

# Textile Technology (BS): Supply Chain Operations Concentration

To see more about what you will learn in this program, visit the Learning Outcomes website (<https://apps.oirp.ncsu.edu/pgas/>)!

The B.S. in Textile Technology provides students with basic knowledge of fiber materials, science and technologies of fiber processing, as well as fiber-based product design and development. The curriculum prepares students in product design and development processes, beginning with understanding of application to material selection to appropriate technologies to utilize.

The Textile Technology degree program offers a well rounded versatile degree, which prepares graduates to collaborate effectively with professionals in a global interdisciplinary environment. After introductory exposure to several of the fundamental aspects of fiber science and textile technology, the student can build additional depth in one of the three concentrations of Medical Textiles, Technical Textiles, and Textile Supply Chain Operations or stay in the general degree which allows students the flexibility of designing their own interest or transferring from other programs or community colleges. The Medical Textiles concentration covers design and methods of production of state-of-the-art textile products and devices used in medical applications including sutures for wound closing to cardiac support devices. The Technical Textiles concentration covers design principles, understanding of applications, and technologies relevant to the vast array of technical textiles materials and products used in such areas as transportation, storage, packaging, automobile engineering, geotechnical engineering, and much more. This concentration offers two options: Materials and Nonwovens. The Textile Supply Chain Operations concentration focuses on the design, management, and coordination all the activities required to transform raw materials into finished textile products to retail. Students in this degree program will participate in the TE/TT Capstone Design Program (<https://textiles.ncsu.edu/tecs/student-experience/senior-design/>), where projects are sponsored by industry partners and government agencies. More information about the degrees is available on the [TECS TT](https://textiles.ncsu.edu/tecs/undergraduate/textile-technology/) (<https://textiles.ncsu.edu/tecs/undergraduate/textile-technology/>) website.

## Plan Requirements

Code	Title	Hours	Counts towards
<b>Orientation</b>			
T 101	Strategies for Success in the Wilson College of Textiles	1	
Acad Writing Research (p. 2) <sup>1</sup>		4	
<b>MA/ST and Natural Sciences</b>			
Select one of the following: <sup>1</sup>		4	
MA 131	Calculus for Life and Management Sciences A		

MA 132	Computational Mathematics for Life and Management Sciences		
MA 141	Calculus I <sup>1</sup>		
MA 231	Calculus for Life and Management Sciences B	3	
or MA 241	Calculus II		
ST 311	Introduction to Statistics	3	
or ST 370	Probability and Statistics for Engineers		
CH 101	Chemistry - A Molecular Science <sup>1</sup>	3	
CH 102	General Chemistry Laboratory <sup>1</sup>	1	
Select one of the following:		4	
PY 205 & PY 206	Physics for Engineers and Scientists I and Physics for Engineers and Scientists I Laboratory		
PY 211	College Physics I		
Select one of the following:		4	
PY 208 & PY 209	Physics for Engineers and Scientists II and Physics for Engineers and Scientists II Laboratory		
PY 212	College Physics II		
<b>Major Requirements</b>			
EC 205	Fundamentals of Economics	3	
FTM 217	The Textile Industry	3	
MT 366	Biotextile Product Development	3	
PCC 302	Technology of Textile Wet Processing	4	
TE 200	Introduction to Polymer Science and Engineering	3	
TMS 211	Introduction to Fiber Science	3	
MT 105	Introduction to Medical Textiles	3	
or TT 105	Introduction to Textile Technology		

TT 327	Yarn Production and Properties	4
TT 331	Performance Evaluation of Textile Materials	4
TT 341	Knitted Fabric Technology	3
TT 351	Woven Products and Processes	3
TT 380	Management and Control of Textile and Apparel Systems	3
TT 401	Textile Technology Senior Design I	4
TT 402	Textile Technology Senior Design II	4
TT 404	Introduction to Nonwovens Products and Processes	3
TT 431	Quality Management and Control In Textile Manufacturing	3
TT 481	Design and Technology of Technical Textiles	3

**Supply Chain Operations Concentration**

TT 480	Operations Management Decisions for Textiles	3
TT 486	Supply Chain Management in the Textile Industry	3
ACC 210	Concepts of Financial Reporting	3
BUS 320	Financial Management	3

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**GEP Courses**

GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )	6
GEP Social Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/</a> )	3

GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )	2
GEP Additional Breadth ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/</a> ) (Humanities/Social Sciences/Visual and Performing Arts)	3
GEP Interdisciplinary Perspectives ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/</a> )	5
GEP U.S. Diversity ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-us-diversity/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-us-diversity/</a> ) (verify requirement)	
GEP Global Knowledge ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/</a> ) (verify requirement)	
Foreign Language Proficiency ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/foreign-language-proficiency/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/foreign-language-proficiency/</a> ) (verify requirement)	

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**Total Hours** 120

**Acad Writing Research**

Code	Title	Hours	Counts towards
<b>Acad Writing Research</b>			
ENG 101	Academic Writing and Research	4	
FLE 101	Academic Writing and Research	4	

**Transfer Sequence**

ENG 202	Disciplinary Perspectives in Writing		
ENG 1GEP	100 Level English Composition	3	

**Supply Chain Operations Concentration**

Code	Title	Hours	Counts towards
<b>Supply Chain Operations Electives</b>			
FTM 310	Entrepreneurship & New Product Development in Textiles	3	
FTM 315	Fashion Product Design	3	
FTM 317	Computer Aided Fashion Design	3	

FTM 318	Fashion Development Processes	3	FTM 490	Development Projects in Textile and Apparel Management	1-3
FTM 320	Retail Merchandising in Fashion and Textiles	3	FTM 491	Special Topics in Textile and Apparel Management	1-4
FTM 382	Brand Management in Textiles and Apparel	3	FTM 494	International Industrial Internship in Textile Management	3
FTM 384	Visual Merchandising Principles and Management	3	FTM 497	Senior Fashion Collection Studio	6
FTM 385	Fashion and the Consumer	3	FTM 499	Textile Senior Project	4
FTM 387	Textile Brand Communications & Promotions	3	MT 323	Introduction to Theory and Practice of Medical Fiber and Yarn Formation	3
FTM 400	Major Fashion Designers	3	MT 381	Medical Textile and the Regulatory Environment	3
FTM 415	Fashion Product Development	3	MT 432	Biotextiles Evaluation	3
FTM 416	The Fashion Industry	3	MT 471	The Chemistry of Synthetic and Natural Bipolymers	3
FTM 420	Retail Buying in Fashion and Textiles	3	NW 408/508	Nonwoven Product Development	3
FTM 460	Textile Market Research	3	NW 503	Materials, Polymers, and Fibers used in Nonwovens	3
FTM 481	Product Costing in the Textile and Apparel Industry	3	NW 504	Introduction to Nonwovens Products and Processes	3
FTM 482	Global Brand Management in Textiles and Apparel	3	NW 506	Bonding Principles in Nonwovens	3
FTM 483	Global Trade & Sourcing	3	NW 507	Nonwoven Characterization Methods	3
FTM 484	Strategic Planning and Decision Making in the Textile and Fashion Industries	3	PCC 201	Impact of Industry on the Environment and Society	3
FTM 485	Textile Computer Integrated Enterprise	3	PCC 420	Textile Dyeing and Printing	3
FTM 487	Human Resource Management and Leadership in the Textile and Fashion Industries	3			

PCC 471	The Chemistry of Synthetic and Natural Bipolymers	3
TE 533	Lean Six Sigma Quality	3
TMS 521	Filament Yarn Production Processing and Properties	3
TT 407	Characterization Methods in Nonwovens	3
TT 408	Nonwoven Product Development	3
TT 451	Advanced Woven Fabric Design	3
TT 470	Jacquard Woven Fabric Design	3
TT 485	Textile Computer Integrated Enterprise	3
TT 499	Textile Senior Project	4
TT 500	Understanding the Textile Complex	3
TT 503	Materials, Polymers, and Fibers used in Nonwovens	3
TT 504	Introduction to Nonwovens Products and Processes	3
TT 507	Nonwoven Characterization Methods	3
TT 508	Nonwoven Product Development	3
TT 520	Yarn Processing Dynamics	3
TT 521	Filament Yarn Production Processing and Properties	3
TT 530	Textile Quality and Process Control	3
TT 532	Evaluation of Biotextiles	3
TT 533	Lean Six Sigma Quality	3
TT 535	Research Methods and Management	3

TT 549	Warp Knit Engineering and Structural Design	3
TT 550	Production Mechanics and Properties of Woven Fabrics	3
TT 551	Advanced Woven Fabric Design	3
TT 553	Formation and Structure of Woven and Knitted Fabrics	3
TT 570	Textile Digital Design and Technology	3
TT 571	Professional Practices in Textile Design and Technology	3
TT 581	Technical Textiles	3
TT 591	Special Studies in Textile Technology	1-4
TTM 530	Textile Quality and Process Control	3
TTM 533	Lean Six Sigma Quality	3
TTM 535	Research Methods and Management	3

## Semester Sequence

This is a sample.

### First Year

Fall Semester		Hours
CH 101	Chemistry - A Molecular Science <sup>1</sup>	3
CH 102	General Chemistry Laboratory <sup>1</sup>	1
ENG 101	Academic Writing and Research	4
MA 131	Calculus for Life and Management Sciences A <sup>1</sup>	3
TT 105	Introduction to Textile Technology (CP)	3
T 101	Strategies for Success in the Wilson College of Textiles	1

**Hours 15**

### Spring Semester

MA 231	Calculus for Life and Management Sciences B <sup>1</sup>	3
MA 132	Computational Mathematics for Life and Management Sciences	1
PY 211	College Physics I	4
TMS 211	Introduction to Fiber Science	3
FTM 217	The Textile Industry	3

GEP Health and Exercise Studies (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/>) 1

**Hours 15**

**Second Year**

**Fall Semester**

EC 205 Fundamentals of Economics 3  
 PY 212 College Physics II 4  
 TT 327 Yarn Production and Properties (CP) 4  
 TT 380 Management and Control of Textile and Apparel Systems 3  
 GEP Humanities (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/>) 3

**Hours 17**

**Spring Semester**

ST 311 Introduction to Statistics 3  
 TE 200 Introduction to Polymer Science and Engineering 3  
 TT 351 Woven Products and Processes (CP) 3  
 TT 341 Knitted Fabric Technology (CP) 3  
 ACC 210 Concepts of Financial Reporting 3

**Hours 15**

**Third Year**

**Fall Semester**

TT 404 Introduction to Nonwovens Products and Processes 3  
 TT 481 Design and Technology of Technical Textiles 3  
 PCC 302 Technology of Textile Wet Processing 4  
 GEP Social Sciences (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/>) 3  
 TT 480 Operations Management Decisions for Textiles 3

**Hours 16**

**Spring Semester**

TT 331 Performance Evaluation of Textile Materials (CP) 4  
 MT 366 Biotextile Product Development 3  
 TT 486 Supply Chain Management in the Textile Industry 3  
 GEP Additional Breadth (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/>) (Humanities/Social Sciences/Visual and Performing Arts) 3  
 GEP Humanities (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/>) 3

**Hours 16**

**Fourth Year**

**Fall Semester**

TT 401 Textile Technology Senior Design I 4  
 Textile Supply Chain Oper Elective (p. 2) 3  
 GEP Interdisciplinary Perspectives (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/>) 2-3

GEP Health and Exercise Studies (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/>) 1

BUS 320 Financial Management 3

**Hours 13**

**Spring Semester**

TT 402 Textile Technology Senior Design II 4  
 GEP Interdisciplinary Perspectives (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/>) 3  
 TT 431 Quality Management and Control In Textile Manufacturing 3  
 Textile Supply Chain Oper Elective (p. 2) 3

**Hours 13**

**Total Hours 120**

<sup>1</sup> Must be completed with a grade of C- or higher for major requirements