

**North Carolina State University
Routing for On-Campus Approval of Other Degree Program Actions**

This request has been reviewed and approved by the appropriate campus committees and authorities.

Completed Proposal

Endorsed By:

<u>See signature on routing page</u>	<u>8/14/2019</u>
Head, Department/Program	Date

Recommended By:

<u>See signature on routing page</u>	<u>10/7/2019</u>
Chair, College Curriculum Committee	Date

Endorsed By:

<u>See signature on routing form and agreement</u>	<u>8/22/2020</u>
College Dean	Date

Proposal moves to Undergraduate or Graduate office for routing

Recommended By:

<u>Not applicable</u>	
Vice Provost, DELTA (if DE degree/certificate)	Date

Recommended By:


<u>See signature on routing page</u>	<u>4/30/2020</u>
Chair, University Courses & Curricula Committee or Administrative Board of the Graduate School	Date

Approved By:

<u>See signature on agreement</u>	<u>8/14/2019</u>
Dean, DASA or the Graduate School	Date

Proposal moves to the Executive Vice Chancellor and Provost's office for routing

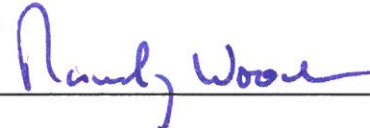
Recommended By:

<u></u>	<u>Duane K. Larick</u>	<u>5/15/2020</u>
Council of Deans		Date

Approved By:

<u></u>	<u>Warwick Arden</u>	<u>05/18/2020</u>
Executive Vice Chancellor and Provost		Date

Approved By:

<u></u>	<u>6/3/20</u>
Chancellor	

MEMORANDUM OF AGREEMENT FOR “3+X” PROGRAM

BETWEEN

**NORTH CAROLINA STATE UNIVERSITY
RALEIGH, NC, U. S. A.**

AND

SHANGHAI UNIVERSITY OF ENGINEERING SCIENCE, CHINA

This Agreement is to formalize the academic exchange between North Carolina State University (hereafter referred to as NC State) and Shanghai University of Engineering Science (hereafter referred to as SUES) for a 3+X Master’s program. The two institutions subscribe to the statement of principles and procedures given below and to the terms of agreement regarding the responsibilities of each institution. This agreement is based on a spirit of cooperation, reciprocity, and of mutual benefit to both parties.

Both Universities wish to enter into an arrangement as set forth below:

1. Undergraduate students who complete three (3) years of studies at SUES and one semester of studies at NC State that result in a bachelor’s degree from SUES may be considered for enrollment in an NC State Master’s degree program (non-thesis) (hereafter referred to as the Program).
2. Completion may require a minimum of 3 semester, although additional semesters may be required due to the schedule of graduate course offerings during the academic year, any necessary pre-requisite courses, or optional elective courses the student may take.
3. Admission to the Master’s program is contingent upon the student meeting the relevant entry requirements as established by NC State and the degree program to which they are applying.
4. Upon successful completion of NC State’s Master’s program, SUES students may be accepted into SUES’s PhD programs provided they pass the relevant entry exam set by SUES.

Both Universities have agreed to the terms and conditions stated below.

ENTRY AGREEMENT FOR 3+X PROGRAM

- (1) SUES will select qualified rising final year students at the end of the first semester of their third year of SUES enrollment to attend NC State for their fourth year of study. Prior to commencing studies at NC State, SUES students need to have:
 - a) completed the third year of the bachelor's program at SUES and achieved an overall GPA (Grade Point Average) of at least 3.0 on a 4.0 scale;
 - b) obtained minimum TOEFL or IELTS scores or acceptable English proficiency assessment needed for entry into the GTI certificate program during their first semester at NC State with the expectation that each student will achieve the minimum TOEFL score required for admission into a graduate program at NC State, as listed online, prior to matriculation;
 - c) obtained an official written recommendation statement from SUES confirming the student has successfully passed the SUES evaluation.

- (2) This 3+X Master's program will focus on the existing degree programs offered by NC State's Wilson College of Textiles (see the list below for current Master's programs). The specific Master's programs offered in any given year may depend on the interests of SUES students and specific course availability at NC State.

Participating Master's Programs in the Wilson College of Textiles at NC State are: the Master of Science in Textile Chemistry, the Master of Science in Textile Engineering, the Master of Science in Textiles and the Master of Textiles.

- (3) The number of admitted students will be negotiated annually. The SUES 3+X program plans to admit up to 5 students per year in the first phase (years 1 and 2) of this program, with students coming to NC State in Fall 2021. Depending on the total number of applicants from SUES, this number may increase.

- (4) NC State will evaluate those selected SUES students using NC State's admission standards for their qualifications. NC State faculty may conduct an on-site or online (video-conferencing) interview to ensure student quality. The selected SUES students who meet both NC State and the Program's entry qualifications will begin studies at NC State as "GTI Certificate students" in the Global Training Initiative (GTI) program.

- (5) As NC State's policy will not allow admitting students into graduate programs prior to completion of their BS degrees, these admitted students will first apply

to and matriculate via the GTI Certificate Program for the first (fall) semester (and may come during an optional “early start” program in July). As GTI Certificate students they will be expected to register full-time (minimum 12 credit hours) and to take the required courses that are designed for the specific Program as well as the required GTI 401 Colloquium. Credit and non-credit English courses are also available during this first semester and students will have the opportunity to take the TOEFL or other standardized tests after arrival, but prior to October 15. The GTI has a separate on-line application process, which must be completed before a student visa certificate can be issued. See <http://www.ncsu.edu/gti> for more information.

- (6) As GTI Certificate students they will be expected to register full-time (minimum 12 credit hours) and to take the required courses that are designed for the specific Program as well as the required GTI 401 Colloquium. Credit and non-credit English courses are also available during this first semester. GTI accepts CET 6 and Duolingo scores as well as slightly lower TOEFL and IELTS scores than the Graduate School at NC State as listed online. Therefore, if they have not already obtained a Graduate School required passing score, students will have the opportunity to take the TOEFL or IELTS after arrival but must submit an acceptable test score prior to October 1 of their GTI semester.
- (7) After they have successfully completed the course work needed to complete their bachelor’s degree (minimum 12 credit hours) as GTI Certificate students at NC State, SUES will grant each of these students a statement that the student has completed the bachelor’s degree requirements in their respective discipline. Students will be required to provide an official letter from SUES indicating the bachelor’s degree requirements are satisfied prior to being approved for the Program. They must also provide a final transcript once the bachelor’s degree has been conferred.
- (8) NC State will officially review the records of SUES students for admission to the Wilson College of Textiles graduate program upon completion of the GTI semester and certification of bachelor’s degree.
- (9) The typical non-thesis Master’s program at the Wilson College of Textiles at NC State requires 30-36 credit hours of coursework, depending on specific program. Each of the graduate programs in the College of Textiles has specific degree requirements, as outlined in the Appendix. NC State requires that at least 18 credit hours for a Master’s degree have to be taken after students have been admitted into the Master’s program at NC State.
- (10) SUES students will pay out-of-state tuition and fees and have sufficient funds for living expenses during their studies at NC State (see <https://studentservices.ncsu.edu/your-money/financial-aid/estimated-cost-of->

[attendance/graduate-student/](#) for estimated cost of attendance). Current NC State tuition and fee rates are available for reference online (<https://studentservices.ncsu.edu/your-money/tuition-and-fees/>). To complete the Program in one year, it is anticipated that students may also need to register for a minimum of six credits during the Summer session(s). NC State may provide guidance and logistical support with student housing and other relevant arrangements. The amount of living expenses required will vary depending on the type of housing and living preferences.


- (11) Upon successful completion of all program requirements students will be granted the Master's degrees by NC State.
- (12) Graduates who return to SUES with their Master's degree may enter SUES's Ph.D. programs should they meet the relevant requirements set by SUES.
- (13) Graduates who want to enter a Ph.D. program at NC State will be required to apply following the normal application procedures and admission requirements set by NC State.

GENERAL AGREEMENT

- 1) This Agreement represents the entire understanding between the parties and supersedes all other arrangements. This Agreement may only be changed with the written consent of both parties.
- 2) If either party shall temporarily fail to enforce any provision of this Agreement such temporary forbearance shall not constitute a waiver.
- 3) The two parties shall be in regular communication to resolve any problems or issues relating to this agreement.
- 4) Neither party may assign, transfer or sub-contract its commitments under this Agreement.
- 5) The relationship of NC State and SUES under this Agreement shall be that of independent contractors, and a party shall not be deemed, nor hold itself out as being a partner or agent of the other party. In addition, neither NC State nor SUES shall be liable for the acts of the other, and they shall not be liable for the acts of participating students in the Program.
- 6) Subject to the governing law of each Institutions' jurisdiction regarding public records, the Institutions agree not to use or disclose to anyone information belonging to the other party which is disclosed in connection with this Agreement which is of confidential nature and agree not to make any announcements of any nature in respect of this Agreement without the consent of the other party hereto.
- 7) Either party may terminate this Agreement for any reason upon nine months' prior written notice to the other. If the agreement will be discontinued, a teach-out plan will be required for those students remaining in the program.
- 8) This Agreement shall remain subject to laws and regulations of both countries.
- 9) This agreement is for a period of five years, unless otherwise specified. Prior to the end of the fifth year the agreement must be reviewed and re-approved if requesting an extension. Upon the scheduled review date, responses to review criteria will be required to be completed and provided to the university review committee. If the agreement will be discontinued, a teach-out plan will be required for those students remaining in the program.

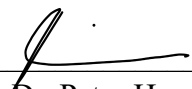
SIGNATURES

Executive Vice Chancellor and Provost
North Carolina State University

Signature: 
Dr. Warwick Arden

Date: 05/18/2020

Dean, Graduate School
North Carolina State University

Signature: 
Dr. Peter Harries

Date: 5/4/2020

Dean, Wilson College of Textiles
North Carolina State University

Signature: 
Dr. David Hinks

Date: 04-22-2020

Vice President
Shanghai University of Engineering
Science

Signature: _____
Dr. Xia Chunming

Date: _____

Dean, School of Textiles and Fashion
Shanghai University of Engineering
Science

Signature: _____
Dr. Xie Hong

Date: _____

APPENDICES -Program Reference Documents

The appendices below contain guidelines for the available Masters programs and may serve as a general reference for these programs. The Graduate School and Wilson College handbooks for Graduate students must be used as formal references, and not the informative text below, as courses and detailed procedures are subject to change.

Appendix I: Degree Requirements for Master of Science in Textiles

(MS)

Master of Science – Textiles

The Master of Science in Textiles (MS) prepares students for industry positions. Students interested in continuing with a Ph.D. in Textile Technology and Management (TTM) or Fiber and Polymer Science (FPS) are also encouraged to pursue the MS degree. The MS degree requires a minimum of 36 hours including a thesis and typically takes 2 years to complete.

MS DEGREE REQUIREMENTS:

1. Students should form a thesis committee and have an approved Plan of Work (POW) by the end of the second semester (for full time students).
2. Thesis committee composition:
 - o A minimum of three NC State Graduate Faculty members;
 - o The committee chair must be a graduate faculty member in TATM; and
 - o If the student has a minor, one committee member needs to represent the minor.
3. Students must successfully pass the thesis defense to graduate.
4. A minimum of 36 credit hours are required to earn the degree.
5. A maximum of 12 credit hours of relevant courses taken as non-degree studies (NDS) may be included in the program with the approval of the student's thesis committee.
6. Two (2) credit hours of TTM 601 (graduate seminar) are required for the degree. No more than 2 hours of TTM 601 count toward the degree.
7. A total of 6-10 credit hours of 600 level courses (TT/TTM 630, 693, 695) in the major for research and independent study can count towards the degree.
8. A maximum of nine (9) credit hours of supporting course work from outside the Department are allowed to count towards the degree. This may be increased to a maximum of 12 hours for students taking 6-credit hour classes in the College of Design.
9. All course work toward the degree must be at the 500 level or above. However, up to 3 credit hours of advanced undergraduate 400 level coursework from outside of the department may be allowed on the plan of work.
10. Each specialization requires a minimum of 15 credit hours of TT/TTM course work at the 500 or 700 levels.
11. If a minor is selected, a minimum of nine (9) hours must be taken in the minor area and nine (9) hours are counted toward the degree requirement.

12. The degree must be completed within six (6) years of the date of the first course completed that is on the Plan of Work. Students must be continuously enrolled once they begin their graduate program. Students may request a leave of absence from the program for one semester at a time; two (2) semesters maximum.

13. Graduate students must maintain a minimum 3.0 GPA to remain in the program and have a minimum 3.0 GPA at the time of graduation.

Students must meet all the rules outlined in the Graduate School Administrative Handbook

Specific course requirements for specializations are as follows (*not all courses are offered every semester and/or may be cancelled*):

RECOMMENDED FOCUS IN TEXTILE DESIGN & FASHION DESIGN

- TT 551- Advanced Woven Fabric Design & Structures
- TT 570- Textile Digital Design and Technology
- TT 571- Professional Practices in Tex. Design and Tech.
- TTM 510- Apparel Technology Management
- TTM 515- Apparel Production
- TTM 517- Advanced Computer-Aided-Design for Fashion
- TT/TTM 591- Special Studies
- TT/TTM 630- Independent Study
- TT/TTM 632- Special Studies in Tex. Prod. Development
- TT/TTM 676- Special Projects

RECOMMENDED FOCUS IN BRANDING & RETAIL

- TTM 561- Strategic Technology Management in the Tex. Complex
- TTM 573- Management of Textile Product Development
- TTM 582- Global Text. Brand Management and Marketing
- TTM 583- Strategic Planning for Textile Firms
- TTM 585- Market Research In Textiles
- TTM 588 – Global Perspectives in Textile Supply Chain Management
- TT/TTM 591- Special Studies
- TT/TTM 630- Independent Study
- TT/TTM 676- Special Projects

RECOMMENDED FOCUS IN TEXTILE TECHNOLOGY

- TT 504- Introduction to Nonwovens Processes and Products
- TT 520- Yarn Processing Dynamics
- TT 530- Textile Quality and Process Control
- TT 541- Theory and Practice Of Knitted Fabric Production and Control
- TT 550- Production Mechanics and Properties of Woven Fabrics
- TT/TTM 591- Special Studies

- TT/TTM 630- Independent Study
- TT/TTM 676- Special Projects

RECOMMENDED FOCUS IN TEXTILE MANAGEMENT

- TTM 530- Textile Quality and Process Control
- TTM 533- Lean Six Sigma Quality
- TTM 535 – Research Methods and Management
- TTM 561- Strategic Technology Management in the Tex. Complex
- TTM 581 – Global Textile and Apparel Business Dynamics
- TTM 583- Strategic Planning for Textile Firms
- TTM 591- Special Studies
- TTM 630- Independent Study

OTHER SPECIALIZATIONS

- Multiple Specializations
- Use the optional 9 hours outside the department
- Use TT/TTM 591, TT/TTM 630, & TT/TTM 676 (12 hours) to structure a focus

Appendix II: Degree Requirements for Master of Textiles (MT)

Master of Textiles (MT): On-Campus

The Master of Textiles (MT) is a non-thesis degree that can be completed in only two semesters (1 year) of full-time on campus study or up to a maximum of six (6) years through distance education. The program is also available entirely via distance education and may be completed on a part time basis. The degree requires a minimum of 30 credit hours.

MT DEGREE REQUIREMENTS:

1. Students must work with an adviser throughout the program. A Graduate Committee is not required.
2. Students must submit a Plan of Work (POW) by the end of their first semester.
3. A minimum of 30 credit hours is required to complete the degree.
4. A maximum of six (6) credit hours independent study courses, TT/TTM 630/632, are allowed to count towards the degree.
5. A maximum of 12 credit hours of relevant courses taken as non-degree studies (NDS) may be included in the program with the approval of the student's adviser.
6. TTM 601 (Graduate Seminar) is not required for the degree. Students are allowed to take TTM 601, but no more than 2 credit hours of TTM 601 count toward the degree.
7. No minor can be declared.
8. Nine (9) credit hours of supporting coursework from outside the Department are allowed on the Plan of Work. This may be increased to 12 hours for students taking 6-credit hour classes in the College of Design.
9. All course work must be at the 500 level or above. However, up to 3 credit hours of advanced undergraduate 400 level coursework from outside of the department may be allowed on the Plan of Work.
10. The degree must be completed within six (6) years of the date of the first course included in the Plan of Work. Students must be continuously enrolled once they begin their graduate program. Students may request a leave of absence from the program for one semester at a time; two (2) semesters maximum.
11. Graduate students must maintain a minimum 3.0 GPA to remain in the program and must have a 3.0 GPA or higher at the time of graduation.

Students must meet all the rules outlined in the Graduate School Administrative Handbook

RECOMMENDED FOCUS IN TEXTILE DESIGN & FASHION DESIGN

- TT 551- Advanced Woven Fabric Design & Structures
- TT 570- Textile Digital Design and Technology
- TT 571- Professional Practices in Tex. Design and Tech.
- TTM 510- Apparel Technology Management
- TTM 515- Apparel Production
- TTM 517- Advanced Computer-Aided-Design for Fashion

- TT/TTM 591- Special Studies
- TT/TTM 630- Independent Study
- TT/TTM 632- Special Studies in Tex. Prod. Development
- TT/TTM 676- Special Projects

RECOMMENDED FOCUS IN BRANDING & RETAIL

- TTM 561- Strategic Technology Management in the Tex. Complex
- TTM 573- Management of Textile Product Development
- TTM 582- Global Text. Brand Management and Marketing
- TTM 583- Strategic Planning for Textile Firms
- TTM 585- Market Research In Textiles
- TTM 588 – Global Perspectives in Textile Supply Chain Management
- TT/TTM 591- Special Studies
- TT/TTM 630- Independent Study
- TT/TTM 676- Special Projects

RECOMMENDED FOCUS IN TEXTILE TECHNOLOGY

- TT 504- Introduction to Nonwovens Processes and Products
- TT 520- Yarn Processing Dynamics
- TT 530- Textile Quality and Process Control
- TT 541- Theory and Practice Of Knitted Fabric Production and Control
- TT 550- Production Mechanics and Properties of Woven Fabrics
- TT/TTM 591- Special Studies
- TT/TTM 630- Independent Study
- TT/TTM 676- Special Projects

RECOMMENDED FOCUS IN TEXTILE MANAGEMENT

- TTM 530- Textile Quality and Process Control
- TTM 533- Lean Six Sigma Quality
- TTM 535 – Research Methods and Management
- TTM 561- Strategic Technology Management in the Tex. Complex
- TTM 581 – Global Textile and Apparel Business Dynamics
- TTM 583- Strategic Planning for Textile Firms
- TTM 591- Special Studies
- TTM 630- Independent Study

OTHER SPECIALIZATIONS

- Multiple Specializations
- Use the optional 9 hours outside the department

- Use TT/TTM 591, TT/TTM 630, & TT/TTM 676 (12 hours) to structure a focus

Appendix III: Degree Requirements for Master of Science in Textile

Chemistry (MS TC)

Master of Science in Textile Chemistry (MS TC)

The Master of Science (M.S.) in Textile Chemistry (TC) emphasizes the fundamental principles of polymer science, dyeing and finishing technology, color science, dye chemistry, analytical science, and fiber formation. Our program is highly relevant to many of the chemical, fiber, retail, and textile industries, as well as environmental, medical and forensic science. Some of the active research projects in textile chemistry include study of biomedical applications of polymers, surface treatment and finishing, color perception and imaging, energy harvesting and storage, polymer and fiber science, integration of biotechnology into polymers and fibers, molecular modeling of dyes and fibers, advanced analytical characterization techniques, and environmental sustainability and pollution prevention. Graduates of Textile Chemistry are recruited by a broad range of employers across the globe, including fiber and textile companies, chemical and polymer industries, research and development laboratories, and even state and federal agencies involved with forensic science. Some graduates have also gone onto doctoral programs, particularly in fiber and polymer science (FPS) and textile technology management (TTM).

TC PROGRAM REQUIREMENTS

The Textile Chemistry M.S. degree program has both a thesis and a non-thesis track, as well as an online Distance Education (DE) option, which entail the following:

	THESIS TRACK	NON-THESIS & DE TRACK
Minimum Number of Credits:	32+ credit hours	32 credit hours ¹
Graduate Seminar (TC 601)	2 semesters (2 credit hours)	2 semesters (2 credit hours)
Graduate Coursework	24 credit hours ² (~8 courses)	24 credit hours ² (~8 courses)
M.S. Project Work	Thesis and Final Oral Examination (6+ credit hours)	2 semesters of TC 630, independent study (6 credit hours)
Minimum Committee Structure <i>(All members must be part of the NC State Graduate Faculty)</i>	Chair + 2 Members; two must be part of TC program graduate faculty, one must be outside of TECS core faculty. An optional Co-Chair can be a 4th member	Chair only, selected from TC program graduate faculty
Total Timeline	3-4 semesters	2-3 semesters
Eligibility for Assistantships? RA = research assistantship TA = teaching assistantship	RA TA	TA

Approved Course List for TC M.S. Degree Requirements:

Course ID	Title	Credits
TC 530	The Chemistry of Textile Auxiliaries	3
TC (MSE) 561	Organic Chemistry of Polymers	3
TC 565	Polymer Applications and Technology	3
TC 589	Special Studies in Textile Engineering Science	3
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 720	Chemistry of Dyes and Color	3
TC (CH,MAT) 762	Physical Chemistry of High Polymer – Bulk Properties	3
CH	Any course at the 500 level and above	1-4
TT (NW) 503	Materials, Polymers, and Fibers used in Nonwovens	3
TE (PY) 570	Polymer Physics	3
TMS 762	Physical Properties of Fiber Forming Polymers, Fibers & Fibrous Structures	3
TMS (MSE) 763	Characterization of Structure of Fiber Forming Polymers	3
FPS 710	Science of Dyeing, Printing, and Finishing	3
FPS 770	Advances in Polymer Science	3
BCH 751	Biophysical Chemistry	3
FB 516	Forest Products Colloids and Surfaces	3
MSE 565	Introduction to Nanomaterials	3
MSE (CHE) 761	Polymer Blends and Alloys	3
MSE 775	Structure of Semicrystalline Polymers	3
CHE (BEC) 562	Fundamentals of Bio-Nanotechnology	3

3+X Program in Textile Chemistry

<https://textiles.ncsu.edu/tecs/graduate/graduate-resources/tecs-graduate-handbook/#mstr-overview>

Semester 1: Fall		Semester 2: Spring		Summer
GTI 401	3	TC 601: Seminar	1	Internship or Research (Optional but recommended)
Course 1: Chemistry ^{a,b,c}	3	Course 4 ^{a,b,c}	3	
Course 2: Chemistry ^{a,b,c}	3	Course 5 ^{a,b,c}	3	
Course 3 ^{a,b,c}	3	Course 6 ^{a,b,c}	3	
		TC 630: Independent Study ^d	3	
Total Credits ^e	12	Total Credits ^e	13	
Semester 3: Fall		Semester 4: Spring		Summer
TC 601: Seminar	1	TC 695 ^e	1-6	Internship or Research (Only if needed)
Course 7 ^{a,b,c}	3	(Thesis students only, if needed.)		
Course 8 ^{a,b,c}	3			
TC 630 or TC 695 ^{d,e}	3			
Total Credits ^{f,g}	10	Total Credits ^{f,g}	1-6	

Total credits for non-thesis students: **3 + 32**

Total credits for thesis students: **3 + 32+**

NOTES:

^a **12 credits of letter-graded coursework must be chemistry courses at the 500-level or above.** Those credits can be any TC (PCC) or CH course for which you meet the prerequisites; other courses can be approved, in writing, by the TECS Director of Graduate Programs, and a pre-approved list is available on the curriculum website given above.

^b **15 credits of letter-graded coursework must be courses at the 500-level or above that are taught by TECS faculty and for which you meet the prerequisites.** Those courses could have the prefix: TE, TMS, TT, TC, FPS, or TTM. (Note that not all courses with these prefixes are taught by TECS faculty; if in doubt, please confirm with the TECS Director of Graduate Programs.) If you plan to continue into the FPS or TTM Ph.D. program, consider taking the core courses as part of your M.S. degree.

^c **At least 18 credit hours must be letter graded courses at the 500 level or above;** no credits below the 400 level will be counted toward the degree.

^d **TC 630 versus TC 695:** For non-thesis students, please choose TC 630. For thesis-track students, please register your first 3-6 credits of research as independent study (TC 630) as it will help you obtain structure for your project at the initial stages; in addition, it will also give you flexibility to be able to switch to non-thesis in the future.

^e **Thesis students** must also produce a Master's thesis and unanimously pass an oral examination of it.

^f **The maximum number of credits that can be taken in a semester is 15.**

For students on assistantships (TA or RA), the maximum number of credits that can be taken in a semester is 12 (or 13 if one is TE 601); if you are taking at least one 700-level course, we advise limiting credit load to 10.

For students NOT on assistantships, we strongly advise limiting credit load to 12, especially if you are taking at least one 700-level course.

^g **The time limit for finishing all Master's degree requirement is 6 years, even if a student received an approved leave of absence. Eligibility for the Graduate Student Support Plan (GSSP) is 4 semesters.**

Full-time Non-thesis students (Option B) should aim to finish up by no later than the third semester; ABM students have 12 months after their undergraduate degree is conferred.

Full-time Thesis students should work with their research advisors to determine their completion date. Thesis students should aim to finish up by the fourth semester, but can take up to a fifth semester if your research project necessitates it; ABM students have 18 months after their undergraduate degree is conferred.

Appendix IV: Degree Requirements for Master of Science in Textile

Engineering (MS TE)

Master of Science in Textile Engineering (MS TE)

The Master of Science in Textile Engineering degree program offers unique educational and research opportunities within the domain of textile materials, structures, and technologies, as well as process design. The program is interdisciplinary in nature, drawing upon polymer and fiber science, mathematical sciences, other engineering disciplines, and the physical sciences. Current research activities in textile engineering include inventory and supply chain control, molecular modeling, nonwovens, thermal and protection sciences, polymer and fiber science, biomedical applications of textiles, wearable and smart textiles, textile composites, filtration, nanotextiles, and sustainability.

Graduates of Textile Engineering are recruited by a broad range of employers, including traditional textile areas such as performance athletic wear or outdoor apparel and equipment, or even areas outside of textiles, such as hospitals, research laboratories, or banks. Some graduates have also gone onto doctoral programs, particularly in fiber and polymer science (FPS) and textile technology management (TTM).

TE PROGRAM REQUIREMENTS

The Textile Engineering M.S. degree program has both a thesis and a non-thesis track, which entail the following:

	THESIS TRACK	NON-THESIS TRACK
Minimum Number of Credits:	32+ credit hours	32 credit hours
Graduate Seminar (TE 601)	2 semesters (2 credit hours)	2 semesters (2 credit hours)
Graduate Coursework	24 credit hours (~8 courses)	24 credit hours (~8 courses)
M.S. Project Work	Thesis and Final Oral Examination (6+ credit hours)	2 semesters of TE 630, independent study (6 credit hours)
Minimum Committee Structure <i>(All members must be part of the NC State Graduate Faculty)</i>	Chair + 2 Members; two must be part of TC program graduate faculty, one must be outside of TECS core faculty. An optional Co-Chair can be a 4th member	Chair only, selected from TC program graduate faculty
Total Timeline	3-4 semesters	2-3 semesters
Eligibility for Assistantships? RA = research assistantship TA = teaching assistantship		

3+X Program in Textile Engineering

<https://textiles.ncsu.edu/tecs/graduate/graduate-resources/tecs-graduate-handbook/#mste-overview>

Semester 1: Fall		Semester 2: Spring		Summer
GTI 401	3	TE 601: Seminar	1	Internship or Research
Course 1: Engineering ^{a,b,c}	3	Course 4 ^{a,b,c}	3	<i>(Optional but recommended)</i>
Course 2: Engineering ^{a,b,c}	3	Course 5 ^{a,b,c}	3	
Course 3 ^{a,b,c}	3	Course 6 ^{a,b,c}	3	
		TE 630: Independent Study ^d	3	
Total Credits ^e	12	Total Credits ^e	13	
Semester 3: Fall		Semester 4: Spring		Summer
TC 601: Seminar	1	TE 695 ^e	3+	Internship or Research
Course 7 ^{a,b,c}	3	<i>(Thesis students only, if needed.)</i>		<i>(Only if needed)</i>
Course 8 ^{a,b,c}	3			
TE 630 or TE 695 ^{d,e}	3			
Total Credits ^{f,g}	10	Total Credits ^{f,g}	3+	

Total credits for non-thesis students: **3 + 32**

Total credits for thesis students: **3 + 32+**

NOTES:

^a 12 credits of graded coursework must be engineering courses at the 500-level or above. Those credits can be TE, TMS, or any engineering course for which you meet the prerequisites.

^b 15 credits of letter-graded coursework must be courses at the 500-level or above that are taught by TECS faculty and for which you meet the prerequisites. Those courses could have the prefix: TE, TMS, TT, TC, FPS, or TTM. If you plan to continue into the FPS or TTM Ph.D. program, consider taking the core courses as part of your M.S. degree.

^c At least 18 credit hours must be letter graded courses at the 500 level or above; no credits below the 400 level will be counted toward the degree.

^d **TC 630 versus TC 695:** For non-thesis students, please choose TC 630. For thesis-track students, please register your first 3-6 credits of research as independent study (TC 630) as it will help you obtain structure for your project at the initial stages; in addition, it will also give you flexibility to be able to switch to non-thesis in the future.

^e **Thesis students** must also produce a Master's thesis and unanimously pass an oral examination of it.

^f The maximum number of credits that can be taken in a semester is 15. **For students on assistantships (TA or RA)**, the maximum number of credits that can be taken in a semester is 12 (or 13 if one is TE 601). **For students taking at least one 700-level course**, we strongly advise limiting credit load to 12 if not on an assistantship, and to 10 for those on assistantships.

^g **For full-time students:**

Non-thesis students (Option B) should aim to finish up by no later than the third semester; ABM students have 12 months after their undergraduate degree is conferred.

Thesis students should work with their research advisors to determine their completion date. Thesis students should aim to finish up by the fourth semester, but can take up to a fifth semester if your research project necessitates it; ABM students have 18 months after their undergraduate degree is conferred.