

Textile Engineering (BS): Information Systems Concentration

If you've ever relied on a tent to keep you warm and dry, put on a bandage or driven a car, you've benefited from the work of a textile engineer.

Textiles are everywhere, and a B.S. in Textile Engineering (<https://textiles.ncsu.edu/academics/undergraduate/textile-engineering/>) trains you to combine an engineering perspective with knowledge of fiber science, product development, dye chemistry and more. You'll wrap up your college career by working with textile technology students and industry partners on a year-long Senior Design project.

Our bachelor's degree in textile engineering is a joint degree between the Wilson College of Textiles and the College of Engineering.

The Information Systems concentration (<https://textiles.ncsu.edu/academics/undergraduate/textile-engineering/information-systems/>) is one of three concentrations students in textile engineering can choose from. In this concentration, you'll learn how to use computer database information systems and data analytics to solve problems to make processes more efficient or optimize inventory and supply chains. Minors in computer science, supply chain engineering or industrial engineering, as well as double majors in industrial engineering or computer science, are often added to students in this concentration.

The textile engineering program is accredited by the Engineering Accreditation Commission of ABET (<https://www.abet.org>).

Contact

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Plan Requirements

Code	Title	Hours	Counts towards
Orientation			
E 101	Introduction to Engineering & Problem Solving ²	1	
E 115	Introduction to Computing Environments	1	
T 101	Strategies for Success in the Wilson College of Textiles	1	
Mathematical & Physical Science			
MA 141	Calculus I ¹	4	
MA 241	Calculus II ¹	4	
MA 242	Calculus III	4	

MA 341	Applied Differential Equations I	3
CH 101 & CH 102	Chemistry - A Molecular Science and General Chemistry Laboratory ¹	4
PY 205 & PY 206	Physics for Engineers and Scientists I and Physics for Engineers and Scientists I Laboratory ¹	4
PY 208 & PY 209	Physics for Engineers and Scientists II and Physics for Engineers and Scientists II Laboratory	4
Major Requirements		
E 102	Engineering in the 21st Century	2
TE 105	Textile Engineering: Materials and Systems	2
TE 110	Computer-Based Modeling for Engineers ²	3
TE 200	Introduction to Polymer Science and Engineering	3
TE 201	Fiber Science	4
TE 205	Analog and Digital Circuits	4
TE 301	Engineering Textile Structures I: Linear Assemblies	3
TE 302	Textile Manufacturing Processes and Systems II	4
TE 303	Thermodynamics for Textile Engineers	3
TE 401	Textile Engineering Design I	4
TE 402	Textile Engineering Design II	4

TE 404	Textile Engineering Quality Improvement	3
TE 424	Textile Engineering Quality Improvement Laboratory	1
PCC 301 & PCC 304	Technology of Dyeing and Finishing and Technology of Dyeing & Finishing Laboratory	4
GC 120	Foundations of Graphics	3
MAE 206 or CE 214	Engineering Statics Engineering Mechanics-Statics	3
ST 370	Probability and Statistics for Engineers	3
Select one of the following:		3
ARE 201	Introduction to Agricultural & Resource Economics	
EC 201	Principles of Microeconomics	
EC 205	Fundamentals of Economics	
Concentration Requirements		
ISE 135	Computer-Based Modeling for Industrial Engineering	3
ISE 311	Engineering Economic Analysis	3
ISE 361	Deterministic Models in Industrial Engineering	3
TE 440	Textile Information Systems Design	4
Concentration Elective: Select two of the following:		6
ISE 411	Decision Making and Game Theory for Supply Chains	

ISE 417	Database Applications in Industrial & Systems Engineering
ISE 435	Python Programming for Industrial & Systems Engineers
ISE 437	Data Analytics for Industrial Engineering
ISE 441	Introduction to Simulation

GEP Courses		
Acad Writing Research (p. 3) ²		4
GEP Humanities (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/)		6
GEP Social Sciences (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/)		3
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)		2
GEP US Diversity, Equity, and Inclusion (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/)		3
GEP Interdisciplinary Perspectives (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/)		3
GEP Global Knowledge (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/) (verify requirement)		
World Language Proficiency (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/world-language-proficiency/) (verify requirement)		

Total Hours **126**

¹ C or better
² C- or better

Acad Writing Research

Code	Title	Hours	Counts towards
Acad Writing Research			
ENG 101	Academic Writing and Research	4	
WLEN 101	Academic Writing and Research	4	
Transfer Sequence			
ENG 1GEP		3	
ENG 202	Disciplinary Perspectives in Writing	3	

Semester Sequence

This is a sample.

