

Textile Chemistry (MS)

Master of Science Degree Requirements

Students are required to take a total of 8 courses (24 credits of graded coursework), meeting criteria #1 and #2 below, courses may count toward both criteria (e.g. all TE and some TC courses). Additional courses must be of the graduate level (500-level or above) and be relevant to the field of study.

Code	Title	Hours	Counts towards
TECS Core Courses		15	
Criteria #1 ¹			
See "Criteria #1" listed below			
Engineering Content Courses		12	
Criteria #2			
See "Criteria #2" listed below			
TECS Seminar		2	
TC 601	Seminar		
TC 601	Seminar		
Research / Independent Studies		6-9	
Select either "Option A" or "Option B"			
Option A ²			
TC 630	Independent Study		
TC 693	Master's Supervised Research		
TC 695	Master's Thesis Research		
TC 696	Summer Thesis Research		
Option B ³			
TC 630	Independent Study		
TC 630	Independent Study		
Total Hours		32-36	

¹ The TC and some TE/FPS courses may also count towards criteria #2 as listed there

² At least 6 credits of research or independent study courses, the first 6 credits are always recommended to be TC 630

³ 6 credits of independent study

Criteria #1

Code	Title	Hours	Counts towards
Select a minimum of five courses from the TECS faculty-taught courses listed below		15	
Total Hours		15	

TC PREFIX

Code	Title	Hours	Counts towards
500-Level Courses			
TC 530	The Chemistry Of Textile Auxiliaries	3	
TC 561	Organic Chemistry Of Polymers	3	
TC 565	Polymer Applications and Technology	3	
TC 589	Special Studies In Textile Engineering and Science	1-4	
700-Level Courses			
TC 704	Fiber Formation-- Theory and Practice	3	
TC 705	Theory Of Dyeing	3	
TC 706	Color Science	3	
TC 707	Color Laboratory	1	
TC 710	Science of Dye Chemistry, Dyeing, Printing and Finishing	3	
TC 720	Chemistry Of Dyes and Color	3	
TC 771	Polymer Microstructures, Conformations and Properties	3	
TC 791	Special Topics In Textile Science	1-6	
TC 792	Special Topics In Fiber Science	1-6	

TE PREFIX

Code	Title	Hours	Counts towards
500-Level Courses			
TE 505	Textile Systems and Control	3	
TE 533	Lean Six Sigma Quality	3	
TE 540	Textile Information Systems Design	4	
TE 550	Clothing Comfort and Personal Protection Science	3	
TE 551	Human Physiology for Clothing and Wearables	3	
TE 562	Simulation Modeling	3	

TE 565	Textile Composites	3
TE 566	Polymeric Biomaterials Engineering	3
TE 570	Polymer Physics	3
TE 589	Special Studies In Textile Engineering and Science	1-4

TT PREFIX

Code	Title	Hours	Counts towards
500-Level Courses			
TT 503	Materials, Polymers, and Fibers used in Nonwovens	3	
TT 504	Introduction to Nonwovens Products and Processes	3	
TT 505	Advanced Nonwovens Processing	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 581	Technical Textiles	3	

OTHER PREFIXES

Code	Title	Hours	Counts towards
500-Level Courses			
TTM 501	Textile Enterprise Integration	3	
700-Level Courses			
TMS 761	Mechanical and Rheological Properties Of Fibrous Material	3	

TMS 762	Physical Properties Of Fiber Forming Polymers, Fibers and Fibrous Structures	3
TMS 763	Characterization Of Structure Of Fiber Forming Polymers	3
FPS 710	Science of Dye Chemistry, Dyeing, Printing and Finishing	3
FPS 750	Advances in Fabric Formation, Structure, and Properties	3
FPS 770	Advances in Polymer Science	3

Criteria #2

Code	Title	Hours	Counts towards
Select a minimum of four courses from the Engineering graduate-level classes		12	

TC 500+	Any graded (non-research) TC course at the 500 level or higher
Chemistry 500+	Any graded (non-research) Chemistry course at the 500-level or higher, such as, but not limited to prefixes: CH and CHE

See "Additional Course Options" listed below for approved exceptions in other areas

Total Hours	12
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Additional Course Options

Code	Title	Hours	Counts towards
TT/NW 503	Materials, Polymers, and Fibers used in Nonwovens		
TE/PY 570	Polymer Physics		
TMS 762	Physical Properties Of Fiber Forming Polymers, Fibers and Fibrous Structures		

TMS/MSE 763	Characterization Of Structure Of Fiber Forming Polymers
FPS 710	Science of Dye Chemistry, Dyeing, Printing and Finishing
FPS 770	Advances in Polymer Science
BCH 751	Biophysical Chemistry
FB 516	Forest Products Colloids & Surfaces
FB 723	Forest Biomaterials Chemistry
MSE 565	Introduction to Nanomaterials
MSE/CHE 761	Polymer Blends and Alloys
MSE 775	Structure of Semicrystalline Polymers
CHE/BEC 562	Fundamentals of Bio-Nanotechnology

Xiaomeng Fang
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 Tushar Ghosh
 Jessica Gluck
 David Hinks
 Ahmed Mohamed El-Shafei
 Russell E. Gorga
 Warren J Jasper
 Jeffrey Allen Joines
 Martin William King
 Richard Kotek
 Wendy E. Krause
 Jerome Lavelle
 Marian G McCord
 Bryan Ormond
 Melissa Anne Pasquinelli
 Behnam Pourdeyhimi
 Jon Paul Rust
 Sonja Salmon
 Renzo Shamey
 Eunkyong Shim
 Richard J Spontak
 Alan E Tonelli
 Xiangwu Zhang
 Mengmeng Zhu

Accelerated Bachelor's/Master's Degree Requirements

The Accelerated Bachelors/Master's (ABM) degree program allows exceptional undergraduate students at NC State an opportunity to complete the requirements for both the Bachelor's and Master's degrees at an accelerated pace. These undergraduate students may double count up to 12 credits and obtain a non-thesis Master's degree in the same field within 12 months of completing the Bachelor's degree, or obtain a thesis-based Master's degree in the same field within 18 months of completing the Bachelor's degree.

This degree program also provides an opportunity for the Directors of Graduate Programs (DGPs) at NC State to recruit rising juniors in their major to their graduate programs. However, permission to pursue an ABM degree program does not guarantee admission to the Graduate School. Admission is contingent on meeting eligibility requirements at the time of entering the graduate program.

Faculty

Faculty

Roger L. Barker

Nelson Vinueza Benitez

Philip Bradford

Januka Budhathoki-Uprety

Emiel DenHartog

Assistant Professors

Amanda Mills

Md Abdul Quddus

Practice/Research/Teaching Professors

Hechmi Hamouda

Benoit Maze

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Adjunct Faculty

Riikka Helena Raeisaenen

Gisela de Aragao Umbuzeiro

Emeritus Faculty

Pam Banks-Lee

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Harold S. Freeman

Perry L. Grady

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Peter J. Hauser

Samuel Mack Hudson

Gary N. Mock

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Michael Herbert Theil

Charles Tomasino