Zhejiang Sci-Tech University
Doctoral Degree Program Outline
Textile Science and Engineering
082100

Textile science and engineering(TSE) is one of the strong and superior discipline in ZSTU. With a history of more than one hundred years, TSE started to enroll students to study for bachelor degree in 1979 and started master program in 1979. In 1983, TSE had the "silk engineering ” master's degree award authority, and in 1999 project "silk engineering" was replaced by on "textile engineering". In 1990 TSE had “ textile chemical and dyeing and finishing engineering ” master's degree award authority, in 1993 "clothing design and engineering" master's degree award authority, and in 1998 "textile materials and textile design" master's degree award authority. In 2006 TSE had "Textile engineering" doctoral degree award authority. In March 2011, TSE had the "textile science and engineering" level 1 discipline doctorate award authority. Textile science and engineering teachers strength is strong, owning more than 30 doctoral supervisors and a lot of related researchers, experts, scholars, which include the discipline appraisal group members of the state council, national "one thousand plan", national "new century pacesetter project", China ministry of education "new century excellent talents support plan", zhejiang super experts, "151 talents project" and "young and middle-aged discipline leaders in colleges and universities in zhejiang province", and so on. "Textile science and engineering" and "Applied chemistry and ecology dyeing and finishing engineering" are priority discipline. The textile fiber material and processing technology national local united engineering laboratory, Advanced textile materials and preparation technology key laboratory of Ministry of Education, Ecological dyeing and finishing engineering research center of Ministry of Education, National clothing experimental teaching demonstration center of Ministry of Education, Zhejiang key laboratory of Silk fiber materials and processing technology , Zhejiang clothing engineering research center, Zhejiang key laboratory of Industrial textile material and preparation technology, Zhejiang engineering laboratory of textile materials and processing technology, and textile and daily chemicals science and technology cooperation base are the scientific research platform of TSE. In recent years, a large number of national, provincial, international cooperation and enterprise cooperation research projects have completed. These project won a great amount of achievements, which include two “ The second prize of national technical invention and scientific ”, two “ The second prize of national technological progress, more than fifty provincial science and technology achievement awards, and two provincial education achievement prizes.

I. Objectives

1. Develop the friendship with People's Republic of China through learning and understanding the laws, system, society and culture, etc., of China.

2. Master the broad solid textile science and engineering theory and system of deep expertise, and grasp the development trend of this field.

3. Have the ability to engage in scientific research independently. Have the ability of do the job of teaching, scientific research, development and management work in textile science and related fields. Scientific or technical innovative achievements in textiles are expected.

4. Master Chinese language, own the ability of using Chinese to read technical literature and professional exchange.

II. Research Areas

1.Textile materials and textile design

Silk science and resources comprehensive utilization of silk, fiber of new materials, design theory and method, textile composite materials, textiles, etc. Research contents including the molecular structure of silk fibroin and sericin structure and physical and chemical properties, silk protein biological functional materials such as silk high-tech applications, new type spinning method, the preparation of various functional fiber, high-performance fiber, and nano-fiber, textile composite material processing technology, nano-composite, fiber reinforced composite materials, digital principle and mathematical model of fabric, computer simulation and computer analog simulation of yarn and fabrics, computer simulation automatic implementation of fabric real color.

2.Textile engineering

Silk fiber processing theory and technology, modern spinning theory and technology, industrial textiles processing technology research, etc. Research content including silkworm cocoon physical and chemical properties and molecular conformation of silk protein and the cocoon reel-ability of cocoon features, new technology and equipment of cocoon cooking, new silk technology, new materials, physical and chemical modification of silk fiber; fiber processing, weaving, knitting, the new 3D weaving, textile CAD theory and application, the multicomponent fiber mixed, multiple processing technology, organization structure optimization design, fabric after processing technology, nonwovens, automotive textiles, geotextiles, medical textiles, theory and processing technology of industrial textiles.

3.Chemical and textile dyeing and finishing engineering

Ecological dyeing and finishing technology, functional dyeing and finishing technology, the

new textile chemicals. Research content including structure, dyeing properties and processing technology of new ecological textile materials, dyeing and finishing technology of high efficiency, energy saving and emission reduction, new clean production technology, low temperature plasma processing, comfort finishing, health care finishing, nano-function finishing, functional coating finishing, chemical coating finishing, bionic color technology, theory and application of natural functional materials, the design, preparation and application of environmental protection and the functional textile chemicals, and the theory research and product development of green chemical synthesis.

