Code & Title of the Course	TXT 2502: Advanced Textile Materials
Marks	50
Number of Hours per Week	2+1
Credits	3
Class	M Tech
Semester	I

Course Outcome:
Students will be able to,

TXT2502-1. Examine and choose among different types of textiles including geo textile, medical textile, automotive textile, etc. (K3)
TXT2502-2. Design the quality among various types of composites based on their constituents. (K3)
TXT2502-3. Express the selection criteria for fibres based on economics and growth potential. (K3)
TXT2502-4. Carry out characterisation of advanced materials. (K5)

Code & Title of the Course	TXT 2803: Sustainable Textile Processing
Marks	50
Number of Hours per Week	2+1
Credits	3
Class	M Tech
Semester	I

Course outcome:
Students will be able to,

TXT2803-1. Develop textile processing protocols with eco-friendly/fewer polluting alternatives. (K4)
TXT2803-2. Examine the contents of pollutants or hazardous substances in textile goods. (K3)
TXT2803-3. Design the life cycle of textile goods and examine the environmental load. (K4)
TXT2803-4. Judge among textile brands according to their carbon footprint. (K5)

Code & Title of the Course	TXP 2001: Project I (Seminar & Critical Review)
Marks	50
Number of Hours per Week	6
Credits	3
Class	M Tech
Semester	I

Course Outcome:

Students will be able to,

TXT2001-1. Contrast different methodologies reported in a research article. (K4)

TXT2001-2. Design protocol for textile processing by referring research articles. (K4)

TXT2001-3. Judge best method among various methodologies reported in literature. (K5)

Code & Title of the Course	PYT 2106: Physical Methods of Analysis
Marks	50
Number of Hours per Week	6
Credits	3
Class	M Tech
Semester	I

Course Outcome:

Students will be able to,

TXP2301-1. Calibrate instruments required for textile characterisations. (K4)

TXP2301-2. Measure contact angle, particle size, and zeta potential as surface characterisation technique. (K5)

TXP2301-3. Demonstrate different experiments for characterisation of textile materials. (K5)

TXP 2002	Research I
Marks	100
Number of Hours per Week	12
Credits	6
Class	M Tech
Semester	I

Course Outcome:

Students will be able to,

TXP2002-1. Carry out through literature review and choose a research area to work on with novel inputs. (K5, A4)

TXP2002-2. Judge the best area according to resources dependant implementation ease and potential applications. (K5, A3)

TXP2002-3. Design experiment and perform proof of concept research on the topic selected. (K5, A5).

Semester II

Code & Title of the Course	TXT 2804: Management of Textile Waste
Marks	50
Number of Hours per Week	2+1
Credits	3
Class	M Tech
Semester	II

Course Outcome:

Students will be able to,

TXT2804-1. Design textile recycling process according to the substrate and texture of the material. (K4)
TXT2804-2. Justify the recycling process based on the cost and by-products utilisation of the obtained material. (K3)
TXT2804-3. Develop recycling protocols and utilisation of the product in the composite formation. (K3)
TXT2804-4. Express the cost effectiveness of the recycling in terms of market value of the respective products. (K3)

Code & Title of the Course	TXT 2503: Smart Textiles
Marks	50
Number of Hours per Week	2+1
Credits	3
Class	M Tech
Semester	II

Course Outcome:

TXT2503-1. Demonstrate the difference between technical textile and smart textile and the compositions. (K2).
TXT2503-2. Contrast between active and passive smart materials. (K3)
TXT2503-3. Express the importance of smart textile in various fields such as medical, defence, fashion, etc. (K3)
TXT2503-4. Choose best application protocol and material to develop smart textile for application. (K5)

Code & Title of the Course	TXT 2203: Developments in Textile Processing Machinery
Marks	50
Number of Hours per Week	2+1
Credits	3
Class	M Tech
Semester	II

Course Outcome:
Students will be able to,

TXT2203-1. Justify the improvisation in the textile processing machinery according to the efficiency and ease of operation. (K5)
TXT2203-2. Examine the various parts and segments of textile processing machinery and differentiate them according to their functions. (K3)
TXT2203-3. Demonstrate the new developments in the textile processing machineries with respect to their utility. (K4)
TXT2203-4. Design processing machinery setup and effluent treatment plant according to the prerequisites. (K3)

Code & Title of the Course	TXP 2302: Process Optimization & Performance Evaluation
Marks	50
Number of Hours per Week	6
Credits	3
Class	M Tech
Semester	II

Course Outcome
Students will be able to,

TXP2302-1. Demonstrate digital printing on cotton and polyester substrate. (K3)

TXP2302-2. Characterise and treat the textile effluent using different techniques. (K3)

TXP2302-3. Develop protocol for electrospinning with variable size of nano fibres. (K4)

TXP2302-4. Demonstrate shade matching using CCM (K5)

TXP2302-5. Coat and characterise textile substrate with TiO2 for UV protection (K3)

Code & Title of the Course	TXP 2003: Research II (Mid Project Evaluation)
Marks	150
Number of Hours per Week	18
Credits	9
Class	M Tech
Semester	II

Course Outcome:

Students will be able to,

TXP2003-1. Organise the initial results obtained during the research project. (K4)
TXP2003-2. Justify the methodology to obtain desired output. (K5)
TXP2003-3. Modify the methodology as per requirement to obtain the desired output. (K5)

Semester III

Code & Title of the Course	**TXP 2004: Project II (In-plant Training)**
Marks	450
Number of Hours per Week	40
Credits	30
Class	M Tech
Semester	III

Course Outcome:

Students will be able to,

TXP2004-1. Examine the textile processing protocols and understand the utility. (K3)
TXP2004-2. Organise and demonstrate the results obtained during the training. (K4)
TXP2004-3. Modify the studied processing protocol as per requirement and justify it. (K5)

Semester IV

Code & Title of the Course	**TXP 2005: Research III (Research Thesis & Open Defence)**
Marks	450
Number of Hours per Week	40
Credits	30
Class	M Tech
Semester	IV

Course Outcome:
Students will be able to,

TXP2005-1. Perform experiments systematically to accomplish the set objectives (K3)
TXP2005-2. Evaluate critically the experimental data and draw meaningful inferences (K5)
TXP2005-3. Develop skills to defend own research effectively (K6)
TXP2005-4. Develop skills for writing scientific documents (K6)

Syllabus of electives recommended by the department for Sem I

Code & Title of the Course	**PHT 2101: Research Methodology**
Marks	50
Number of Hours per Week	2+1
Credits	3
Class	M Tech
Semester	I

Code & Title of the Course	**BST 2106: Intellectual Property Rights**
Marks	50
Number of Hours per Week	2+1
Credits	3
Class	M Tech
Semester	I

List of electives offered by the department for Sem II

Code & Title of the Course	**TXT 2902: Entrepreneurship Development**
Marks	50
Number of Hours per Week	2+1
Credits	3
Class	M Tech
Semester	II

Course Outcome:

Students will be able to,

TXT2902-1. Explain the types and qualities of an entrepreneur. (K2)

TXT2902-2. Discuss phases of entrepreneurship development and the concept of EDP. (K2)

TXT2902-3. Design proposal for entrepreneurship development in line with various central and state government schemes. (K4)

Code & Title of the Course	TXT 2903: Laboratory Management systems
Marks	50
Number of Hours per Week	2+1
Credits	3
Class	M Tech
Semester	II

Course Outcome:

Students will be able to,

TXT2903-1. Understand and explain the principles of supply chain management and logistic. (K2)

TXT2903-2. Plan and manage supply and demand in a typical textile production house. (K3)

TXT2903-3. Explain the documentation regarding import-export, insurance, packaging, etc. (K2)

Code & Title of the Course	TXT 2904: Supply chain management for textile industry
Marks	50
Number of Hours per Week	2+1
Credits	3
Class	M Tech
Semester	II

Course Outcome:

Students will be able to,

TXT2903-1. Understand and explain the principles of supply chain management and logistic. (K2)

TXT2903-2 Plan and manage supply and demand in a typical textile production house. (K3)

TXT2903-3. Explain the documentation regarding import-export, insurance, packaging, etc. (K2)

Code & Title of the Course	TXT 2205: Continuous Processing of Textile
Marks	50
Class	M Tech
Semester	I

Course Outcome:
Students will be able to,
TXT2205-1. Justify the improvisation in the continuous textile processing and machinery. (K5)
TXT2205-2. Examine the various textile wet processing conditions and their effects. (K3)
TXT2205-3. Explain the recent advancement in terms of conditions and machineries for continuous textile processing. (K2)

Code & Title of the Course	TXT 2601: Biotechnology in Textiles
Marks	50
Number of Hours per Week	2+1
Credits	3
Class	M Tech
Semester	II

Course Outcome:
Students will be able to,

TXT2601-1. Identify and examine the enzymes for potential textile wet processing operation. (K3)
TXT2601-2. Explain the concepts of genetic engineering and their application in fibre science. (K2)
TXT2601-3. Explain the synthesis, application, and properties of biological pigments. (K2)
TXT2601-4. Design textile processing protocol based on enzymes and biological pigments. (K4)

Code & Title of the Course	TXT 2204: Developments in Textile Auxiliary Chemicals
Marks	50
Number of Hours per Week	2+1
Credits	3
Class	M Tech
Semester	II

Course Outcome:

Students will be able to,

TXT2204-1. Design recipe formulations for various textile wet processes. (K3)

TXT2204-2. Differentiate properties of the novel textile auxiliaries based on their structures. (K4)

TXT2204-3. Explain the methods of manufacturing of textile auxiliaries. (K2)

TXT2204-4. Evaluate the auxiliaries for their effectiveness. (K5)