

Code & Title of the Course	TXT1105: Technology of Fibers
Marks	100
Numbers of Hours per week	3+1
Credits	4
Class	B Tech
Semester	III

Course Outcomes

1. Able to understand fibre forming properties with different textile terms following various stages of processing and differentiate them according to the classification Textile Fibres (K4).
2. 2 Able to acquire deeper understanding and insights in basic chemistry, production processes and physical and chemical properties of Natural and Synthetic fibers. (K2).
3. Ab le to analyze structure property relationship and choose fibres or develop combination of fibres for specific applications to meet novel requirements. (K4).
4. Able to acquire deeper understanding and insights in basic chemistry, production processes and physical and chemical properties of Natural and Synthetic fibers for non-apparel category (K2)
5. Able to analyze structure property relationship and choose fibres or develop combination of fibres for specific applications to meet novel requirements. (K4)
6. Able to justify fibre properties/end uses and depict or design the single or combinations of Fibre system for value addition to meet the strategic requirements. (K6)

Code & Title of the Course	TXT1101: Technology of Yarn & Fabric Formation
Marks	100
Numbers of Hours per week	3+1
Credits	4
Class	B Tech
Semester	III

Course Outcomes

1. Able to comprehend the classification of textile fibres and the basic differences between natural and synthetic fibres. (K2)
2. Able to comprehend criteria of properties of polymers to be called as textile fibres. (K2)
3. Able to understand the process flow chart of manufacture of fibre to yarn to fabric with each of its processes in details.(K2)
4. Able to comprehend the calculations involved in the important processes of manufacture of yarn and fabric. (K2)
5. Able to comprehend the count system of yarn and its conversion to different systems to understand the relationship with each other. (K2)
6. Able to understand and analyze the designs of various type of fabrics and different types of defects in fabric. (K4)

Code & Title of the Course	TXT1209: Technology of Textile Pre-treatment
Marks	50
Numbers of Hours per week	2+1
Credits	3
Class	B Tech
Semester	III

Course Outcomes

1. Able to comprehend the need for singeing of loom state fabric and use of latest technologies in singeing (gas-based singeing- stoichiometric ratios for air gas mixtures, machine specifications for gas singeing) for open width woven and knit fabrics. (K1)
2. Able to define the need for sizing of yarns and desizing of fabric; sizing chemicals and different desizing methods. (K1)
3. Able to describe the concept of mercerization and the techniques and machinery employed for the same (K2)
4. Able to describe with understanding the pretreatments in wool& silk processing. (K3)
5. Able to explain different bleaching recipes for scouring and bleaching of synthetics and their blends with natural fibres. (K2)

Code & Title of the Course	CHT1133: Chemistry of Colourants
Marks	100
Numbers of Hours per week	3+1
Credits	4
Class	B Tech
Semester	III

Course Outcomes

1. Able to understand fundamental knowledge on basics of chemistry involved in the colorants. (K2)
2. Able to describe the types of pigments and their applications (K2)
3. Able to understand and explain the physical properties of Pigments and dyes (K2)
4. Able to explain the synthetic methods used for azo dyes and their properties. (K2)
5. Able to explain the types of dyes on the basis of application, properties. (K2)

Code & Title of the Course	TXT1210: Technology of Textile Dyeing
Marks	100
Numbers of Hours per week	3+1
Credits	4
Class	B Tech
Semester	IV

Course Outcomes

- 1 Understand the importance of various textile raw materials and processing inputs for quality dyeing. (K1,K2,K4)
- 2 Understand the procedures, monitoring of dyeing parameters and functions of additives in dyeing of different fibres with various dyes. (K1,K2,K3,K4)
- 3 Understand the developments in dyes, machines and procedures of dyeing. (K1,K2,K3,K4)
- 4 Understand the complexities of dyeing to achieve quality dyeing. (K1, K2, K3,K5)
- 5 Know about developed techniques for specific purposes. (K1, K2, K3, K4, K5)
- 6 Understand the types of machinery for each type of fibre form, dyeing parameters, dyeing methods (K2, K3, K4)
- 7 Understand the importance of machinery controls for quality dyeing (K2, K3, K4)

Code & Title of the Course	TXT1211: Technology of Finshing
Marks	100
Numbers of Hours per week	3+1
Credits	4
Class	B Tech
Semester	V

