

THIRD SEMESTER
B. TECH. (Textile Technology)

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<ul style="list-style-type: none"> • System of expressing yarn linear density. • Object of ginning • Description and working of knife-roller, Mecarthy and Saw gin • Objects of mixing. • Principles underlying the selection of cotton for mixing. Different methods of mixing
II	<ul style="list-style-type: none"> • Study of different blending methods, their advantages and disadvantages. • Problems in blending of man-made fibre with cotton • Objects of blow-room • Various types of openers, their construction and working
III	<ul style="list-style-type: none"> • Lap forming mechanisms • Objects and arrangements of calendar roller and their weighing • Selection of machinery according to the type of cotton and their suitable combinations
IV	<ul style="list-style-type: none"> • Nature of waste extracted in various openers and beaters • Lap rejection causes of lap defects and their remedies. • Processing parameters for working different varieties of cotton in blow room. • Calculations pertaining to production of blow-room machinery under normal mill conditions.
V	<ul style="list-style-type: none"> • Blow room accessories e. g; Shirley analyzer, Lap meter, Varimeter, V-signal, moisture indicator . • Introductory idea about cleaning efficiency and opening efficiency of blow room machinery • Brief outline of setting the blow room line for man-made fibers • Measurement of blow room performance . Lap quality parameteras.
Books & Author's	Cotton Ginning, Textile Progress Vol.24 No.2 Spun Yarn Technology The Technology of Short Staple Spinning Part-I,II,III & IV Spinning of Manmade & Blends on Cotton System
	I Doraiswamy, P Chellamani Eric Oxtoby W Klein KR Salhotra

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<ul style="list-style-type: none"> • Introduction to weaving • Process and type of Looms, Plain, Hand Loom, Power Loom • Loom: Primary, secondary and auxiliary motions • Loom drive • Production and efficiency calculations
II	<ul style="list-style-type: none"> • Various ways of shedding & types of sheds • Tappet shedding mechanism, different types & idea of construction of tappet • Early & late shedding calculation of lift of tappet
III	<ul style="list-style-type: none"> • Various type of picking mechanism-Under & over pick mechanism • Early & late picking concept • Reason of shuttle fly & shuttle trap • Shuttle speed calculations
IV	<ul style="list-style-type: none"> • Sley beating up motion types of temple & utility on loom. • Negative and continuous take –up motion (advantages and disadvantages) • Five & seven wheel take up motion and their calculation
V	<ul style="list-style-type: none"> • Objects of let-off motion • Negative let-off motion • Warp protecting motion: Loose reed-fast reed • Brake motion
Books & Author's	<p>Principles of Weaving Weaving Mechanism, Part I, II Weaving Woven Fabric Production – I, II</p> <p style="text-align: right;">R Marks & ATC Robinson NN Banerjee Talukdar, Azgaonkar and Sriramulu NCUTE Publications</p>

TEXTILE FIBERS

[3TT3]
[Common with 3TC1, 3TE3]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject	
I	<ul style="list-style-type: none"> • Definition and classification of textile fibers on the basis of their sources. Essential and desirable properties of textile fibers. • Advantages and disadvantages of natural and manmade fibres • Polymerization , degree of polymerization, inter –polymer forces of attraction , requirements of fibre forming polymers and general considerations with regard to fibre properties 	
II	<ul style="list-style-type: none"> • Geographical distribution, cultivation practices, fiber morphology, properties and uses of cotton. • Cultivation and retting practices, fiber morphology, properties and uses of jute, flex, rammie, hemp, sisal and coir fibers. 	
III	<ul style="list-style-type: none"> • Classification , varieties, sorting and grading of wool, morphological structure ,properties and uses of wool fiber. 	
IV	<ul style="list-style-type: none"> • Varieties of silk • Rearing of silk worm, cocooning, silk reeling, throwing and weighting • Varieties of silk yarns and fabrics • Morphology, properties and uses of silk fiber 	
V	<ul style="list-style-type: none"> • Brief outline of manufacturing process and properties of regenerated fibers viz. viscose rayon, acetate -rayon, cupra-ammonium rayon. • Brief manufacturing process and properties of important synthetic fibers viz. Polyester, Nylon, Acrylics. 	
Books & Author 's	Handbook of Textile Fibres A Text Book of Fibre Science Manmade Fibres	J Gordon Cook Dr. S P Mishra RW Moncriff

WEAVING PREPARATION – I

[3TT4]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject	
I	<ul style="list-style-type: none"> • Various systems of yarn production, Sequence of machines in the weaving preparation department for different classes of fabrics. • Warp winding – objects of winding, Tensioners and tension setting 	
II	<ul style="list-style-type: none"> • Yarn clearers and its settings • Yarn classifying systems • Traverse mechanism for cross wound pickings 	
III	<ul style="list-style-type: none"> • Concept of precision winding • Classification of winding machines • Rotoconer winding machine. 	
IV	<ul style="list-style-type: none"> • Automatic winding machine • Auto-coner – passage and technical details. • Production calculation of various winding machines. 	
V	<ul style="list-style-type: none"> • Pirn winder, object, shape of pirns. • Hacoba pirn winder and various devices, • Production calculation 	
Books & Author 's	Modern Preparation & Wvg Machine Textile Mathematics Vol. III Weaving Yarn Preparation I & II	Ormerod JE Booth Ormerod R. Sengupta

OBJECT ORIENTED PROGRAMMING

[3TT5]
[Common with 3TC5, 3TE5]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 2	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	Introduction: Review of structures in C, accessing members of structures using structure variables, pointer to structures, passing structures to functions, structures as user defined data types.
II	Introduction to programming paradigms- Concept of object, class, objects as variables of class data type, difference in structures and class in terms of access to members, private and public Basics of C++: Structure of C++ programs, introduction to defining member functions within and outside a class, keyword using, declaring class, creating objects, constructors & destructor functions, Initializing member values with and without use of constructors, simple programs to access & manipulate data members, cin and cout functions. Dangers of returning reference to a private data member, constant objects and members function, composition of classes, friend functions and classes, members of a class, data & function members. Characteristics of OOP- Data hiding, Encapsulation, data security.
III	Operator overloading: Fundamentals, Restrictions, operator functions as class members v/s as friend functions. Overloading stream function, binary operators and unary operators. Converting between types.
IV	Inheritance: Base classes and derived classes, protected members, relationship between base class and derived classes, constructors and destructors in derived classes, public, private and protected inheritance, relationship among objects in an inheritance hierarchy, abstract classes, virtual functions and dynamic binding.
V	Multiple inheritance, virtual base classes, and class members, multiple class members. Templates, exception handling
Books & Author 's	OBJECT ORIENTED PROGRAMMING C++ OBJECT ORIENTED PROGRAMMING C++ OBJECT ORIENTED PROGRAMMING C++- A Balagurswamy Schaum Series Robert Lafare

ADVANCE ENGINEERING MATHEMATICS- I

[3TT6]
[Common with 3TC6, 3TE6]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	•
II	•
III	•
IV	•
V	•
Books & Author 's	

THIRD SEMESTER PRACTICALS

3TT 7 Spinning Practical –I :
hrs/week-4

Max marks-100

Practice in handing and operation of blow room. Study of constructional details of machinery: Various controls, change place, etc. Practice in checking of the quality of lap . Calculation pertaining to blow-room.

3 TT 8 Weaving Practical -I
hrs/week-4

Max marks-100

Pirn winding machine special mechanism of Hacoba Pirn winding machine . Various type of clears. Supply packages like Cone ,Chese, cone winding machine. Calculation of speed and production . Primary motions, i.e. shedding , picking beating . Secondary motion i.e. take-up , let –off (positive & negative). Drawing in process type of heald frame and Reed.

3TT 9 Textile Fiber Identification& Analysis Practical :
hrs/week-4

Max marks-100

Principle of microscopy ,microscopic identification of fibers, preparation and mounting of specimen for longitudinal view. Microscopy. Standard scheme of analysis of homogenous fiber and blends by physical and chemical methods Qualitative and Preparation of reagents used for chemical analysis.

3TT10 Object Oriented Programming Lab
hrs/week-2

Max marks-50

Practical based on C++ programming and application in textile.

3TTDC Discipline & Extra Curricular Activities

Max marks-50

**FOURTH SEMESTER
B. TECH. (Textile Technology)**

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject																		
I	<ul style="list-style-type: none"> • Objects of carding, • Introduction to roller & clearer card • Detailed study of revolving flat card • Constructional features and working details of liker- in, cylinder, doffer and flats. 																		
II	<ul style="list-style-type: none"> • Elementary idea about Carding theories. • Flexible and metallic card clothing, stripping and grinding. • Processing parameters for different materials • Carding defects and their remedies 																		
III	<ul style="list-style-type: none"> • Fiber neps, their assessment and control • Introductory information about modern developments in carding • Control of waste and cleaning in carding • Calculations pertaining to draft and production of the machines dealt with course 																		
IV	<ul style="list-style-type: none"> • Objects of drawing. Working principle of draw frame including constructional details • Systems of drafting, weighing in draw frames • Mechanical and electrical stop-motions • Draft distribution: various types of drafting rollers and their construction 																		
V	<ul style="list-style-type: none"> • Coiling systems: over coiling; under coiling and bicoiling • Concept of ideal draft and formation of drafting waves • Principles of roller setting • Introduction to modern developments in draw frames • Calculations pertaining to draft and production of the machine dealt with course 																		
Books & Author's	<table border="0"> <tr> <td>Cotton Ginning, textile Progress Vol24, No.2</td> <td>IDoroiswamy,P Chellamani</td> </tr> <tr> <td>Spun Yarn Technology</td> <td>Eric Oxtoby</td> </tr> <tr> <td>Wool Handbook</td> <td>Werner Von Bergen</td> </tr> <tr> <td>The Technology of Short Staple Spinning Part I,II,III & IV</td> <td>W Klein</td> </tr> <tr> <td>Spinning of Manmade & Blends on Cotton System</td> <td>KR Salhotra</td> </tr> <tr> <td>Cotton Combing</td> <td>GR Merill</td> </tr> <tr> <td>Cotton Spinning</td> <td>WS Taggart</td> </tr> <tr> <td>Cotton Drawing & Roving</td> <td>GR Merrill</td> </tr> <tr> <td>Drawing & Roving</td> <td>RH Hill</td> </tr> </table>	Cotton Ginning, textile Progress Vol24, No.2	IDoroiswamy,P Chellamani	Spun Yarn Technology	Eric Oxtoby	Wool Handbook	Werner Von Bergen	The Technology of Short Staple Spinning Part I,II,III & IV	W Klein	Spinning of Manmade & Blends on Cotton System	KR Salhotra	Cotton Combing	GR Merill	Cotton Spinning	WS Taggart	Cotton Drawing & Roving	GR Merrill	Drawing & Roving	RH Hill
Cotton Ginning, textile Progress Vol24, No.2	IDoroiswamy,P Chellamani																		
Spun Yarn Technology	Eric Oxtoby																		
Wool Handbook	Werner Von Bergen																		
The Technology of Short Staple Spinning Part I,II,III & IV	W Klein																		
Spinning of Manmade & Blends on Cotton System	KR Salhotra																		
Cotton Combing	GR Merill																		
Cotton Spinning	WS Taggart																		
Cotton Drawing & Roving	GR Merrill																		
Drawing & Roving	RH Hill																		

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<ul style="list-style-type: none"> Types of dobbies, Keighly, Climax, dobe cross doobby, cross border doobby Preparation of chain for different kinds of design used in dobbies. Negative and positive dobbies with setting
II	<ul style="list-style-type: none"> Detail of let-off motion, type Roper and barlet let-off motion with special reference to Cimmco, Ruti and their setting
III	<ul style="list-style-type: none"> Multiple box motion Ecles drop box motion Pick and pick loom Preparation of pattern chain pertaining to above dobbies and multi box motion
IV	<ul style="list-style-type: none"> Side and center weft fork motion Filament weaving used on loom (Timing and setting)
V	<ul style="list-style-type: none"> Fabric defects, causes and remedies Calculation pertaining to above mechanism Some loom shed, average production, efficiency and loom chart
Books & Author's	Principles of Weaving Weaving Mechanism, I & II Weaving Woven Fabric Production – I, II

R Marks & ATC Robinson
NN Banerjee
Talukdar, Azgaonkar & Sriramulu
NCUTE Publications

WEAVING PREPARATION – II

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<ul style="list-style-type: none"> Warping- object, classification of warping machines Beam warping- passage Various mechanisms Calculation of production and efficiency.
II	<ul style="list-style-type: none"> Sectional warping machine objects, passage Warping calculation, traverse mech and its calculation
III	<ul style="list-style-type: none"> Objects, size ingredients Sizing machine passage Properties of size paste Cylinder drying, hot air drying
IV	<ul style="list-style-type: none"> Size box and its developments Calculation of concentration, Viscosity and speed of sizing machine Factors affecting size take up
V	<ul style="list-style-type: none"> Looming process , Accessories like reed, healds and drop pins Manual drawing-in , semi auto and fully auto drawing-in Knitting-in process and it developments
Books & Author's	Modern Preparation & Wvg Machine Textile Mathematics Vol. III Weaving Yarn Preparation I & II

Ormerod
JE Booth
Ormerod
R. Sengupta

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<p>Introduction of Wet Processing</p> <ul style="list-style-type: none"> • Impurities in raw cotton, wool and silk. • Adventitious impurities in Grey fabrics made out of cotton, wool and silk. • Elementary knowledge of processing. • Objects of different processes involved e.g., singeing, desizing, scouring, bleaching.
II	<p>Pretreatments:</p> <ul style="list-style-type: none"> • Processing sequence in conversion of Grey cotton goods into semi bleached, full bleached and color bleached fabrics • Chemical used in these processes • Introductory knowledge of machinery used in scouring and bleaching of cotton fabric
III	<p>Dyeing:</p> <ul style="list-style-type: none"> • General method of dyeing by important classes of dyes on natural and man-made fibers e.g., direct, acid, basic, vat, azoic, sulphur and disperse dyes • Chemicals/auxiliaries used in dyeing • Introductory knowledge of dyeing machines
IV	<p>Printing:</p> <ul style="list-style-type: none"> • Introduction to various methods of printing of textiles, instruments and machinery used • Introduction to various styles of printing viz. direct, discharge, resist etc.
V	<p>Finishing:</p> <ul style="list-style-type: none"> • Object of finishing and application of various type of finishes • Elementary knowledge of finishing machines
Books & Author's	<p>Technology Of Dyeing Chemical Technology of Fibrous Materials Textile Processing and properties Dyeing and Chemical Technology of Fibres</p> <p style="text-align: right;">V. A. Shehnai, Vol. 6 Sadov Vigo E.R. Trotman</p>

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject										
I	Polymers <ul style="list-style-type: none"> Defination of polymer, Classification of polymers, Different kinds of polymer materials, Fibrous polymers and their Morphology. Molecular weight of polymer molecule, different types of molecular weight averages , Polydispersity, Molecular weight measurement methods. Concept of micro-structure of chain molecules, crystallinity, orientation 										
II	<ul style="list-style-type: none"> Basic principle of fluid flow during fibre spinning Introduction to Melt spinning. melt spinning variables and conditions for continuous spinning. 										
III	<ul style="list-style-type: none"> Introduction to solution spinning processes and process variables, preparation of the dope and process of dry spinning, preparation of the spinning solution and process of wet spinning, coagulation Comparative study of spinning processes. 										
IV	Post extrusion processes <ul style="list-style-type: none"> Introduction of spin finish, functions of spin finishes, properties of spin finishes, spin finish components, methods of spin finish application, spin finish for staple fibres, filaments, yarns and other processes, problems associated with the use of spin finish. 										
V	Drawing and setting process <ul style="list-style-type: none"> Introduction to drawing, drawing machines, the drawing behaviour of thermoplastic fibres, influence of drawing on structure and properties of fibres, draw warping. Introduction to heat setting, nature of set, heat setting behaviour of polyamide and polyester fibres, measurement of degree of set. 										
Books & Author's	<table> <tbody> <tr> <td>Textile Yarn</td> <td>Martindle and Goswami</td> </tr> <tr> <td>Man Made Fibres</td> <td>RW Moncrieff</td> </tr> <tr> <td>Man Made Fibre; Science & Technology</td> <td>F Mark, M Atlas & E Cernia</td> </tr> <tr> <td>Polyester Fibres Chemistry and Technology</td> <td>Harman Ludewig</td> </tr> <tr> <td>Synthetic Fibres</td> <td>Vaidya</td> </tr> </tbody> </table>	Textile Yarn	Martindle and Goswami	Man Made Fibres	RW Moncrieff	Man Made Fibre; Science & Technology	F Mark, M Atlas & E Cernia	Polyester Fibres Chemistry and Technology	Harman Ludewig	Synthetic Fibres	Vaidya
Textile Yarn	Martindle and Goswami										
Man Made Fibres	RW Moncrieff										
Man Made Fibre; Science & Technology	F Mark, M Atlas & E Cernia										
Polyester Fibres Chemistry and Technology	Harman Ludewig										
Synthetic Fibres	Vaidya										

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 2	Theory Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	Semiconductor Diodes: Introduction, characteristics and their applications <ul style="list-style-type: none"> • Ideal diode • PN semiconductor diode • Diode equivalent circuits • Zener diode • Light diodes
II	Field Effect Transistors: <ul style="list-style-type: none"> • Introduction, Construction and characteristics of JFETS • Transfer characteristics, • BJT, their characteristics and applications. Transistor Amplifiers: <ul style="list-style-type: none"> • Classification of amplifiers • Biasing and compensation techniques • R-C coupled amplifier, tuned amplifier, operational amplifier their characteristics and applications • Digital to analog and analog to digital conversion
III	Operational Amplifiers (OpAmp): <ul style="list-style-type: none"> • Introduction, Block diagram, parameters of OpAmp IC 741 • OpAmp in inverting and non-inverting configuration • Some applications of OpAmp Semiconductor Devices: <ul style="list-style-type: none"> • Introduction of silicon controlled rectifier • GTO • TRIAC, DIAC • Injunction transistors, IGBT
IV	Cathode Ray Oscilloscope: <ul style="list-style-type: none"> • Introduction, Cathode ray tube – theory and construction Transducers: <ul style="list-style-type: none"> • Introduction, resistive, Inductive, capacitive transducers. • Construction and working principle of strain gauge, LVDT, RVDT • Summing devices, measurement of linear displacement • Pressure measuring using transducers • Construction and working of thermocouple and thermistor, measurement of temperature using them Data Acquisition Systems: <ul style="list-style-type: none"> • Introduction, Components and uses
V	Process control: <ul style="list-style-type: none"> • Application of microprocessors in process control with special emphasis on textiles • Minimum microprocessor based system requirement • Examples of process control from textile and garment manufacturing engineering
Books & Author's	Electronic Devices & Circuit Theory Robert Boylestad & Louis Nashelsky Basic Electronics Principle Milliman & Halkias Electrical & Electronics Measurement and Instrumentation Sawhney AK Industrial Electronics and Control S. K. Bhattacharya

PRACTICALS

4TT7 Spinning Practical -II **hrs/week-4**

Max marks-100

Familiarity with carding machine, constructional details, change places, effect of various machine parameters in production and quality of sliver. Checking the quality of silver. Calculation pertaining to card. Card dropping and wastes and their analysis including cleaning efficiency. Practice in checking the quality of lap; and sliver, methods of rectifying defects there in. calculation pertaining to card gearing.

4TT8 Weaving Practical -II **hrs/week-4**

Max marks-100

Secondary motion take –up & Let off motion . Speed calculation & * production 5 wheel & 7 wheel take –up, motion. Warp protecting motion side & centre weft fork motion. Sectional warping m/c passage & Road speed calculation, Negative climax dobbling & eules drop box.

3TT9 TEXTILE CHEMICAL PROCESSING LAB **hrs/week - 4**

Max marks-100

Pre-treatments such as desizing, scouring and bleaching. Dyeing of cotton, wool, silk and rayon fibres.

4TT10 APPLICATION OF ELECTRONICS & MICROPROCESSOR IN TEXTILE MACHINES PRACTICAL **hrs/week - 2**

Max marks-50

- Study of CRO
- Study of Lab components
- Study of VI characteristics of DIODE
- Study of VI Characteristics of Zener Diode
- Study of VI Characteristics of Transistor in CB Configuration.
- Study of VI Characteristics of FET SCR.
- Study of OpAmp in Inverting Mode
- Study of OpAmp of non-inverting mode
- Study of OpAmp as Adder, Subtractor, Integrator, Differentiator
- Study of working of Data Acquisition System
- Study of LVDT
- Study of VI Characteristics of RTD, Thermistor
- Study of Stain gauge.

4TTDC Discipline & Extra Curricular Activities

Max marks-50

**FIFTH SEMESTER
B. TECH. (Textile Technology)**

YARN MANUFACTURING – III

[5TT1]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject		
I	Combing <ul style="list-style-type: none"> • Object of combing • Systems of lap preparation • Study of sliver lap, ribbon lap and super-lap machines • Configuration of fibre feed and its effect on the quality of product, noil percentage and fractionation efficiency of comber 		
II	Comber <ul style="list-style-type: none"> • Types of combers • Detailed study of the Nasmith and modern comber • Timing and setting of comber for different classes of cotton • Control of comber waste 		
III	<ul style="list-style-type: none"> • Calculation pertaining to draft, production and noil percentage • Introduction to the recent developments in coming. and simplex 		
IV	Speed frame <ul style="list-style-type: none"> • Objects of speed frame • Conventional and modern roving processes • Mechanisms involved in drafting, twisting and winding • Basic principles of designing of cone drums • Differential motions and their working principles • Building motions, their objects and types, working principle of English type builder motions • Drafting systems (Ordinary and high draft) 		
V	<ul style="list-style-type: none"> • Processing parameters for different rovings • Common defects in roving packages, their causes and remedies • Calculations pertaining to gearing, constants, drafts, tpi and production • Twist multiplier and roving twist • Introduction to the changes to be made on roving frame to run man-made fiber 		
Books & Author's	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> Cotton Ring Spinning Cotton Spinning Manual of Cotton Spinning Process Control in Spinning Essential Elements of Practical Cotton Spinning Textile Mathematics Cotton Ginning, Textile Progress Vol.24 No.2 Spun Yarn Technology The Technology of Short Staple Spinning Part-I,II,III & IV Spinning of Manmade & Blends on Cotton System </td> <td style="width: 50%; vertical-align: top;"> GR Merrill WS Taggart DeBarr & Catling ATIRA TK Pattabhiram JE Booth I Doraiswamy, P Chellamani Eric Oxtoby W Klein KR Salhotra </td> </tr> </table>	Cotton Ring Spinning Cotton Spinning Manual of Cotton Spinning Process Control in Spinning Essential Elements of Practical Cotton Spinning Textile Mathematics Cotton Ginning, Textile Progress Vol.24 No.2 Spun Yarn Technology The Technology of Short Staple Spinning Part-I,II,III & IV Spinning of Manmade & Blends on Cotton System	GR Merrill WS Taggart DeBarr & Catling ATIRA TK Pattabhiram JE Booth I Doraiswamy, P Chellamani Eric Oxtoby W Klein KR Salhotra
Cotton Ring Spinning Cotton Spinning Manual of Cotton Spinning Process Control in Spinning Essential Elements of Practical Cotton Spinning Textile Mathematics Cotton Ginning, Textile Progress Vol.24 No.2 Spun Yarn Technology The Technology of Short Staple Spinning Part-I,II,III & IV Spinning of Manmade & Blends on Cotton System	GR Merrill WS Taggart DeBarr & Catling ATIRA TK Pattabhiram JE Booth I Doraiswamy, P Chellamani Eric Oxtoby W Klein KR Salhotra		

FABRIC MANUFACTURING-III**[5TT2]**

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	Jacquard shedding <ul style="list-style-type: none"> • Classification of jacquards • Single Lift Single Cylinder, Double Lift Single Cylinder, Double Lift Double Cylinder • Shed forming element, drive & timing of above Machine
II	<ul style="list-style-type: none"> • Self twilling, pressure harness, cross border jacquard, card cutting operation for mechanical jacquard • Electrical jacquard • electronic jacquard • Warp stop motion & its setting
III	Terry weaving <ul style="list-style-type: none"> • Essential feature of terry weaving loom • Various principle of terry pile formation • Terry let- off-heading , fringing-motion • Modern development in terry structure
IV	<ul style="list-style-type: none"> • Automatic weft replacement device on loom • Pirn changing • Shuttle changing • setting & timing of above mech.
V	<ul style="list-style-type: none"> • Basic concept of Unifil loom winder • Basic concept of Bobbine lodder • Introduction to shuttle less weaving machine, projectile, rapier with reference to picking
Books & Author's	Principles of Weaving Weaving Mechanism Weaving Mechanism Fancy Weaving Woven Fabric Production – I, II
	R Marks & ATC Robinson T. FOX Talukdar, Azgaonkar & Sriramulu K. T. Ashwini NCUTE Publications

TEXTILE TESTING-I

[5TT3]
[Common with 5TC3, 5TE3]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 2	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject	
I	Introduction to textile testing <ul style="list-style-type: none"> • Aim and scope Sampling techniques <ul style="list-style-type: none"> • General requirements, squaring, cut squaring and Zoning methods for sampling of raw material • Sampling techniques for yarn and fabrics for specific tests • Routine Sampling techniques used in the textile industry 	
II	Hygrometry and moisture relations of textiles <ul style="list-style-type: none"> • Terms and definitions • Relation between Relative Humidity. and regain of textile materials • Equilibrium regain, hysteresis • Measurement of regain principle and operation of equipment • Official regain and concept of current invoice weight 	
III	Measurement of fibre physical characteristics <ul style="list-style-type: none"> • Fibre length, fineness, maturity and foreign matter of cotton and other fibres • Principle, construction, operation and calibration of equipment in common use for measurement of above properties • Grading of different cottons • Nep testing of cotton 	
IV	Fibre friction <ul style="list-style-type: none"> • Theories and measurement of friction of single and fibre assemblies during drafting Yarn numbering systems <ul style="list-style-type: none"> • Numbering systems • Conversion methods • Measurement of yarn number Measurement of yarn properties <ul style="list-style-type: none"> • Twist in spun, continuous filament and ply yarns Measurement of fabric properties <ul style="list-style-type: none"> • Serviceability, wear and abrasion • Definitions, methods for measuring abrasion resistance and evaluation of results • Fabric creasing and crease recovery testing 	
V	Methods of test for fabric dimensions and other physical properties <ul style="list-style-type: none"> • Thickness,Weight • Crimp • Shrinkage • Air permeability • Wet ability • Shower-proofness • Water- proofness • Flame-resistance 	
Books & Author's	Principles of Textile Testing Physical Properties of Textile Fibres Physical Testing of Textiles	JE Booth WE Morton & JWS Hearle B P Savelle

STRUCTURE AND PROPERTIES OF FIBRE

[5TT4]
[Common with 5TC4]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	Structure of fibres: Morphology and order in fibre structure. Theories of fine structure of fibres. Methods of determination of molecular structures (crystallinity and orientation, crystal size), by X-ray methods, electron and optical microscopy,
II	Mechanical properties: Mechanism of deformation in fibres. Principles of elasticity and viscoelasticity. Phenomenological approach – stress-strain, creep and stress-relaxation behaviour of fibres. Simple spring and dashpot models simulating textile fibres.
III	Moisture properties: Absorption in fibres, hysteresis, quantitative analysis of moisture absorption, Pierce's theory, Swelling, heat of sorption.
IV	Thermal properties: Molecular motions and transition phenomenon. First order and second order transition phenomenon. Thermal expansion behaviour. Concept of heat setting and pleating. Specific heat of fibres – theoretical and actual.
V	Optical properties : Polarizability and refractive index. Birefringence and its measurement. Absorption and dichroism. Electrical properties: Di-electric properties and its measurement, effect of frequency and temperature of dielectric constant. Electrical resistance and its measurement. Static electricity and measurement of static charge in fibres. Frictional properties of fibers – nature and measurements.
Books & Author's	Physical properties of Fibres Hearle and Morton

FABRIC STRUCTURE**[5TT5]**

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 2	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<ul style="list-style-type: none"> • Classification of fabrics , definition and methods of construction of weave, draft , lifting plan and denting order . Weave repeat unit and its requirements. Heald and reed calculations, and types of drafts viz: straight, skip, pointed and sateen. • Plain weave • Derivatives and ornamentation.
II	<ul style="list-style-type: none"> • Twill weave , classification of twill weave • Derivatives of twill weave • Effect of twist on prominence of twill lines
III	<ul style="list-style-type: none"> • Sateen & satins, their extensions • Crepe weave • Diamond and diaper
IV	<ul style="list-style-type: none"> • Mock leno • Honey comb • Huck-a- back
V	<ul style="list-style-type: none"> • Cork screw • Bedford cords • Welt and pique fabrics
Books & Author's	Textile Design and Colour Grammer of Textile Design <p style="text-align: right;">W Watson H Nisbet</p>

ELECTIVES
PRACTICAL APPLICATION OF STATISTICS

[5TT6.1]

[Common with 5TC6.1,5TE6.1]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	Sampling and Estimation <ul style="list-style-type: none"> Repeated Sampling, the mean and variance of a function of random variables, linear functions The central- limit theorem, sampling distribution of the mean The Chi-square test. Point estimates, interval estimation, confidence limit
II	Some standard significance tests <ul style="list-style-type: none"> Test for a single mean Large sample available the significance level The interpretation of significance test, single- tail test The interpretation of significance test, double tail test Error and the choice of the sample size Test for a single mean: small sample available Test for the difference between two means :independent sample Test for the difference between two means: matched sample Test for the difference between two variances
III	Probability <ul style="list-style-type: none"> Definition of probability Introduction to geometrical, Binomial, Poission and normal distribution Analysis of ranking data <ul style="list-style-type: none"> Rank co-relation Coefficient of concordance
IV	Quality control <ul style="list-style-type: none"> Control charts Action and warning limits The interpretation of control chart Control charts for defectives Control charts for defects Control charts for averages
V	Analysis of variance <ul style="list-style-type: none"> An introduction The design of experiments , random variation in experiments The test of significance The ANOVA table case (a) comparison with a control (b) Global comparisons Tukey's procedure, differences among treatments and Blocks Linear regression <ul style="list-style-type: none"> Relation between variables Fitting a straight line Variation about the regression line
Books & Author's	Statistics for Engineers Statistics Mathematical Statistics Business Statistics Theory & Problems of Probability & Statistics <p style="text-align: right;"> William Mandenhall N. L. Garg and S. G. Sharma Ray & Sharma Gupta & Gupta Murray P Spiegel </p>

FINANCE, MATERIAL AND HUMAN RESOURCE MANAGEMENT

[6TT6.2]

[Common with 5TC6.2,5TE6.2]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	Accounting procedure: Definition of accounting, book keeping and accounting, Double Entry book keeping and financial statement Meaning and Importance of double entry book-keeping, Accounting principles, accounting conventions. Specimen and purpose of balance sheet, Trading and Profit and Loss Account. Presentation of cash flow statements and its benefits. Journal and ledger rules.
II	Financial Management: Objectives and scope, sources of finances. Capital Structure: Meaning: Essentials of an ideal/optimum Capital Structure, Difference between capital, Capitalisation and Capital Structure.
III	Management of Working Capital: Definition; Nature Classification of Working Capital – (i) Permanent working Capital and (ii) Variable Working Capital; Factors affecting requirement of working capital.
IV	Personal Management and HRD. Job Analysis: Meaning and Importance; Processes of Job Analysis. Job Description and Job Specification.
V	Materials Management: Definition and Objectives: Inventory Management. Inventory Control: Techniques of Inventory control- ROL, FOR Value Analysis, ABC Analysis, VED Analysis; Factors affecting Inventory Control, Ordering Costs, Carrying
Books & Author's	Strategies of Developing Human Resource T. V. Rao

PRACTICALS

5TT7 SPINNING PRACTICAL –III **hrs/week-4**

Max marks-100

Practice in handling, operation, setting and gauging draw frame. Lap former and comber. Study of constructional details of machines. Various controls, change places, etc. Practice in checking the quality of comber lap, sliver and waste analysis; common faults and remedies. Calculations pertaining to gearing: speeds, constants, drafts and production.

5TT8 WEAVING PRACTICAL –III **hrs/week-4**

Max marks-100

Practice in handling and operating beam and sectional warping machine and slasher sizing machine. Practice in drawing in of warp threads. Practice in handling and operating machine. Practice in handling and operating loom fitted with dobby, jacquard, drop-box and automatic looms. Calculations pertaining to above mentioned machines.

5TT9 TEXTILE TESTING PRACTICAL –I **hrs/week-2**

Max marks-50

Measurement of fiber length and its distribution, fineness, maturity, moisture content and strength using conventional methods and instruments. Fibre diameter and its variability, Measurement of Hank of sliver roving, and count of yarn and their variability. Single yarn strength and elongation, lea strength measurement by conventional instruments. Twist of yarn. Crimp of fabric. Use of statistical techniques for evaluation of experimental results.

5TT10 FABRIC ANALYSIS PRACTICAL **hrs/week-2**

Max marks-50

Basic principles of woven fabric analysis and estimation of data for cloth reproduction. Recognition of fabric and yarns and materials used in their construction, weave analysis, sett, cover factor count and weight calculations for single and compound woven structures. Specifications for standard woven fabric.

5TT11 Humanities and Professional Ethics **hrs/week-2**

Max marks-50

5TTDC Discipline & Extra Curricular Activities

Max marks-50

**SIXTH SEMESTER
B.TECH. (Textile Technology)**

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<p>Objective of ring frame</p> <ul style="list-style-type: none"> Principle and mechanism involved in drafting, twisting and winding Ordinary and high draft systems <p>Yarn twist</p> <ul style="list-style-type: none"> Terminology, twist levels Concept of twist multiplier Propagation of twist Yarn contraction due to twisting
II	<p>Types of build</p> <ul style="list-style-type: none"> Builder motions warp, filling and combined builds for common package sizes Limitations to large package spinning Types of rings and travelers and their common uses Rising and falling lappets Balloon control rings, living rings
III	<ul style="list-style-type: none"> Systems of waste collection at ring frame and types of spinning wastes Limitations in ring spinning and factors responsible for loss in efficiency Yarn faults and their remedies Introduction to the recent developments in ring spinning Concepts of average mill count and 20's conversion Reason and remedies of end breaks on ring- frame Changes to be done in ring frame to run man-made fibre
IV	<p>Objects of doubling</p> <ul style="list-style-type: none"> System of doubling(dry and wet) Study of ring doublers Two for one twister Reasons and remedies of end breaks in doubling frame Calculations pertaining to gearing constants and production <p>Fancy yarns</p> <ul style="list-style-type: none"> Objects and production of fancy yarns Ply cable and core spun yarns Sewing threads and tyre cords
V	<p>Objects of yarn reeling and doubling</p> <ul style="list-style-type: none"> Types of reeling construction and working of reel Yarn bundling Calculations pertaining to gearing, constants, drafts and production of ring frame
Books & Author's	<p>Spun Yarn Technology The Technology of Short Staple Spinning Part-I,II,III & IV Spun Yarn Technology</p> <p style="text-align: right;">Eric Oxtoby W Klein A.Venkatsubramaniam</p>

MECHANICS OF TEXTITE MACHINES

[6TT2]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<p>Mechanics of Scutcher and Speed frame</p> <ul style="list-style-type: none"> • Designing of cone drums for scutcher and speed frame • Roller weighting at different stages of spinning • Inertia of a carding machine • Epicyclic wheel trains used in textile machinery • Differential motion used in speed frames
II	<p>Mechanics of Spinning Machine</p> <ul style="list-style-type: none"> • The physics and theory of spinning balloons • Yarn tension in ring spinning • Power requirements for operating various motions and for machines as a whole, at various stages of spinning
III	<p>Mechanics of winding</p> <ul style="list-style-type: none"> • Winding rate, relationship between bobbin diameter and winding rate, relationship between bobbin diameter and spindle speed • Angle of wind and coil angle, Wind and traverse ratio • Drum-driven packages, develop the surface of cheeses • Gain in winding, linear gain, revolution gain • Cone-winding <p>Tension in winding</p> <ul style="list-style-type: none"> • Tension generators to control yarn tension • Yarn tension and its measurement
IV	<p>Mechanics for Textile Machine</p> <ul style="list-style-type: none"> • Warp tension and its measurement • Simple harmonic motion, displacement, velocity and acceleration • Determination of Tappet lift • Design of cam and tappet profile for textile machinery • Velocity of shuttle during acceleration and retardation, calculation for velocity of shuttle
V	<p>Mechanics for Weaving Machine</p> <ul style="list-style-type: none"> • An expression for sley eccentricity • Kinematics of sley I, e. displacement, velocity and acceleration of sley sword pin, Force, torque, power required to drive the sley • Kinematics of sedding i.e. an expression for shed opening at shuttle front • Power requirements for operation of various motions and for machine a whole, at various stages of weaving
Books & Author's	<p>Textile Mathematics Vol. I. II. III Principles of Weaving Publications on Weaving Mechanism</p> <p style="text-align: right;">J.E. Booth R Marks & ATC Robinson Prof. G. S. Bhargava</p>

TEXTILE TESTING -II

[6TT3]
[Common with 6TC3, 6TE3]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject	
I	Mechanical behavior of textiles <ul style="list-style-type: none"> • Terms and definitions, expressing the results, quantities and units • Introduction to visco-elasticity, creep and relaxation phenomenon • Mechanical conditioning and recovery properties of textile 	
II	Experimental methods <ul style="list-style-type: none"> • Principle of CRL, CRT and CRE type • Tensile testing machines- various Instruments • Factors affecting the results of tensile experiments • Evaluation and interpretation of tensile experiments • Evaluation and interpretation of tensile test results • Tension winding test for yarns 	
III	Fabric strength testing <ul style="list-style-type: none"> • Tensile, tearing and bursting strength tests • Principle and operation of equipment, fabric bending, shearing and draping properties: terminology, quantities and units, Experimental method 	
IV	Evenness testing of yarns <ul style="list-style-type: none"> • Nature and cause of irregularities • Principle and methods of evenness testing ,evaluation and interpretation 	
V	Yarn faults <ul style="list-style-type: none"> • Classification • Measurement • Causes and their remedies 	
Books & Author's	Principles of Textile Testing Handbook of Textile Testing & Quality Control Physical Properties of Textile Fibres Textile Fibres, Yarns and Fabrics Textile Testing Physical Testing of Textiles	JE Booth Elliot B Grover & DS Hamby WE Morton & JWS Hearle ER Kaswell JH Skinkle B P Savelle

MAN-MADE FIBRE PRODUCTION**[6TT4]****[Common with 6TC4]**

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject												
I	<ul style="list-style-type: none"> • Growth and production of man made fibres in the World and India. • The method of manufacture and mechanism of polymerization techniques of polyesters and nylon. Manufacturing process of staple fibres and multi filament yarn. Their properties and application areas. 												
II	<ul style="list-style-type: none"> • The method of manufacture and mechanism of polymerization techniques of Acrylics, Mod-acrylics, polyolifins. Manufacturing process of staple fibres and multi filament yarn. Their properties and application areas. 												
III	<ul style="list-style-type: none"> • The methods of manufacture and production techniques of regenerated cellulosic fibres, viscose rayon and modified viscose rayons, properties and application areas. 												
IV	<ul style="list-style-type: none"> • Newly developed elastomeric and high performance fibres like lycra, aramids, ordered polymeric PBO, high density polyethylene like spectra . 												
V	<ul style="list-style-type: none"> • Principle of texturing, false twist texturing process and machines, process variables like temperature, twist, tension and time, structural geometry of textured yarn, draw texturing machines. • Air jet texturing process and variables such as over feed, air pressure temperature and water content. • Stuffer box crimping, gear crimping, knife edge crimping, hi-bulk acrylic yarns. 												
Books & Author's	<table> <tr> <td>Man Made Fibres</td> <td>RW Moncrieff</td> </tr> <tr> <td>Man Made Fibre; Science & Technology</td> <td>F Mark, M Atlas & E Cernia</td> </tr> <tr> <td>Polyester Fibres Chemistry and Technology</td> <td>Harman Ludewig</td> </tr> <tr> <td>Journal of Applied Polymer Science</td> <td></td> </tr> <tr> <td>Manufactured Fibre Technology</td> <td>Gupta, Kothari</td> </tr> <tr> <td>Acrylic Fibres</td> <td>J.C.Masson</td> </tr> </table>	Man Made Fibres	RW Moncrieff	Man Made Fibre; Science & Technology	F Mark, M Atlas & E Cernia	Polyester Fibres Chemistry and Technology	Harman Ludewig	Journal of Applied Polymer Science		Manufactured Fibre Technology	Gupta, Kothari	Acrylic Fibres	J.C.Masson
Man Made Fibres	RW Moncrieff												
Man Made Fibre; Science & Technology	F Mark, M Atlas & E Cernia												
Polyester Fibres Chemistry and Technology	Harman Ludewig												
Journal of Applied Polymer Science													
Manufactured Fibre Technology	Gupta, Kothari												
Acrylic Fibres	J.C.Masson												

KNITTING TECHNOLOGY

[6TT5]

[Common with 6TC6.1, 6TE6.1]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject	
I	<ul style="list-style-type: none"> • Definition of Knitting • Knitted fabrics • General description of knitting machines (Flat and Circular and their classification) • Differences between woven and knitted fabric properties 	
II	<ul style="list-style-type: none"> • Type of different needles used in knitting process (Latch, Beard and Compound). • Knitting cycles • Classification of weft knitting machines • Basic weft knitted structures (Plain, Rib, Interlock, Purl). Their properties 	
III	<ul style="list-style-type: none"> • Circular machine used for plain knitted fabrics • Rib and Interlock double jersey • Purl knitting machine along with knitting cycle, design of cams 	
IV	<ul style="list-style-type: none"> • Classification of warp knitting machines • Description of Raschal and Tricot machines • Knitting cycle of these machines 	
V	<ul style="list-style-type: none"> • Knitting geometry • Knit, Tuck and Float Stitches, their formation in machine and applications • Derivatives and ornamentation of weft knitted fabrics • Knitted fabric faults, their causes and remedies 	
Books & Author's	Knitting Technology Warp Knitting Production Knitting Technology	Ajgaonkar S Ray, Melliand David J Spencer

ELECTIVES

INTRODUCTION TO PATTERNING & DESIGNING

[6TT6.1]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 2	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<ul style="list-style-type: none"> • Classification of stripe and check design • Stripe and Check Weave Combinations • General considerations in combining weaves: form of stripe and checks • Selection of weaves • Joining of weaves & relative firmness of the weaves
II	<ul style="list-style-type: none"> • The use of motif designs • Crammed stripe and checks • Fancy weave stripes upon satin-grounds • Zephyr stripes and checks • Oxford shirting's , wool and union shirting' • Introduction of computer added textile designing including doobby & jacquard designing s
III	<ul style="list-style-type: none"> • Elements of color • Light and color phenomena • Light theory • Pigment theory • Complementary colors • Chromatic circle • Brewster circle
IV	<ul style="list-style-type: none"> • Modification of colors • Colored gyres • Colors in combination • Application of colors • Combinations of differently colored threads • Color stripes and checks
V	<ul style="list-style-type: none"> • Simple color and weave effects • General considerations , representation, classification and examples. • Compound color and weave effects
Books & Author's	<p>Textile Design and Colour Grammer of Textile Design</p> <p style="text-align: right;">W Watson H Nisbet</p>

CLOTHING COMFORT**[6TT6.2]**

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<ul style="list-style-type: none"> • Concept of comfort factors involved in the study of clothing • Selection Criteria for a Garment
II	<ul style="list-style-type: none"> • Thermal and moisture transmission properties of textile structures
III	<ul style="list-style-type: none"> • Garment manufacturing technology-marker planning, spreading, cutting & stitching of a Garment. Seam, Stitch types, fusing.
IV	<ul style="list-style-type: none"> • Objective hand evaluation and tailor ability assessment of the fabric
V	<ul style="list-style-type: none"> • Brief introduction to garment processing
Books & Author's	Fashion from Concept to Consumer The Technology of Clothing Manufacture The Apparel Industry in India

Emilio Pucu
Harold Carr & Barbara
Satham
ILA Kanti

PRACTICALS

6TT7 SPINNING PRACTICAL- IV

hrs/week-4

Max marks-100

Practice in handling, operating, setting and gauging speed frame, ring frame and doubling frame. Study of constructional details of machinery; various controls, change place etc. practice in checking the quality of sliver roving and yarn, common yarn faults and their remedies. Calculations pertaining to gearing: speeds, constants, drafts, tpi and production.

6TT8 WEAVING PRACTICAL –IV

hrs/week-4

Max marks-100

Jacquard shedding , automatic cap & shuttle change mechanism, Jacquard card cutting warping machine-drive, traverse, beaming brake mechanism. Calculation of speed & production.

6TT9 TEXTILE TESTING PRACTICAL –II

hrs/week-4

Max marks-100

Use of microscopes for testing of yarns for appearance, and diameter. Measurement of evenness by conventional and modern testing instruments. Classification of yarn faults, hairiness of yarn interpretation of results and construction of X& R Charts.

Fabric testing for dimensions, construction, weight, thickness, stiffness, crease, drape, busting, cover, shrinkage and air permeability.

Strength testing of fibre, yarn fabric using modern instruments.

Fabrics testing for load elongation, tensile, bursting and tearing strength , abrasion, flexural rigidity, crease recovery and draping qualities of fabrics.

6TT10 COLOUR AND DESIGN PRACTICAL

hrs/week-2

Max marks-50

Basic principles of woven fabric analysis and estimation of data for cloth for stripe and check fabric and colour and weave effect. Recognition of fabric and yarns and materials used in their construction, weave analysis, sett, cover factor count and weight calculations for stripe and check fabric and colour and weave effect.

Color, its theory, dimensions and attributes, color combinations. Physical, psychological and psychophysical aspects of color, Texture and its determinates. Physical, psychological and psychophysical aspects of color, Texture and its determinates. Familiarization with new and creative development in the field of fibres, yarns, fabric structures, colorants and finishes in relation to design, concept of need based product development. Application of computer aided design.

6TTDC DISCIPLINE & EXTRA CURRICULAR ACTIVITIES

Max marks-50

**SEVENTH SEMESTER
B. TECH. (Textile Technology)**

MODERN METHODS OF YARN PRODUCTION

[7TT1]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<ul style="list-style-type: none"> • Causes leading to the advent of unconventional systems of spinning • Classification of unconventional methods of yarn production
II	<ul style="list-style-type: none"> • Mechanism of yarn formation on rotor spinning • Effect of rotor machine variables and fibre properties on the properties of rotor spun yarns • Limitation of rotor spinning • Advances in rotor spinning
III	<ul style="list-style-type: none"> • Study of other open-end spinning systems • Friction spinning • Electrostatic spinning • Air-vortex spinning
IV	<ul style="list-style-type: none"> • Mechanism of yarn formation • Structure, properties and end uses of yarns spun on Air-jet spinning
V	<ul style="list-style-type: none"> • Principle of wrap spinning • Twist less spinning • Self-twist spinning • Compact spinning • Ring spinning • Structure, properties and end uses of these yarns • Potential and limitations of various spinning technologies
Books & Author's	<p>Spinning in 70's Spun Yarn Technology Short Staple Spinning Textile Research Journal Journal of Textile Institute Textile Progress</p> <p>PR Lord E Oxtoby W Klein</p>

MODERN METHODS OF FABRIC PRODUCTION

[7TT2]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<p>Projectile Weaving Machine</p> <ul style="list-style-type: none"> • Basic principle of projectile weaving machine • Sequence of weft insertion i.e.: weft supply system, feeding of yarn to projectile • Toggle-Torsion bar picking mechanism • Cam driven shedding (Rotatory dobby, card cutting, card reading, card welding and card pasting) • Double cam Beat-up • Weaving machine timing
II	<p>Air-jet Weaving Machine</p> <ul style="list-style-type: none"> • Principle of weft insertion • Sequence of weft insertion i.e.: weft supply system, feeding of yarn to main nozzle • Picking mechanism • Problems in air-jet weaving machine, its remedies. • Nozzle parameters affecting characteristics of air-jet • Quality of air required • Weaving machine timings • Air drag force, factors affecting air drag force • Blowing sequence of relay nozzles and timing control
III	<p>Water-jet Weaving Machine</p> <ul style="list-style-type: none"> • Principle of weft insertion • Path of yarn on weaving machine • Sequence of weft insertion i.e.: weft supply system, feeding of yarn to main nozzle • Picking mechanism, Nozzle pump design. Problems encountered • Drying of fabric on weaving machine • Quality of water required
IV	<p>Rapier Weaving Machine:</p> <ul style="list-style-type: none"> • Classification of rapier Weaving Machine • System of weft insertion and number of rapiers. • Sequence of weft insertion i.e.: weft supply system, feeding of yarn to rapier • Picking mechanism • Driving mechanism for flexible and rigid rapiers • Weaving machine timing, Velocity and time calculations
V	<p>Multiphase Weaving Machine</p> <ul style="list-style-type: none"> • Principle and Classification, Warp-wise and weft wise multiphase looms • Different methods of shedding, Picking and beat-up picking mechanism • Advantages and disadvantages • Circular Multiphase Weaving Machine • Positive let-off mechanisms like, Electronic let off, their advantages • Positive continuous take up mechanisms like Sulzer take-up, Picanol take-up and their advantages • Different selvages: Tucked-in, leno, fused. Their mechanism of formation, their characteristics and uses • Modern developments in shuttle less weaving
Books & Author's	<p>Weaving Weaving Mechanisms, Management Weaving Mechanisma Shuttleless Weaving Manual of Manufacturing Company</p> <p>Ormerod Ajgaonkar etal. Duxbury Swaty SULZER, NISSAN</p>

ENGINEERING OF TEXTILE STRUCTURE –I

[7TT3]
[Common with 7TC3, 7TE3]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	Yarn geometry <ul style="list-style-type: none"> • Idealized yarn geometry • Relationship of yarn number and twist factor • Actual structure of Ring, Rotor and Air-jet yarns
II	Packing of fiber in yarn <ul style="list-style-type: none"> • Ideal packing, hexagonal close packing and to other forms • Packing factor and its measurement • Yarn diameter
III	Methods of measurement of twist contraction <ul style="list-style-type: none"> • Limit of twist • Fiber migration • Mechanism of migration • Condition for migration to occur • Frequency of migration • Migration in blended yarns
IV	Translation of fibers properties into yarn properties <ul style="list-style-type: none"> • Extension of continuous filament yarn for small strains and large strains • Prediction of breakage
V	Mechanics of staple fibre yarns <ul style="list-style-type: none"> • The practical and experimental studies • Mechanics of staple fibre yarns • Hambureger model and later modifications • Spin ability of and torsional behavior of Fibres and yarns
Books & Author's	Structural Mechanics of Fibre, Yarn, Fabrics JWS Hearle, P Grosberg & S Backer Structure of Yarn Witold Zurek

ADAVANCE FABRIC STRUCTURE**[7TT4]**

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<ul style="list-style-type: none"> • Extra warp & weft figuring • Backed cloths
II	<ul style="list-style-type: none"> • Double cloths • Damask • Brocades
III	<ul style="list-style-type: none"> • Terry pile structure • Warp Pile, weft pile fabrics
IV	<ul style="list-style-type: none"> • Cloth setting theory
V	<ul style="list-style-type: none"> • Draft, peg plan for above design, Gauze and leno, Treable cloth. • Particulars of common varieties of these fabrics
Books & Author's	ADAVANCE Textile Design Grammer of Textile Design <p style="text-align: right;">W Watson H Nisbet</p>

PRODUCTION PLANNING AND QUALITY MANAGEMENT

[7TT5]
[Common with 7TE5]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject														
I	Production Information: Production Information of the entire unit, product range and quantity. Production Information systems : feeding and retrieval of data Productivity Planning: Production Capacity and the productivity obtained from each machine. Analysis of the data and planning of production. Output of human resource: analysis and strategy.														
II	Production Planning: Study of market demand and supply analysis. Technology and product design for various textile products and forecasting future trends. Work study, method study and work measurement. Application of time study in a textile mill. Importance and use of snap study. TPM.														
III	Production planning in spinning and weaving: Plans for various counts and yarns, production rates, waste, efficiency level of m/c. Balancing of machines. Production rate, efficiency etc. for preparatory and weaving shed. Balancing of weaving machines. Preparation of weaving plan.														
IV	Concept of Total Quality: Quality Management systems as a means of achieving total quality. TQM. Quality Management Systems: ISO 9000, quality policy, data, records and traceability, documenting the quality system, quality manual, quality audit, design and change control, ISO 9000 registration, ISO 14000.														
V	Linkage of Quality and Environment Management System: Strategic concern for environment, need for proper environment management systems and their economic implications, environment management systems, green products and strategies, environment assessment, environment protection.														
Books & Author's	<table border="0"> <tr> <td>Operations Management : Strategy And Analysis</td> <td>Krajewski, Lee J, Ritzman & Larry P</td> </tr> <tr> <td>Production and Operations Management</td> <td>Chary, S.N.</td> </tr> <tr> <td>Production and Operation Management</td> <td>Nair NG</td> </tr> <tr> <td>Production and Operation Management</td> <td>Chase, Acquilano and Jacobs</td> </tr> <tr> <td>Quality Management Handbook</td> <td>Walsh Oren</td> </tr> <tr> <td>ISO 14000 Guide: the new Environmental Management Standards</td> <td>Cascio Joseph</td> </tr> <tr> <td>ISO 9000</td> <td>Roopthery Brian</td> </tr> </table>	Operations Management : Strategy And Analysis	Krajewski, Lee J, Ritzman & Larry P	Production and Operations Management	Chary, S.N.	Production and Operation Management	Nair NG	Production and Operation Management	Chase, Acquilano and Jacobs	Quality Management Handbook	Walsh Oren	ISO 14000 Guide: the new Environmental Management Standards	Cascio Joseph	ISO 9000	Roopthery Brian
Operations Management : Strategy And Analysis	Krajewski, Lee J, Ritzman & Larry P														
Production and Operations Management	Chary, S.N.														
Production and Operation Management	Nair NG														
Production and Operation Management	Chase, Acquilano and Jacobs														
Quality Management Handbook	Walsh Oren														
ISO 14000 Guide: the new Environmental Management Standards	Cascio Joseph														
ISO 9000	Roopthery Brian														

ELECTIVES

COMPLEX TEXTILES

[7TT6.1]

[Common with 7TE6.1]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject														
I	<ul style="list-style-type: none"> Gauge and leno structure with their mechanism Madras Muslin structures 														
II	<ul style="list-style-type: none"> Type of Carpets and classification, Hand knitted carpets, tufted Carpets, Knitted Carpets, Stitch Bonded Carpets, Electrostatic flocking Carpets 														
III	<ul style="list-style-type: none"> Some common fabrics like Lappets, Swivels, Ondule Fabrics, Tuck fabrics, woven pile fabrics produced by thermal shrinkage 														
IV	<ul style="list-style-type: none"> Industrial fabrics especially kind of canvases, Belts, Parachute Fabrics and umbrella cloth. Lycra Fabric 														
V	<ul style="list-style-type: none"> Narrow fabrics production methods and their calculation: Laces, bandage, ribbons and niwar. Introduction of non-woven fabrics, classification and uses 														
Books & Author's	<table> <tbody> <tr> <td>Watson's Textile Design & color</td> <td>W Watson</td> </tr> <tr> <td>Watson's Advanced Textile Design</td> <td>W Watson</td> </tr> <tr> <td>Grammer of Textile Design</td> <td>Nisbet</td> </tr> <tr> <td>Narrow Fabric Weaving</td> <td>Verlag Sauerlander</td> </tr> <tr> <td>Process Control in Weaving</td> <td>AITRA</td> </tr> <tr> <td>Manual of Nonwoven</td> <td>R Krcma</td> </tr> <tr> <td>Nonwoven Fabric Technology</td> <td>M Mc Donald</td> </tr> </tbody> </table>	Watson's Textile Design & color	W Watson	Watson's Advanced Textile Design	W Watson	Grammer of Textile Design	Nisbet	Narrow Fabric Weaving	Verlag Sauerlander	Process Control in Weaving	AITRA	Manual of Nonwoven	R Krcma	Nonwoven Fabric Technology	M Mc Donald
Watson's Textile Design & color	W Watson														
Watson's Advanced Textile Design	W Watson														
Grammer of Textile Design	Nisbet														
Narrow Fabric Weaving	Verlag Sauerlander														
Process Control in Weaving	AITRA														
Manual of Nonwoven	R Krcma														
Nonwoven Fabric Technology	M Mc Donald														

GARMENT MANUFACTURING

[7TT6.2]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	Technology of Cutting Room <ul style="list-style-type: none"> • Planning, drawing and reproduction of the marker • Requirements & Methods of marker-planning • Spreading • Requirements & Methods of Spreading
II	Cutting <ul style="list-style-type: none"> • Nature of fabric packages • Objectives and methods of cutting • Requirements of cutting • Application of Computer in pattern construction • Try planning, marking and cutting processes
III	Sewing <ul style="list-style-type: none"> • Seam types, properties & uses of seams, • Stitch types, formation of stitches & their uses. • Sewing defects.
IV	<ul style="list-style-type: none"> • Introduction to Sewing Machinery • Sewing machine feed mechanism, sewing machine needles, • Sewing threads, sewing problem • The use of components, trimmings to care labeling in Garment manufacturing
V	Alternative Methods of Joining Materials <ul style="list-style-type: none"> • Fusing, Welding & Adhesives, Moulding Pressing <ul style="list-style-type: none"> • Purpose of pressing, pressing equipment and methods
Books & Author's	Fashion from Concept to Consumer Emilio Pucu The Technology of Clothing Manufacture Harold Carr & Barbara Satham

Practical

7TT 7 SPINNING PRACTICAL -V

hrs/week-4

Max marks-100

Spinning Practical Familiarity with established processing parameters for producing carded combed, blended, folded and fancy yarns. Case studies pertaining to waste to waste analysis, estimation of the total productivity, actual efficiency levels and causes of loss of efficiency in different spinning preparatory departments, Viz.Blow-room, card, comber, draw-frame and simples. Study of blow-room and card performance. Nep count in card web. Checking of comber waste. Assessment and control variability before yarn formation. Practice in handling and setting of the various spinning preparatory machines. Workload and measurements in spinning preparatory, Oiling and maintenance schedules. Idea of time and motion study .

7TT 8 WEAVING PRACTICAL -V

hrs/week-4

Max marks-100

Study of constructional details of Air-Jet, and projectile weaving machines Study of constructional details of knitting machines.. Practice in weaving and knitting and checking the quality of fancy fabric and method of rectifying the defect.

7TT9 PROJECT STAGE – I

hrs/week-2

Max marks-50

Each Student individually, or in association with some other students will carry out mini project of an experimental and/ or theoretical nature in one of the main branches **Textile Technology** and present him fin ding is a systematic in the report form duly approved and signed by his supervisors/Guide(to be nominated by the Head of the Departments/Instituttions).Each candidates would submit 3 typed copies of mini project report to the head of the depatment/institution at least 15 days before the commencement of first semester examination after viva-voce examinations. The original report and a carbon copy will be retained by the concerned department/institution and the supervisor respectively.

7TT10 PRACTICAL TRAINING & INDUSTRIAL VISIT

hrs/week-nil

Max marks-100

Each student, individual or in association with some other students at the end of the Third B.TECH. course will observe and collect the general and technical information pertaining to machinery, raw materials used, yarns and fabrics produced by the textile mills, in which he/she/they are undertaking 4 weeks' practical training with the approval of the **Principal, M.L.V.T.E.C.** Each student will have to submit a written/typed report duly approved and signed by the guide to the Head of the department.

7TTDC DISCIPLINE & EXTRA CURRICULAR ACTIVITIES

Max marks-50

**EIGHTH SEMESTER
B. TECH. (Textile Technology)**

SPINNING TECHNOLOGY

[8TT1]
[Common with 8TE1]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<ul style="list-style-type: none"> • Measurement of performance of blow room: opening efficiency, cleaning efficiency, lap regularity and waste percentage
II	<ul style="list-style-type: none"> • Assessment of performance of card • Study of hooks formation, their control, removal and effect of yarn quality
III	<ul style="list-style-type: none"> • Improvement in technology of carding for increased production and improved quality of sliver, high speed carding: designs of carding machines for improved performances
IV	<ul style="list-style-type: none"> • Recent developments in drawing, lap preparation, combing processes, speed frames, Types and basic principal of autolevellers
V	<ul style="list-style-type: none"> • Irregularities of drafted material: random, quasi-periodic and periodic irregularities of addition of irregularities, effect of doubling on irregularity • Causes of irregularity: influence of raw material, process and machine variables on irregularity
Books & Author's	<p>Manual of Cotton Spinning Vol IV Process Control in Spinning Principles of Textile Testing Maintenance Management in Spinning Textile Research Journal Indian Textile Journal Textile Industries Indian Journal of Fibre & Textile Research Joint Technological Conferences</p> <p>GAR Foster AR Garde & TGA Subramanian JE Booth TV Ratnam et al</p>

ECONOMICS & COSTING OF TEXTILE PROCESSES

[8TT2]
[Common with 8TE2]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject	
I	<ul style="list-style-type: none"> • General cost concepts • Classification of cost, cost elements, methods and techniques of costing. Direct / indirect, Fixed / Variable, Total cost. Inventory costing • System of costing: Job, order, batch, process, unit and operating cost 	
II	<ul style="list-style-type: none"> • Costing in Textile Industry: Cost structure, cost of raw material / labour / utilities • Cost control – standard costs, Variance analysis, determination of cost per kg of yarn, per meter of fabric, yarn realization, value loss, measures of cost reduction, selling price decision for yarn/fabric • Concepts of depreciation 	
III	<ul style="list-style-type: none"> • Labour allocation in different departments of a textile mill • Work-load standards for card tenters, speed frames and ring tenters, doffers, winders, weavers, in terms of tripartite agreements and Labour Laws 	
IV	<ul style="list-style-type: none"> • Economics of large package spinning and optimum package size. • Economics of Open-end Spun, Air-jet spun and Friction spun yarns. 	
V	<ul style="list-style-type: none"> • Economics of super-speed automatic warp and weft winding machines. • Economics of various labour saving mechanisms mounted on automatic looms like 'box loader' and 'unfil' systems. • Economics of shuttle-less weaving machine like Projectile, air-jet, water-jet, circular weaving machine 	
Books & Author's	Textile Mill Management Process control in spinning Process control in Weaving	Dr. V.D. Dudeja ATIRA ATIRA

ENGINEERING OF TEXTILE STRUCTURES-II**[8TT3]****[Common with 8TC3, 8TE3]**

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<ul style="list-style-type: none"> • Elements of fabric geometry • Cloth setting theories • Fabric cover and fractional cover • Crimp balance equation • Fabric cover and fabric weight relationship
II	<ul style="list-style-type: none"> • Peirce's concept of fabric geometry • Flexible and elastic threads model • Graphical solutions • Latest modifications
III	<ul style="list-style-type: none"> • Translation of fiber and yarn properties into fabric properties, viz. tensile, tearing, abrasion, bending, shearing • Creasing & shearing
IV	<ul style="list-style-type: none"> • Introduction about FAST and KAWABATA Instrument
V	<ul style="list-style-type: none"> • Design of textile structures for certain functional end uses
Books & Author's	Structure of fibres, yarns and fabrics Hearle, Backer and Grosberg Textile properties Kaswell Journal of Textile Institute Textile Research Journal

ELECTIVES

TECHNICAL TEXTILES

[8TT4.1]

[Common with 8TC4.1, 8TE4.1]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject
I	<p>Introduction Definition ,Textile materials in technical applications</p> <p>Fibers Natural and man-made fibers suitable for technical application and their relevant properties</p> <p>Geotextile Types of geotextiles, Properties of Geotextile Materials , Fibers used for geotextile applications, Properties of material used in Geotextiles , Function of Geotextiles [Mechanical , Reinforcement , Hydraulic functions], Geotextiles Typical applications of geotextiles.</p>
II	<p>Medical textiles Fibers in various medical applications, Classification of medical Textiles ,Textile materials used for medical applications such as absorbency, sterilization, grafts, wound care, Cardiovascular application, Sutures.</p>
III	<p>Filtrations Principles of wet and dry filtrations , Characteristic properties of fibres and fabrics in selective example of filtration.Vessels affecting performance of filter fabric .</p>
IV	<p>Protective Clothing Thermal protection Ballistic protection Protection against micro organisms, chemicals and pesticides Protection from electromagnetic radiation and static hazards</p>
V	<p>Ropes and Cordages Fibers for rope construction, application, oriented structure and production of ropes, cordages and twins .Behavior and important characteristics of ropes and cordages.</p> <p>Automotive Textiles Fibers used for automotive applications – upholstery, carpeting, pre-formed parts, type, safety devices, filters and engine compartment items .Brief description for the manufacture and application of these devices or parts</p>
Books & Author's	<p>Textile Industries Textile Industry, “ Technical Conference On Textile Industry : Atlanta, 19778 India’s Textile Industry World Textiles: Investment Innovation, Invention – Annual World Conference on World Textiles and Investment Innovation Invention” Textile Journals, Magazines and Topical Reports</p> <p>Murphy WS IEEE Publication</p> <p>Srinivasan, Kastury The Textile Institute, Manchester</p>

MULTI FIBRE SPINNING

[8TT4.2]

Class B. TECH. (Textile Technology)	Evaluation
Schedule per week Lectures : 3 Practical : 4	Examination Time = Three (3) Hours Maximum Marks = 100 [Internal (20) & End-term (80)]

Units	Contents of the Subject	
I	<ul style="list-style-type: none"> Survey of established practices for the spinning of manmade fibres using different spinning systems with emphasis of fiber and yarn properties Detailed study of the cotton system process for spinning of man-made fibres and fibre assemblies 	
II	<ul style="list-style-type: none"> Properties involving engineering principles Blending techniques for various man-made and natural fibres, problems in Blending Blended yarn properties and fabric performance 	
III	<ul style="list-style-type: none"> Spinning of wool (woolen and worsted system.) 	
IV	<ul style="list-style-type: none"> Cotton Waste: Types, classification and end-uses Study of machines and methods employed in the production of waste yarns(coiled system and condenser system) 	
V	<ul style="list-style-type: none"> Introduction to jute spinning process 	
Books & Author's	Spinning of man-mades and blends on Cotton System Wool Hand Bookm Vol.II British Wool Manual Shoddy & Mungo Manufacture Worsted Jute-Fibre to Yarn	KR Salhotra Werner Von Bergei H Spibey NC Gee Alan Brearley RR Atkinson

8 TT5 SPINNING PRACTICAL -VI**hrs/week-4****Max marks-100**

Collection and interpretation of data for process control and comparing the same with established norms.

Waste analysis in ring and rotor spinning Locating and improving machines with substandard performance. Case studies pertaining to estimation of the total productivity, actual efficiency level, causes of loss of efficiency in ring, rotor and air-jet spinning. Study off the defects at various stages of spinning. Assessing process capability for count controls.

Calculation pertaining to comparison of productive, average count etc. Practice in motion study, time study and work-load measurements in ring and rotor spinning departments, Oiling and maintenance schedules, spare parts consumption and idea of the lie of the various parts.

Practice in handling and setting of the ring and rotor spinning. Assessment and control of variability in ring, rotor and air jet yarns.

Case studies pertaining to yarn costing. Condition under which a worker is charge-sheeted and suspended. To acquaint with labor laws.

8TT 6 WEAVING PRACTICAL –VI**hrs/week-4****Max marks-100**

Case Studies pertaining to winding warping, sizing, drawing-in and looming for the estimation of production, efficiency and cause of loose in efficiency, excessive wastes, warp and weft breakages. Familiarity with the temperature and humidity in different department and methods of controlling the same. Oiling and maintenance schedules. Spare parts consumption and controlling the same. Oiling and maintenance schedules. Spare parts consumption and idea of the life of various spare parts. Work load assignments in different department. Familiarity with established processing parameters for weaving and knitting and fancy fabrics. Stoppage and Snap studies.

8TT7 COMPUTER AIDED DESIGN LAB**hrs/week-2****Max marks-50**

Practice on dobby & jacquard based weaving designs software's Preparation of draft, designs and peg plans for various types of designs. Practice on printing software, color separation, screen preparation. Use of scanners.

8TT8 PROJECT PART – II**hrs/week-4****Max marks-200**

Each Student individually, or in association with some other students will carry out project of an experimental and/ or theoretical nature in one of the main branches textile technology and present him fin ding is a systematic in the report form duly approved and signed by his supervisors/Guide(to be nominated by the Head of the Departments/Instituttions).Each candidates would submit 3 typed copies of project report to the head of the departmen/institution at least 15 days before the commencement of second semester examination after viva-voce examinations. The original report and a carbon copy will be retained by the concerned department/institution and the supervisor respectively.

8TT 9 SEMINAR:**hrs/week-4****Max marks-100**

Each student will have to deliver a talk on the topic in the weekly period allotted to this subject, either pertaining to his project work or any topic assigned by Head of the Department. The performance of the speaker would be judged in the class by a board of examiners.

8TTDC DISCIPLINE & EXTRA CURRICULAR ACTIVITIES**Max marks-50**

