publication
2. **Waste Water Treatment**- International Publication, M. N. Rao and A. K. Dutta
3. **Waste Water Engg Treatment Disposal Sewage**- Tata Mc Graw Hill Publication
4. **Pollution and its Control**-Chand Publication

REFERENCE BOOKS:

1. **Efficient use of Fuel-** H. M. S. D. Publication London 1958
2. **Energy Resources**- Demand and Conservation with Special Reference to India, C. Kashjan

ELEMENTARY MECHANICS OF TEXTILE STRUCTURE

Subject Code	:	**06TX842**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

Elements of yarn geometry - and their application. Geometry of folded yarns.

7 Hours

UNIT - 2

Yarn diameter and density. Theories of yarn strength.

6 Hours

UNIT - 3

Characteristics of spun and continuous filament yarn.

7 Hours

UNIT - 4

Concept of blend irregularity, and elongation balance.

6 Hours

PART - B

UNIT - 5

Determination of cover factor and its application. Geometry of plain weave fabrics and their applications. Crimp interchange in woven fabrics.

7 Hours

UNIT - 6
Introduction to fabric deformation in tension, bending and shear.

6 Hours

UNIT - 7
Simple geometry of knit structures.

7 Hours

UNIT - 8
Simple mechanics of non woven structures.

6 Hours

TEXT BOOKS:

1. **Textile Yarns**- B. C. Goswami, J. G. Martindale, Pub: Wiley Inter Science
2. **Structural Mechanics of Fibres-** Yarns, Fabrics, Vol-1, J. N. S. Hearle, P Grobey, S. Becker, Pub Wiley InterScience
3. **Textile Mathematics-**Vol I, II & III, J E. Booth, Pub: Textile Institute

REFERENCE BOOKS:

1. **Spun Yarn Technology,-**Oxtoby, Pub: Butterworth
2. **Fibres, yarns, Fabrics-** Kaswell Pub: Textile Institute

ELECTRONIC CONTROLS IN TEXTILE MACHINES

Subject Code	:	**06TX843**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1
BASICS OF ELECTRONICS: Introduction, general concepts, Kirchoff's current laws, Kirchaff's voltage law, Thevinin's theorem, Norton's theorem

6 Hours

UNIT - 2
Analog electronics, Ideal diodes, rectifiers, half wave rectifiers, wave shaping circuits, ideal amplifiers, ideal operational amplifiers, inverting amplifiers, field effect transistors, Mosfet Biasing circuit, Thyristors digital electronics, loic gates and operation, logic gate memory and digital processing resistors.

7 Hours

UNIT - 3

Automatic textile control system, feed forward control system, combined loop control system, electronic system for textile testing, modern evenness tester.

7 Hours

UNIT - 4

Electronic inspection boards, modern airiness tester, working principle of strain gauge transducers, on line quality monitoring in ring frame, optical sensors for textile machines, textile quality control through digital imaging. Nep control at card.

6 Hours

PART - B

UNIT - 5

AC / DC drives in textile machine, Basic principles of induction motor operations, induction motor drive, load commutated inverted drives, motor used in various textile processes.

7 Hours

UNIT - 6

MICRO CONTROLLER APPLICATION IN TEXTILE INDUSTRY: Introduction to micro controller signal, conditioning and data converters.

6 Hours

UNIT - 7

Building blocks of textile automation, voltage follower, instrumentation amplifier, data converters, digital to analog converters, analog to digital converters, bridge rectifier fed drive.

7 Hours

UNIT - 8

Microprocessor base controller for DC motor drives, AC regulator, Synchronous motor speed drive. Maintenance methods of electronic system in textile mills.

6 Hours

TEXT BOOKS:

1. **Electronic controls in textile machines-** NCUTE training material, IIT, New Delhi

PROJECT WORK

Subject Code	:	**06TX85**	IA Marks	:	100
Project Hrs/ Week	:	12	Exam Hrs	:	03
			Exam Marks	:	100

The Project has to be assigned at the beginning of the Seventh semester. The Project Group should complete preliminary literature survey and plan of project at the end of Seventh Semester. The Project work should be carried out and completed in Eighth Semester.

SEMINAR ON PROJECT

Subject Code	:	**06TX86**	IA Marks	:	50
Seminar Hrs/ Week	:	03			

The Students are required to give the comprehensive presentation in the forms of seminar on the Project work carried out in the VIII semester. The Seminar should be evaluated as Internal Assessment.