Course Outcomes

1. Able to **write and comprehend** different methods and machineries available for application of finish and calculation for finish add on onto the fabric (K2,K3)
2. Able to **write and describe** different types of softeners, fastness improving agents , antimicrobial, anti-static, flame retarding agents , their chemistry, application on fabric and tests to evaluate it. (K1)
3. Able to **write and describe** different types of enzymes ,cross linking agents based on formaldehyde or formaldehyde free, their chemistry, application on fabric and tests to evaluate it. (K1)
4. Able to **write and describe** machine and process parameters and their effects on textiles. (K1)
5. Able to **write and describe** processes and their control systems to enhance efficiency of drying and heat setting for various types of textile material and fabrics. (K1)
6. Able to **write and describe** different methods for evaluation and durability of finishes. (K1)

Code & Title of the Course	TXT1212: Technology of Textile Printing
Marks	100
Numbers of Hours per week	3+1
Credits	4
Class	B Tech
Semester	V

Course Outcomes

1. Able to **comprehend** fundamental knowledge on basics of preparation of fabrics for printing; Steps in printing of various fabrics; Historical printing techniques Steps in printing of various fabrics; Historical printing techniques
2. Able to **describe and use** different type printing, fixation, washing and soaping machinery and automated inventory management systems for dyes and chemicals. (K2)
3. Able to **comprehend** Selection of thickening agents, chemicals and dyestuffs for printing; Formulation and rheological properties of printing pastes (K2)
4. Able to **choose** appropriate method, style and after-treatment for printed materials and remedial action to overcome faults in printing, their prevention and correction(K6)
5. Able to **appraise** the concept of conservation of chemicals and water in printing. (K6)
6. Able to **comprehend and apply** the recent developments in the machinery techniques and special printing techniques. (K2, K3)

Code & Title of the Course	TXT1802 : Environmental Aspects & Advances in Textile Processing
Marks	100
Numbers of Hours per week	3+1
Credits	4
Class	B Tech
Semester	V

Course Outcomes

1. Able to comprehend fundamental knowledge about environment and its characteristics.
2. Able to describe, define and write various ecosystems and ecolabels.
3. Able to understand and describe various effluent treatment procedures and their application to textile processing wastewater.
4. Able to effectively choose the right type of wastewater treatment after each step of process.

Code & Title of the Course	TXT1404 : Technology of Garment Manufacturing & Processing
Marks	100
Numbers of Hours per week	3+1
Credits	4
Class	B Tech
Semester	VI

Course Outcomes

- 1 Able to Understand the Aim and scope of readymade garment field with special reference to textile wet processing. Brief introduction to various departments in a garment export house. General overview of various fabric materials used in garment
- 2 Able to Understand the concept of various stages of garment processing, (pretreatment dyeing printing finishing) its problems and remedies. general precaution to be taken during finishing of cotton, wool, silk, rayon, woven and knitted materials. Fabric and sewing thread selection, Process Sequence, Flow Chart.(K2)
- 3 Able to understand Garment, Denim processing, Laundering, dry-cleaning washing off ,stain removal machines, Labelling and embroidering and role of garment accessories in garment processing.(K2)
- 4 Able to **comprehend** fundamental knowledge of the garment industry and the stages at which garments are manufactured, role of garment manufacturer or an export house and also to **understand, and analyze** the process of communication between buyers, export house in manufacturing garments. (K4)
- 5 Able to **understand and describe** different manufacturing processes and various equipments which are related to the fabric cutting, sewing (feed dogs, needles), fusing pressing technology , ware housing and various production systems in the garment manufacturing unit and developments in the technology of garment manufacturing (K2,
- 6 Able to **list and interpret** different trims and components used in the garment industry, **analyze** the federal classification of seams and stitches which are widely used in the garment industry. (K4)

Code & Title of the Course	TXT1213: Theory of Textile Coloration
Marks	50
Numbers of Hours per week	2+1
Credits	3
Class	B Tech
Semester	VI

Course Outcomes

1. Able to comprehend fundamental knowledge of fibres and colour science in relation to dyeing.
2. Able to describe basic physicochemical aspects of dyeing on fibres.
3. Able to write, compile and elaborate on dyeing procedures.
4. Able to use different dyeing techniques and compare them.
5. Able to correlate the theory and procedures of dyeing.
6. Able to describe the procedures of dyeing with importance of step and chemical additions.

Code & Title of the Course	TXT1214: Chemistry Application & Evaluation of Specialty Chemicals
Marks	100
Numbers of Hours per week	3+1
Credits	4
Class	B Tech
Semester	VII

Course Outcomes

- 1 Able to understand fundamental knowledge on basics of textile auxiliaries. (K2)
- 2 Able to describe the role of surfactants in textile and their different types (K2)
- 3 Able to write synthesis of important textile auxiliaries (K2)
- 4 Able to understand different tools for testing of surfactants and identify the ionic nature. (K2)
- 5 Able to explain the biodegradability of surfactants and eco-friendly textile auxiliaries. (K2)
- 6 Able to describe recent developments in textile auxiliaries. (K2)

Code & Title of the Course	TXT1103: Technology of Textile Polymers
Marks	50
Numbers of Hours per week	2+1
Credits	3
Class	B Tech
Semester	VII

Course Outcomes

- 1 Able to **comprehend** fundamental knowledge of polymers, their types, application in textile field and methods of classification (K2, A2).
- 2 Able to write and compare different techniques used to determine the average molecular weights of the polymers (K4,A5,S2).
- 3 Able to **write** mechanisms for synthesis of different polymers **and acquire** the knowledge about the role of catalyst and other additives like inhibitor (K3, A3, S2).
- 4 Able to **describe** and adapt different methods for determining the characteristics or properties of the polymers like crystallinity, microstructure, thermal and chemical properties. (K2, A5, S4)
- 5 Able to **describe** chemical and physical methods used for fibre modification. (K2,A2)
- 6 Able to **describe** fibre composites, their fabrication properties and application fields (K1, A1,S1)
- 7 Able to **comprehend** Polymer waste recycling and their techniques (K2, A1,S1)

Code & Title of the Course	TXT1301: Testing of Textile Materials
Marks	50
Numbers of Hours per week	2+1
Credits	3
Class	B Tech
Semester	VIII

Course Outcomes

- 1 Able to **comprehend** the stages at which testing is to be done (K2)
- 2 Able to **explain** different physical tastings performed on the fabric. (K2)
- 3 Able to **list and interpret** different fastness tests(K4)
- 4 Able to **understand** testing principles and operation of different analytical testing instruments (K1)
- 5 Able to **identify** different testing standards and their importance (K1)
- 6 Able to **examine and judge** the fastness properties of the coloured goods (K4)

Code & Title of the Course	TXT1402: Merchandising & Designing of Textiles
Marks	50
Numbers of Hours per week	2+1
Credits	3
Class	B Tech
Semester	VIII

Course Outcomes

- 1 Be able to **acquire** a thorough background in the business aspects of the fashion and textile industry (K1)
- 2 Be able to **understand the dynamics** of merchandising, its scope and role of merchandisers (K1)
- 3 Able to **comprehend** visual merchandising as a tool for effective retailing. (K2)
- 4 Be able to **comprehend and use** various yarn and fabric textures, colorants and finishes in designing of textiles. (K2)
- 5 Be able to **understand** the significance of the concept of need based product development. (K1)
- 6 Be able to **comprehend and apply** information technology in merchandising process and product designing. (K3)
- 7 Be able to **understand** the importance of designing in relation to fashion trends. (K1)

Code & Title of the Course	TXT1504: Introduction to Non-woven and Technical Textiles
Marks	100
Numbers of Hours per week	3+1
Credits	4
Class	B Tech
Semester	VIII

Course Outcomes

- 1 Able to **comprehend** definition and difference between woven/knitted and non-woven fabrics along with the economy, areas of application of these nonwovens depending on
- 2 Able to **write and describe** web formation technology by air laid, wet laid and by spun laid & melt blown methods and parameters involved therein. (K3)
- 3 Able to **write and describe** web bonding technology by chemical, mechanical & thermal method and parameters involved therein. (K3)
- 4 Able to define and classify technical textiles (K1)
- 5 Able to describe, explain and interpret the properties related to each of the division (or area) of technical textile (K2)
- 6 Able to Apply technical textiles in woven, nonwoven knitted form in various areas like transport medical protective etc. (K3)

Code & Title of the Course	TXP1002: Pre-treatment of Textiles
Marks	50
Numbers of Hours per week	0+0+4
Credits	2
Class	B Tech
Semester	III

Course Outcomes

1. Able to carry out desizing , scouring and bleaching of cotton by different methods and its evaluation by suitable methods (K3, K5)
2. Able to carry out mercerization of cotton with and without tension and measurement of its efficiency by shrinkage, Barium Activity Number (BAN), dye uptake, strength .(K3, K5)
3. To carry out scouring and bleaching of wool, degumming and bleaching of Silk (K3)
4. Able to carry out scouring and bleaching of polyester/cotton blends (K3)
5. Able to carry out assessment of cotton for degradation by Copper Number, Cuprammonium Fluidity (K5)
6. Able to apply OBA/FBA on natural and synthetic fabrics and evaluation of fabric for whiteness. (K5)

Code & Title of the Course	TXP1004 : Experimental Dyeing
Marks	100
Numbers of Hours per week	0+0+8
Credits	4
Class	B Tech
Semester	V

Course Outcomes

- 1 Able to understand, apply and analyze effect of pretreatments, various parameters after treatment on dyeing of cotton with direct dyes (K4).
- 2 Able to choose, apply and examine different disperse dyes, dyeing techniques and dyeing of PET, CDPET, PBT (K6).
- 3 Able to process, apply and evaluate dyeing of vat dyes on cotton by vat pigmentation and vat acid method. (K6).
- 4 Able to process, apply and analyze dyeing of Nylon with acid, metal complex, disperse, reactive and direct dyes. (K6).
- 5 Able to process and evaluate dyeing of wool and silk using metal complex dyes and acid mordant dyes (K6).
- 6 Able to carry out and interpret dyeing of Natural dye on wool and cotton in presence of mordents (K6).
- 7 Able to perform and develop dyeing of jute with direct, basic, and reactive dyes (K3, A2, S3).

Code & Title of the Course	TXP1005 : Evaluation of Dyes & Specialty Chemicals
Marks	50
Numbers of Hours per week	0+0+4
Credits	2
Class	B Tech
Semester	V

Course Outcomes

- 1 Able to Analyze various properties of dyes (K4)
- 2 Able to Analyze various properties of auxiliaries and specialty chemicals used in textile processing. (K4)
- 3 Able to Qualitative and quantitative analysis of auxiliaries and specialty chemicals. (K4)
- 4 Able to Evaluate performance properties of processed fabric. (K5)
- 5 Able to Analyze the effluents. (K4)
- 6 Able to evaluate the effect of metal or other impurities present during processing in the processing liquor. (K5).

Code & Title of the Course	TXP1014 : Finishing & Evaluation of Textiles
Marks	100
Numbers of Hours per week	0+0+8
Credits	4
Class	B Tech
Semester	VI

Course Outcomes

- 1 Able to describe application of different textile finishing agents and their testing procedure for the particular property. (K2).
- 2 Able to describe application of flame retarding agent and testing of finished fabric by measurement of char length, rate of burning and Limiting Oxygen Index. (K2).
- 3 To carry out application of water repellent/waterproof agent and evaluation of fabric for water repellency by spray/shower test and water penetration test. (K2).
- 4 Able to describe application of antibacterial agents and testing of finished fabric for antibacterial property. (K2).
- 5 Able to describe application of soil release agent and testing of finished fabric for anti-soiling property. (K2).
- 6 Able to describe application of Water and Oil repellent and its evaluation. (K2).

Code & Title of the Course	TXP1015 : Analysis of Textile Chemicals & Fibres
Marks	50
Numbers of Hours per week	0+0+4
Credits	2
Class	B Tech
Semester	VI

Course Outcomes

- 1 Able to estimate the purity of the different acids, alkali, reducing agents, oxidizing agents used in the textile processing. (K4)
- 2 Able to find the efficiency e.g. of Sizing chemicals, blend analysis, fibre identification by microscopic and by chemical methods. (K5)
- 3 Able to describe, carry out and use yarn twist/count, Appearance, Hairiness/yarn imperfections, fabric GSM. (K2)
- 4 Able to describe, interpret, examine and determine twist in double and single yarn, strength and elongation at break.(K3)
- 5 Able to carry out and use measurement of maturity and fineness of fibres by airflow instrument.(K3)
- 6 Able to evaluate types of weave using weave diagram. (K5)

Code & Title of the Course	TXP1016 : Experiments in Printing
Marks	50
Numbers of Hours per week	0+0+4
Credits	2
Class	B Tech
Semester	VI

Course Outcomes

1. Able to develop practical skills in preparation of fabric for printing, printing paste and equipments of printing.
2. Able to select styles and methods of printing
3. Able to test performance properties of printed goods
4. Able to correlate theoretical aspects with the practice of printing

Code & Title of the Course	TXP1019 : Shade Matching and Bulk Colouration
Marks	100
Numbers of Hours per week	0+0+8
Credits	4
Class	B Tech
Semester	VIII

Course Outcomes

- 1 Able to carry out dyeing of various types of fabrics and blends using different methods on continuous dyeing range (K4)
- 2 Able to carry out screen design and printing using Flat bed, rotary and block printing methods (K4)
- 3 Able to carry out combined and separate Desizing, Scouring, Bleaching of cotton knit, processing of Cotton/Elastane blends on soft flow machine (K4)
- 4 Able to carry out processing of Polyester/Viscose, Polyester/Wool blends on pilot Jet dyeing machine (K4)
- 5 Able to carry out shade matching of cotton fabric using vat and reactive dyes (K5)
- 6 Able to carry out shade matching of cotton hank by tub liquoring using azoic colours (K5)