4.Fashion design and engineering

Fashion design and engineering is an applied scientific discipline which covers variety of subjects such as technique, art, materials, design, engineering, management, computer application etc. The fashion design and engineering department of Zhejiang Sci-Tech University was founded in 1982, is one of the earliest fashion design and engineering department nationwide. The fashion school of Zhejiang Sci-Tech University started enrolled master student in 1993 and PhD students in 2011. And the fashion design and engineering discipline was awarded Zhejiang Provincial Key Supported Discipline in 1999, and then listed in Zhejiang Provincial Key Discipline in 2002, it also was reconfirmed as Zhejiang Provincial Key Discipline (A-class) in 2004, and in 2012, it was awarded as one direction of Zhejiang Provincial 愮he Priority among Priorities Discipline ? primary discipline.

The research areas in this major include the researches of ergonomics and new garment techniques, garment structure design and comfort, and digital garment modeling. The research content contains 3D human body measurement, MTM techniques, the division of somatotype, the compatibility between garment structure and human body, garment techniques, fabrics, etc., heat-moisture comfort, thermal manikin technology, testing and evaluation of Fashion pressure comfort and shape comfort, dynamic燰imulation techniques, management of supply chain, quality control and process optimization, garment consumer behaviors and garment product development, etc.

5.Textile Industrial Economy and Management

The direction of this area is to carry out researches on sustainability of ecological system and textile industry, energy conservation and emission reduction and transformation and upgrading of textile industry, scientific and technological innovation and development strategy of textile industry. The research content is eco-system innovation oriented, accompanied by mechanism design and policy innovation to promote target which focuses on the sustainability of prosperous textile industry, in order to study on eco-model of textile industry, evaluation of eco-system of textile industry, and policies of eco-system of textile industry. Furthermore, this area will also

research on methods, paths and strategies of textile industry transformation and upgrading from the perspectives of energy conservation and emission reduction oriented as well as technological upgrading, technological upgrading, circular economy and industrial structure, etc. Finally, technological innovation input of textile industry, innovation system of textile industry and innovation strategic research of textile industry will also be included in this academic area.

III. Length of Study

The normal length of the doctoral degree program is 3.5 years. Students who finish their courses ahead of schedule and attain the standards of degree conferment can, after approval, apply for the degree at an earlier time (not earlier than 3 years), while the maximum length of schooling is 6 years.

IV. Credit Requirements

The course-learning phase of the doctoral degree program is normally 1 year, adopting credit system. Students are required to take at least 16 credits, including 6 credits of general degree courses, 8 credits of major-related degree courses and optional courses, and 2 credits of academic activities, for graduation.

V. Curriculum

Course Classification		Course Code	Course Name	Hour/ Credit	Semester			Notes
					I	II	III	
Degree courses	General degree courses	FL20004	The Outline of China	36/2	√			(Entirely in English)
		CC10009	Basic Chinese (I)	54/3	√			(For beginners of Chinese language among foreign graduate students)
		FL10026	English Writing of Academic Paper	16/1	√			
		IF20001	Education on China's National Conditions for International Students B	16/1	√			
	Major-related degree courses	EM21001	Advanced Econometrics	48/3	√			
		MT21006	Modern Textile Theory and Technology*	48/3	√			
		MT21007	Advanced Organic Chemistry*	48/3		√		
		MT21008	New textile fiber materials*	48/3		√		
Non-degree courses	Major-related optional courses	EM22001	Topics on Textile Economics and Management	48/3		√		
		FD22001	Apparel Product Development	48/3	√			
		FD22002	SPSS Statistics Analysis for Apparel Research	48/3	√			

		FD22003	Fashion Consumer Behavior	32/2		√		
		MT22011	Modern characterization and measurement technology*	32/2		√		
		MT22012	Textile composites*	32/2		√		
		MT22013	Physics of Fibers*	32/2		√		
		MT22014	Modern Polymer Physics*	32/2	√			
		MT22015	Advanced Color Science*	32/2	√			
Academic Seminar		Students are required to attend at least 4 academic meetings within the study duration and present academic reports in at least 10 seminars.		/2	separated			
Practical Training		Students are required to take at least 2 weeks practical training, participate in at least one social investigation, and write relevant report. Normally the training should be completed in the first academic year.			separated			
Notes		Students without an equivalent master's degree are required to take additional courses related to their research areas, or courses requested by their supervisor. The credits earned from these courses cannot be counted toward the degree requirements.						