First Year

Fall Semester	Hours
CH 101 Chemistry - A Molecular Science ¹	3
CH 102 General Chemistry Laboratory ¹	1
E 101 Introduction to Engineering & Problem Solving ¹	1
E 115 Introduction to Computing Environments	1
ENG 101 Academic Writing and Research ¹	4
MA 141 Calculus I ¹	4
T 101 Strategies for Success in the Wilson College of Textiles	1
Hours	15

Spring Semester

TE 105 ¹ Textile Engineering: Materials and Systems	2
MA 241 Calculus II ¹	4
PY 205 Physics for Engineers and Scientists I ¹	3
PY 206 Physics for Engineers and Scientists I Laboratory	1
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)	1
E 102 Engineering in the 21st Century	2
EC 201 Principles of Microeconomics or EC 205 or Fundamentals of Economics or ARE 201 or Introduction to Agricultural & Resource Economics	3
Hours	16

Second Year

Fall Semester	Hours
MA 242 Calculus III	4
PY 208 Physics for Engineers and Scientists II	3
PY 209 Physics for Engineers and Scientists II Laboratory	1
TE 200 Introduction to Polymer Science and Engineering	3
TE 110 Computer-Based Modeling for Engineers	3

GC 120 Foundations of Graphics	3
Hours	17

Spring Semester

MA 341 Applied Differential Equations I	3
TE 201 Fiber Science	4
TE 205 Analog and Digital Circuits	4
ISE 135 Computer-Based Modeling for Industrial Engineering	3
MAE 206 Engineering Statics or CE 214 or Engineering Mechanics-Statics	3
Hours	17

Third Year

Fall Semester

TE 301 Engineering Textile Structures I: Linear Assemblies	3
TE 303 Thermodynamics for Textile Engineers	3
TE 440 Textile Information Systems Design	4
ST 370 Probability and Statistics for Engineers	3
ISE 361 Deterministic Models in Industrial Engineering	3
Hours	16

Spring Semester

TE 302 Textile Manufacturing Processes and Systems II	4
TE 404 Textile Engineering Quality Improvement	3
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)	1
TE 424 Textile Engineering Quality Improvement Laboratory	1
ISE 311 Engineering Economic Analysis	3
GEP Humanities (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/)	3
Hours	15

Fourth Year

Fall Semester

TE 401 Textile Engineering Design I	4
PCC 301 Technology of Dyeing and Finishing & PCC 304 and Technology of Dyeing & Finishing Laboratory	4
GEP Humanities (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/)	3
Concentration Elective	3
GEP Social Sciences (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/)	3
Hours	17

Spring Semester

TE 402 Textile Engineering Design II	4
Concentration Elective	3
GEP Interdisciplinary Perspectives (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/)	3

GEP US Diversity, Equity, and Inclusion (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/)	3
Hours	13
Total Hours	126

¹ Must be completed with grade of C-or higher for matriculation.

² Must be completed with grade of C-or higher for major requirements.

Career Opportunities

The interdisciplinary nature of textiles means that textile engineers are needed everywhere. As the only ABET accredited textile engineering program, our graduates have unmatched expertise. The result? Top employers in just about every industry recruit our alumni to help them solve problems and make a difference. These are just a few of the places our graduates go:

- Government Agencies/National Defense: NASA, The U.S. Army, Lockheed Martin, Natick, United States Patent and Trademark Office
- Athletics and Apparel: Nike, Adidas, Under Armour, The North Face, Lululemon, Patagonia, Levis, Peter Millar, HanesBrands
- Healthcare/Medical Textiles: ATEX, Merck & Co., Stryker, Medline, Secant Medical
- Automotives: Tesla, BMW, Volvo Trucks, Nissan, Goodyear, Michelin, Firestone
- Homewares: Home Depot, Lowes, Mohawk Flooring, Hunter Douglas
- Traditional Textiles: Milliken, Unifi, Contempora Fabrics, Elevate Textiles, SteinFibers
- Advanced Materials: Technimark, DuPont, Eastman, Honeywell

Career Titles

- Materials Developer / Specialist / Designer
- Research and Development Engineer
- Product Development Specialist
- Strategic Sourcing Manager
- Logistics Manager / Inventory Manager
- Data Scientist
- Design Engineer / Process Improvement Engineer
- Production Manager / Project Engineer / Product Manager
- Quality Control Engineer
- Technical Marketing Manager
- Technical Service / Sales

Learn More About Careers

NCcareers.org (<https://nccareers.org/>)

Explore North Carolina's central online resource for students, parents, educators, job seekers and career counselors looking for high quality job and career information.

Occupational Outlook Handbook (<https://www.bls.gov/ooh/>)

Browse the Occupational Outlook Handbook published by the Bureau of Labor Statistics to view state and area employment and wage statistics. You can also identify and compare similar occupations based on your interests.

Career One Stop Videos (<https://www.careeronestop.org/>)

View videos that provide career details and information on wages, employment trends, skills needed, and more for any occupation. Sponsored by the U.S. Department of Labor.

Focus 2 Career Assessment (<https://careers.dasa.ncsu.edu/explore-careers/career-assessments/>) (NC State student email address required) This career, major and education planning system is available to current NC State students to learn about how your values, interests, competencies, and personality fit into the NC State majors and your future career. An NC State email address is required to create an account. Make an appointment with your career counselor (<https://careers.dasa.ncsu.edu/about/hours-appointments/>) to discuss the results.

Careers in the Textile Industry (<http://work.chron.com/careers-textile-industry-10262.html>)

The Fiber Society (<https://www.thefibersociety.org/>)

American Society of Quality (<http://asq.org/>)

National Society of Professional Engineers (<https://www.nspe.org/>)