

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. Students with this concentration often add minors in computer science, supply chain engineering or industrial engineering, as well as double majors in industrial engineering or computer science.

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
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
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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	Lean Six Sigma Quality	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	Supply Chain Economics and Decision Making	
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. 2) 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 Elective (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/)	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)	
GEP Foundations of American Democracy (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-fad/) (verify requirement)	
World Language Proficiency (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/world-language-proficiency/) (verify requirement)	
Total Hours	126

¹ C or better² C- or better

Acad Writing Research

Code	Title	Hours
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	Textile Engineering: Materials and Systems ¹	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 or EC 205 or ARE 201	Principles of Microeconomics or Fundamentals of Economics or Introduction to Agricultural & Resource Economics	3
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Hours	16
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Second Year

Fall Semester

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
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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 or CE 214	Engineering Statics or Engineering Mechanics-Statics	3

Hours	17
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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
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Spring Semester

TE 302	Textile Manufacturing Processes and Systems II	4
TE 404	Lean Six Sigma Quality	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
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Fourth Year

Fall Semester

TE 401	Textile Engineering Design I	4
PCC 301 & PCC 304	Technology of Dyeing and Finishing 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 Elective (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/)	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.

Focus 2 Apply Assessment (<https://www.focus2career.com/Portal/Register.cfm?SID=1929>) (Available to prospective students)

A career assessment tool designed to support prospective students in exploring and choosing the right major and career path based on your unique personality, interests, skills and values. Get started with Focus 2 Apply and see how it can guide your journey at NC State.

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/>)