C=Compulsory, O=Optional

* Students can decide whether to take this optional course or not according to their different research area.

VI. Dissertation Requirement

After completed the main courses, doctoral students should carry on the doctoral candidacy examination. PhD students should go into the doctoral dissertation after pass the candidacy examination.

Dissertation work is the main learning tasks of doctoral students, and is an important part in training doctoral student scientific research ability and innovation ability. PhD students usually start dissertation work in the second semester, and must have the rigorous scholarship and precise science style in the dissertation work.

Doctoral dissertation requirements: dissertation is supposed to be a complete and systematic academic paper, should show that the writer have independent ability to engage in scientific research work, should have science or technical innovation achievements on the subject, and should have certain theoretical significance and practical value, and contribute to the development of this discipline.

In order to ensure the quality of degree dissertation, strict enforcement of the dissertation work process is important. In the process of dissertation work, doctoral students and the supervisors should be paid attention to the following links:

1. The topic of the dissertation

The topic of the dissertation is decided by doctoral student under the guidance of supervisor, by relevant literature review, investigation and preliminary experimental. The topic should be new and advanced in the research field, and be frontier subject on economic and social development and has important significance. The topic should have good research conditions.

2. The proposal of the dissertation

The proposal of the dissertation is arranged in the fourth semester. The doctoral dissertation proposal defense is organized by proposal defense committee. If the proposal does not meet the requirements, it should not enter the next phase without improve within a limit time. To ensure the quality of dissertation proposal, doctoral student are required to complete four or more reading reports or literature reviews before the opening dissertation proposal.

3. The intermediate inspection

Intermediate inspection is arranged normally in one year after the proposal of the dissertation, and organized by TSE discipline committee. Intermediate inspection mainly focuses on the dissertation progress, paper publication and phase achievement. Intermediate inspection shall be submitted in written form of inspection report, which will be part of the application materials for dissertation defense and the doctoral degree.

4. The dissertation writing

In order to ensure the quality of the doctoral dissertation, doctoral students should engage in the research work and dissertation work at least two years after the proposal of the dissertation. The domain existing achievement, own contribution and innovation achievements should be writing in detail and clarity. If doctoral scientific research is a further research of a master degree thesis, the achievement of master thesis can be referenced in the doctoral dissertation, but not as the achievement of the doctoral dissertation.

5. Publication requirements

It will be implemented in accordance with "Zhejiang Institute of Technology's Academic Achievements for Postgraduate Thesis Thesis Defense" [2020].Doctoral students should obtain creative results in scientific research, and if they meet one of the following conditions, they can apply for thesis defense

1. Publish or accept one SCI TOP journal article;

2. Publish or adopt 3 SCI, first-level and above journal papers, including at least 1 SCI journal paper or 1 national invention patent;

3. Won a national or provincial ministerial level government scientific research achievement award, and published or accepted one SCI, one or more journal papers or authorized one national invention patent.

VII. Teaching Format

Supervisors or a supervising group of teachers will tutor the postgraduate students for academic master degree.

VIII. Graduation & Degree Conferment

1.Doctoral students, agreed by the supervisor, can apply dissertation defense only after completed the required courses, passed the examinations, had the required credits, and passed the doctoral candidacy examination and the intermediate inspection. A pre defense and related experts review should pass before the dissertation defense. The doctoral students who complete their doctoral dissertation, successfully defended, and attain the standards of graduation, will be awarded the graduation certificate, who attain the standards of academic degree conferment and are approved by the university academic degree evaluation committee, will be conferred the doctoral degree.

2.According to the relevant provisions of the Ministry of Education's "Quality Standards for Higher Education for International Students in China (Trial)", the Chinese language proficiency of PhD graduates should reach at least Level 3 of the International Standards of Chinese Proficiency.

IX. References

The normal length of the doctoral degree program is 3.5 years. Students who finish their courses ahead of schedule and attain the requirements of early degree conferment can apply for the degree at an earlier time (not earlier than 3 years), while the maximum length of schooling is 6 years.

Signature of Program Director:

Signature of Director of School Academic Degree Committee:

Date: