

SYLLABUS

Uttar Pradesh Textile Technology Institute Kanpur

Affiliated to

DR. A.P.J ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW



PROPOSED STUDY & EVALUATION SCHEME

FOR

B. TECH.

(TEXTILE TECHNOLOGY)

On

Choice Based Credit System

STUDY AND EVALUATION SCHEME
B. Tech. Textile Technology
Uttar Pradesh Textile Technology Institute Kanpur

Affiliated to
DR. APJ ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW

2nd Year III-Semester

Effective from Session-2017-18

S. No.	Subject Code	Subject Name	L-T-P	Th./Lab Marks	Sessional		Total	Credit
				ESE	Test	Assig/Att		
1		Engg. Maths-III/ Science based OE	3-1-0	70	20	10	100	4
2		HV & PE/ ENV & Ecology	3-0-0	70	20	10	100	3
3	RTT301	Yarn Manufacture -I	3-1-0	70	20	10	100	4
4	RTT302	Fabric Manufacture- I	3-0-0	70	20	10	100	3
5	RTT303	Chemical Processing of Textiles-I	3-0-0	70	20	10	100	3
6	RTT304	Textile Fibre-I	3-0-0	70	20	10	100	3
7	RTT351	Yarn Manufacture -I Lab	0-0-2	50		50	100	1
8	RTT352	Fabric Manufacture - I Lab	0-0-2	50		50	100	1
9	RTT353	Chemical Processing of Textiles-I Lab	0-0-2	50		50	100	1
10	RTT354	Textile Fibre-I Lab	0-0-2	50		50	100	1
	TOTAL			620	120	260	1000	24

*Science Based Open Electives: As decided by BoS Applied Science

** HV & PE/ ENV & Ecology: As decided by BoS Applied Science

Uttar Pradesh Textile Technology Institute Kanpur
STUDY AND EVALUATION SCHEME

B. Tech. Textile Technology

2nd Year IV-Semester

Effective from Session-2017-18

S. No.	Subject Code	Subject Name	L-T-P	Th./Lab Marks	Sessional		Total	Credit
				ESE	CT	TA		
1		* Engg. Maths-III/ Science based Open elective	3-1-0	70	20	10	100	4
2		**HV & PE/ ENV & Ecology	3-0-0	70	20	10	100	3
3	RTT401	Yarn Manufacture-II	3-1-0	70	20	10	100	4
4	RTT402	Fabric Manufacture-II	3-0-0	70	20	10	100	3
5	RTT403	Chemical Processing of Textiles-II	3-1-0	70	20	10	100	3
6	RTT404	Textile Fibre-II	3-0-0	70	20	10	100	3
7	RTT451	Yarn Manufacture-II Lab	0-0-2	50		50	100	1
8	RTT452	Fabric Manufacture - II Lab	0-0-2	50		50	100	1
9	RTT453	Chemical Processing of Textiles-II Lab	0-0-2	50		50	100	1
10	RTT454	Textile Fibre-II Lab	0-0-2	50		50	100	1
	TOTAL			620	120	260	1000	24

*Science Based Open Electives: As decided by BoS Applied Science

** HV & PE/ ENV & Ecology: As decided by BoS Applied Science

3rd Semester B. Tech. Textile Technology

1. **(Engineering Core: Interdisciplinary): Mathematics III/ Science based Open Elective (L T P 3 1 0) credit = 4:** As decided by BOS Applied Science
2. **HV & PE/ ENV & Ecology: (L T P 3 0 0) credit = 3:** As Decided by BOS Applied Science:
- 3 **RTT301- Yarn Manufacture-I (L T P 3 1 0) Credits= 4**

Unit (1): Process flow chart for carded & combed yarn manufacturing. **Cotton Ginning:-** Introduction of ginning process, Functions of ginning machines, Types of Ginning machines, Pre and post ginning machines used and their objects, Factors affecting ginning performance, Influence of ginning on fibre, yarn and fabric quality, Pressing and bailing of Indian and foreign cotton, dimensions., Objects of mixing, different types of mixing & blending), Difference between mixing & blending.

Unit (2): Objects of Blow room for natural and synthetic fibres, Principles of opening and cleaning , Principles of various opening and cleaning machines of blow room line, evolution of opening and cleaning principles. Various components & zones of blow room machines, Conventional blow room machines Lap forming mechanism, Reasons of developments in blow room, machinery, Research findings and developments of modern blow room.

Unit 3: Automation and concept of modern blow room line, , Latest developments in Blow room machines, Automatic bale opener, Mild openers– Maxi-flow/ Uni-clean/Vario-clean, modern Blenders, Intensive openers, cleanomat, flexiclean, Waste extracted at various openers and beaters, Cleaning efficiency of different machines, nep generation

Unit (4): Principle and concept of chute feed to card. Advantages and limitations, study of design details of different types of chute feeding systems, Objects of carding, detailed description of various parts of carding machine, Carding Theory – Opening of fibre mass – Carding actions – Web formation and fibre configuration – Blending – Leveling action – Fibre breakage. Calculation

Unit (5): Stripping and grinding, Stripping action and carding action, Card Clothing, evolution and Metallic wire details — Card wire mounting, wave defects, carding related draft and production, Tandem carding, Auto leveller used in carding, Modern development in carding made by various renewed carding machine manufacturers, Blow room & card related calculations.

Reference Books:-

1. The Textile Institute Publication - Manual of Textile Technology – Short Staple Spinning Series by W. Klein
2. ‘The Characteristics of Raw Cotton’ by P. Lord. The Textile Institute
3. Publication, Manual of Cotton Spinning Vol.II, Part-I.
4. ‘Opening and Cleaning’ by Shirley. The Textile Institute Publication, Manual of Cotton Spinning Vol. II, Part-II.
5. ‘Opening Cleaning and Picking’ by Dr.Zoltan S. Szaloki, Institute of Textile Technology, Virginia.
6. ‘Cotton Ginning’ Textile Progress, The Textile Institute Publication.
7. Blowroom and Carding- Training Programme conducted by NCUTE, IIT, Delhi.
8. Essential calculations of practical cotton spinning by T.K. Pattabhiraman.

4. RTT302- Fabric Manufacture-I (L T P 3 0 0) Credits = 3

Unit 1: Objects of winding process, classification of winding, (manual & automatic), various latest winding machines with detailed construction and working, Description of various winding accessories.

Unit 2: Geometrical aspects: - Cone angle, angle of wind, wind per double traverse, surface speed, traverse speed, winding speed, calculations, Calculations: winding speed, production/spindle & per machine, and efficiency.

Unit 3 Objectives of pirn winding, its advantage over rewound weft, Details semi-automatic and automatic pirn winding machines w. r. t drive to spindles, traverse, tensioning yarn path.

Pirn build: - length of wind, chase length, diameter, bunch, tail ends etc. their importance during weaving process. Winding package defects.

Calculations: - Average pirn diameter, winding speed, production / spindle / & per machine, efficiency, number of looms fed by spindle.

Unit 4: Objectives of warping, precautions to be considered in the process, classification of warping process- (beam warping, sectional warping, ball warping), Latest Warping machine: - construction and working, Creel: - framing (requirements, length, height, pitch, etc.) pegs, tensioning arrangements guides, blow fan, types of creels (parallel, V, V-nose etc.), Principles of operation of beam warping and sectional warping. Sectional warping machines, Waxing attachment, computerized warping machines. Warping related calculations.

Unit 5 : Objectives of sizing and sizing terminology, achieving the objectives through sizing paste constituents, concepts of sizing process: hank sizing, ball warp sizing, Slasher sizing, multi-cylinder sizing, description of sizing ingredients, Latest

developments in sizing process by various sizing machine manufacturers. Sizing related calculation.

Reference Books:-

1. Principles of weaving By Marks A.T.C. & Robinson.
2. Weaving By Prof.D.B.Ajgaonkar, Prof.Sriramalu&Prof.M.K.Talukdar.
3. Weaving Mechanism by K.T. Aswani.
4. Winding &Warping byTalukdar M.K.
5. Yarn Preparation-Vol-I by Sengupta.
6. Weaving Calculation by Sengupta.
7. Textile Mathematics-Vol.I by J.E. Booth.
8. Fibre to Fabric by P.R. Lord

5. RTT303 Chemical Processing of Textiles-I (3-0-0 = 4) Credits = 3

Unit 1: PRETREATMENTS: Introduction of pretreatments in wet processing. Introduction to shearing and cropping machines. Objects, working principle, types of shearing, Objects of singeing, Methods of singeing - gas singeing for woven & knitted fabrics, Introduction to efficiency of singeing, Evaluation & efficiency of singeing. **DESIZING:** Objects of desizing, Mechanism of desizing. Inter-relation of desizing with singeing and sizing, Various methods of desizing: Hydrolytic & oxidative method of desizing, Evaluation of efficiency of desizing. **SCOURING:** Object of scouring, Scouring with alkali & solvent assisted desizing, Inter-relation desizing and scouring, Study of batch-wise & continuous methods of scouring, Concept of bio-scouring, Evaluation of efficiency of scouring,

Unit 2: BLEACHING: Objects of bleaching, Introduction to bleaching agents like sodium hypochlorite ,hydrogen peroxide & per-acetic acid, Bleaching of cotton, polyester & its blends, Batch-wise & continuous machinery for bleaching, Bleaching of wool ,silk, Concept of AOX, Evaluation of efficiency of bleaching. Continuous scouring and bleaching: Pre-treatment Range

Unit 3: MERCERIZATION: Introduction & objects of mercerization, Effect of mercerization on cellulose, Machinery used for yarn, woven and knit fabrics, Concept of hot mercerization & liquid ammonia mercerization, testing methods to evaluate efficiency of mercerization like Barium Activity, Number, Axial Ratio & Luster index.

Unit 4: Mechanical Finishing: Objects of finishing, classification of finishes. Sanforizing, callendering, raising, milling, various finishing machinery such as stenter, calendars, sanforising and drying machine.

Unit 5: Chemical Finishing: Resin finishing, mechanism of resin finishing. Concept of anti crease, wash-n-wear and durable press. Heat setting and weight reduction of polyester material, Concept of specialty finishes like soil release, water repellent and flame retardant finishes.,

Reference Books:-

1. Chemical technology of fibrous materials by F. Sadov.
 2. Chemical processing of polyester / cellulosic blends by R. M. Mittal & S. S.
 3. Trivedi.
 4. Chemical processing of synthetic blends by K. V. Datye & A. A. Vaidya .
 5. Mercerization by J.T. Marsh.
 6. Introduction to Textile Bleaching by J. T. Marsh.
 7. Bleaching, Dyeing & Chemical technology of textiles fibres by S. R. Trotman.
 8. Technology of Bleaching by V. A. Shenai.
 9. Bleaching & mercerizing by BTRA Silver Jubilee Monograph Series.
 10. Chemical Technology in the pretreatments of textiles by S. R. Karmarkar
- Laboratory work: As per the lab Syllabus

6. RTT304- Textile Fibre-I (L T P 3 0 0) Credits = 3

Unit 1: Introduction: Definition of fibre, classification of textile fibres, difference between staple & filament, essential & desirable properties of textile fibres, advantages & disadvantages of natural and man made fibres.

Unit 2: Cotton, varieties and grading of cotton, morphological structure, physical and chemical properties of fibres, applications, method of picking, merits & demerits of various picking methods.

Unit 3: Bast fibres-bast fibre production, Jute retting and extraction process, structure of fibre, physical and chemical properties of fibre & its applications, Other bast fibres: flax, hemp, ramie, banana fibre, bamboo fibre, and their applications

Unit 4: Wool- production of wool, Types of wool, Grading of wool, Morphological structure, chemical composition, Physical & chemical properties, varieties of wool fibres, applications, other animal fibres like angora fibres, camel hair fibre, goat fibre their properties and applications

Unit 5: Silk fibre, types of silk, production of silk, chemical composition and morphological structure of silk, physical & chemical properties of silk, applications.

Reference Books:

1. Physical properties of textile fibres W.E. Morton & J.W.S. Hearle, , Textile Institute,U.K.
2. Progress in textiles: Science and technology Vol.-2 By Dr. V.K. Kothari, IAFL Publication New Delhi.

3. Hand book of textile fibres by J.Gordon Cook, 1984, WoodHead Publication
4. Fibre Science and Technology, S P Mishra 2003, New Age Publication Chandigarh
5. Manufactured Fibre Technology Ed V B Gupta and V K Kothari Pub: Springer Science Media 1997
6. Handbook of Textile Fibre Structure Vol. 2 Natural, Inorganic and Specialty Fibres Ed S J Eichhorn, JWS Hearle, MJeffe and T Kikutani,
7. Handbook of Natural Fibres Types, Properties & Factors affecting R M Kozlowski, 2012, Wood Head Publication

3rd Semester Practical's Textile Technology

1. RTT 351 Yarn manufacture-I Lab (L T P 0 0 2) Credit =1

Practice in handling and operation of blow room, study of constructional details of machinery in blow room, calculating speed of different machine parts, Blows per inch of Krishner beater, Production calculation of blow room, various controls points and changes Places, Practice in checking the quality of laps, Study of driving mechanism and calculation of speed of different parts & production of card, Study of different setting points on card

2. RTT 352 Fabric Manufacture-I Practical (L T P 0 0 2) Credit = 1

1. Study of weaving preparatory and weaving Processes
2. Study of loom drive, loom timing, passage of material and primary motions.
3. Study of precision and drum winding machine.
4. Study of cheese winding machine.
5. Study of autoconerc its functions
6. Study of pirn winding machine
7. Study of sectional warping machine
8. Study of beam warping machine

3. RTT 353 Chemical Processing of Textiles (L T P 0 0 2) Credit = 1

Sizing, scouring, bleaching and mercerization of cotton fabric and to evaluate the effectiveness of each process using various test such as Tewega test, drop absorption test, whiteness index, barium activity number test, measure wax content, ash content and scouring loss of cotton fabric, find out available chlorine in a given sample of sodium hypo chloride, determine strength of H₂O₂ (Hydrogen peroxide) by titration method, to finish fabric with water repellent and flame retardant finishes and test water repellency and flame retardant property using appropriate test method.

4. RTT354: Textile Fibre-I Lab

Principle of microscopy, microscopic identification of natural fibres, preparation and mounting of specimen for longitudinal view, standard scheme of analysis of homogeneous fibre and blend by physical and chemical methods, preparation of reagents used for chemical analysis

4th Semester B. Tech. Textile Technology

1. (Engineering Core: Interdisciplinary)

(L T P 3 1 0): BOS Applied Science:

2. HV & PE/ ENV & Ecology: (L T P 3 0 0): BOS Applied Science:

3. RTT401- Yarn Manufacture-II (L T P 3 1 0) Credits = 4

Unit 1: Functions of draw-frame, principles of drafting and doubling, Study of constructional details and design of drafting systems, weighting in draw frame, draft distribution, doubling and blending, drafting force, details of drafting system, evolution of drafting systems at draw-frame (Shirley 4/4 drafting, platts, pressure bar, Whiten accu drafting, Rieter polar drafting systems etc.,.

Unit 2: Coiling system and stop motion, calculations relating to speeds, drafts, production etc, design, Suction at draw-frame. Automatic can handling, Auto leveling at draw-frame. On-line quality monitoring and control, Study of draw-frames available in the market. Blending at draw-frame, Study of maintenance aspects and design developments such as rollers, roller weightings, drafting systems etc. Developments in draw frame drafting, Suction at draw-frame, Automatic can handling, Auto leveling, Calculation related to draw frame.

Unit 3: Objects of combing process, Requirements of good lap – importance of number of passages, importance of good lap, linear density of lap, etc., Methods of comber lap preparation – Different sequences of comber lap preparation, study of sliver lap machine, ribbon lap machine, unilap machine, Developments in lap preparation machines.

Unit 4: Constructional details of Comber- feeding, nipper assembly, cylinder and detaching rollers, cylinder needles, web and sliver transport, drafting and coiling at comber, Study of combing cycle, Semi combing, normal combing, super combing and double combing., Forward and backward combing, Comber Settings, Norms for production, speed, Combing efficiency, Fractionating efficiency of comber. Influence of combing operation on quality, Automatic and centralized noil extraction, Automatic materials handling. Stop motions in comber, Technical specifications of modern combers available in the world market.

Unit 5: Objects of speed frame, Concepts of drafting, twisting and winding process. Constructional aspects of Speed-frame – Creel, Top arm apron drafting system, Spindle & Flyer assembly, Bobbin building, stop motions. Study of mechanisms like – differential motion, building mechanism, semi-automatic and automatic doffing,

Performance assessment of Speed-frame – norms, Zero break concept, block creeling, Materials handling. Link –mechanism, Features of modern speed-frame machines.

Reference Books:-

1. The Textile Institute Publication –Manual of Textile Technology-Short Staple Spinning Series Vol I to V by W. Klein
2. The characteristics of Raw Cotton by P. Lord. The Textile Institute Publication, Manual of Cotton Spinning Vol II, Part-I.
3. Fundamentals of Spun Yarn Technology, By Carl Lawrence.
4. Blow room and carding –Training program conducted by NCUTE, IIT Delhi.
5. Carding by F. Charanlay. The Textile Institute publication, Manual of cotton spinning series Vol - III.
6. Drawing, Combing and roving and speed frame by Zoltan, S. Szaloky, The Institute of Textile Technology, Verginia.
7. Drawing, Combing and roving and speed frame by Zoltan, S.Szaloky, The Institute of Textile Technology, Verginia
8. Draw frame, combing and speed frame by J.H.Black; The Textile Institute publication, Manual of cotton spinning Vol-Iv part II.

4. RTT402- Fabric Manufacture-II (L T P 3 0 0) Credits = 3

Unit 1: Drawing-in: Objectives, process description, reed count system, manual drawing-in, semi-automatic drawing-in process, Knotting process and its limitations. Various methods of fabric manufacture and automatic weaving: - Weaving, knitting, braiding, non-woven, brief description of all methods and processes involved in it, Different kinds of fabrics: Grey, mono-colour, multi-colour, warp or weft stripes, checks etc.

Unit 2: General description of plain power looms, introduction to weaving process, primary, secondary and auxiliary motion of plain power looms, Various ways of shedding, over and under pick motion, tappet shedding, Temples and its utility, idea about healds count and reed count in different system, Negative and positive take up motion, negative five wheel and seven wheel take up motion and positive let-off motions, Calculations: -Production and efficiency of machine.

Unit 3: Scope & limitation of dobby, negative and positive dobby, cross border dobby, Development in dobby, Scope and limitations dobby, brief description of Crompton and Knowles dobby cross border dobby, method of pegging for dobby, methods of pegging, heald reversing motion. Warp protective devices, side and center weft fork motion,

Unit 4: Jacquards shedding, types of jacquards and their principle of working, size and figuring capacity of jacquard, cross border jacquards. Single lift single cylinder Jacquard, Double lift single cylinder, Double lift double cylinder, split harness, Different system of harness tie-up, terry mechanism, Recent developments in jacquard weaving,

Unit 5: Limitations of power loom, objectives for developing automatic loom, scope for automation, design features of automatic loom, drives- loom motions, accessories and other critical features of automatic looms, weft feelers- construction & working of side sweep, electrical & electronic weft feelers, their merits, demerits & applications.

:Automatic let-off motion: - Principles and requirements of automatic let-off mechanism, types of Automatic loom: pirn change, shuttle change loom, detailed study of various motions of automatic looms, warp stop motion- types, construction and working of mechanical & electrical warp stop motion, centre weft fork motion, construction and working of centre weft fork motion and its advantages.

Construction & working Multiple box motion, their types, two colours and four-colour drop box motion, brief description of pick-at will, pick and pick motion, Pick finding, heald leveling, light indicators; pick counters need, functions & use, i) Auto loom fabric defects, causes and remedies, Calculations pertaining to dobby, jacquard and automatic looms production and efficiency.

Text Books and Reference material:

1. Yarn preparation by R. Sengupta
2. An introduction to winding & warping by M.K. Talukdar
3. Modern preparation & weaving machinery by A Ormerod, Textile Institute, U.K.
4. Sizing by Prof. D. B. Ajgaonkar, Dr. M. K. Talukdar & V. R. Wadekar.
5. The Technology of Warp Sizing by J.B. Smith.
6. Modern Preparation & Weaving by A. Ormerod

5. RTT403- Chemical Processing of Textiles-II (L T P 3-0-0) Credits = 3

Unit 1: Dye structure: Chromophores, auxochromes, Dyeing – Principles of dyeing, Classification of dyes based on the method application, dye-fibre interactions and concepts like exhaustion, expression, percentage shade, affinity and substantivity, Dyeing of cellulosic fibres with direct, vat, reactive and sulphur dyes.

Unit 2: Dyeing of silk, wool and nylon. Dyeing of Acrylics, Dyeing of Polyester and its blends like polyester-cotton, polyester-viscose, polyester-wool, Evaluation of fastness properties like wash fastness, rubbing fastness and light fastness.

Unit 3: Introduction to fibre & yarn dyeing machines, package dyeing machine. Jigger dyeing machines, winch dyeing machine, padding mangles, jet dyeing and soft flow dyeing machines,

Unit 4: Concept of printing. Various ingredients used in preparation of printing paste. Various styles of printing such as Direct, Resist and Discharge by using direct, reactive and disperse dyes.

Unit 5 Printing with pigments. Various methods of printing such as roller, flat bed and rotary screen printing. Concept of inkjet / digital printing.

Reference Books:-

- 1) Dyeing of Polyester and Its Blends by M.L. Gulrajani.
- 2) Dyeing of Chemical Technology Of Textile Fibres by E.R. Trotman.
- 3) Technology of Dyeing by V.A. Shenai.
- 4) Textile Printing by L.W.C. Miles.
- 5) Technology of Printing by V.A. Shenai.
- 6) An Introduction to Textile Printing by W. Clarke.
- 7) Textile Finishing by A.J. Hall.
- 8) Introduction to Textile Finishing by J.T. Marsh
- 9) Technology of Finishing by V.A. Shenai.

6. RTT404- Textile Fibre-II (L T P 3 0 0) Credits = 3

Unit 1: Classification of man made fibres, definition of regenerated and synthetic fibres, Concepts of molecular weight, Degree of polymerization, Orientation and Crystallinity, Characteristics of fibre forming polymer.

Unit 2; Introduction to methods of fibre formation by melt spinning, dry spinning, & wet spinning, Polyethylene terephthalate fibre (PET) – History of development, Brief manufacturing process, Polymer production by DMT & PTA route, Chips drying, , physical & chemical properties of polyester fibres, applications

Unit 3: Polyamide Fibres – History of development, Different types of polyamide fibres, Nylon polymer production by continuous polymerization in VK Tube, Manufacturing of Nylon 6 fibre by melt spinning, Properties of nylon 6 fibre, Polymer production of Nylon 66, Nylon 66- fibre formation by melt spinning, Physical & chemical properties and, applications.

Unit 4: Polyacrylonitrile fibres, Polyurethane fibres brief manufacturing process by wet and dry spinning, physical and chemical properties of acrylic fibres & its applications, Properties of polyethylene fibre, Type of polypropylene (PP), Properties of polypropylene fibre. Introduction of High Performance fibres.

Unit 5: Introduction to regenerated fibre, Raw material for viscose rayon, Manufacturing sequence of viscose fibre, Steeping and pressing, Cutting and shredding, Ageing,

Xanthation of sodium cellulose, Mixing and filtration, Ripening, Wet spinning of viscose rayon, Introduction to Acetate, Triacetate fibres and Lyocell fibres.

References Books :

1. Textile Fibres – Vol.-I by V.A.Shenai, Sevak Publications, Bombay, 1971
2. Textile Fibres – H V S Murthy, Textile Association Publication, 1995
3. A Text book of Fibre Science and Technology by S.P. Mishra, New age International (p) limited, 2000 Chandigarh
4. Hand book of Textile Fibres Vol. I & II by Gorden & Cook, Merrrow Publication Ltd, England
5. Man Made Fibres – R.W. Moncrieff, Heywood Books, London, 1998
6. Manufactured Fibre Technology Ed V B Gupta and V K Kothari Pub: Springer Science Media 1997

4th Semester Practical's Textile Technology

7. RTT 451 Yarn Manufacture-II practical (L T P 0 0 2) Credit = 1

1. Study of constructional details of draw-frame,
2. Driving arrangement and calculation of speeds, draft and production of D/F.
3. Processing of Material on Draw frame and evaluating performance.
4. Study of constructional details & Driving arrangement and calculation of Speed Frame.
5. Study of sliver lap machine and calculation of speeds of different parts and production calculations of sliver lap.
6. Study of sliver lap machine and calculation of speeds of different parts and production calculations of Ribbon lap.
7. Study of sliver lap machine and calculation of speeds of different parts and production calculations of comber.

8. RTT 452 Fabric Manufacture-II (L T P 0 0 2) Credit = 1

1. General study of drop box motion
2. General study of mechanical Jacquard and method of card cutting.
3. Study of Cam dobbie and paper card cutting.
- 4) Study & working of weft feeler motion.
- 5) Study & working of auto let-off motion.
- 6) Study and working of pirn change motion.
- 7) Study and working of shuttle change motion.
6. Study of various dobbie mechanism
7. Study the mechanism of multiple box motion
8. Study of various jacquard looms

9. RTT 453 Chemical Processing of Textiles-II (L T P 0 0 2) Credit = 1

- 1) Development of dye by coupling method.
- 2) Dyeing of cotton yarn with vat dyes in sample pot dyeing machine.
- 3) Dyeing of cotton yarn with sulphur dyes
- 4) Dyeing of cotton yarn with Remazol dyes.
- 5) Dyeing of cotton yarn with Procion Dyes
- 6) Dyeing of cotton yarn with Bi-functional reactive Dyes
- 7) Dyeing of polyester yarn/fibre in laboratory HTHP machine.
- 8) Application of optical whitening agent on cotton.
- 9) Determination of washing fastness of dyed material.
- 10) Determination of washing fastness of dyed material.

10. RTT454: Textile Fibre II Lab (L T P 0 0 2) credit =1

Principle of microscopy, microscopic identification of man-made fibres, preparation and mounting of specimen for longitudinal view, standard scheme of analysis of homogeneous fibre and blend by physical and chemical methods, preparation of reagents used for chemical analysis