

非织造材料与工程专业本科培养方案

Undergraduate Program for Non-woven Materials and Engineering

学科门类： 工学

二级类： 纺织科学与工程类

专业编号： 081603T

Discipline: Engineering

Secondary discipline : textile science and engineering

Major Code: 081603T

一、培养目标

I. Cultivation Objectives

本专业培养具有良好的职业道德、人文素养和社会责任感，具备扎实纤维及纤维制品方面基础知识和较强创新能力，掌握现代非织造材料与工程专业知识，能在非织造材料与纤维制品领域从事科学研究、产品工艺设计及技术开发、产品质量检测与质量控制、国内外贸易以及具有经营管理能力的应用型创新人才。具体分为以下五个方面：

目标1：有良好的职业素养和社会责任感，有意愿并有能力服务社会；

目标2：具有工程知识、非织造专业知识和工程实践方法，分析和解决纤维及其制品的设计、加工及应用中的技术难题；

目标3：面向非织造及纺织相关领域，具有相关工程设计与管理能力，可从事设计、开发、质量控制、运行管理和检验贸易等工作，能成为单位的技术、管理骨干；

目标4：具有团结协作精神和国际视野，能与国内外同行进行沟通和交流；

目标5：能自主学习和适应发展，实现能力和技术水平的不断提升。

The undergraduate program for Non-woven Materials & Engineering aims to endow students with a high moral standard and the value of the humanities accomplishment, personality and social responsibility. The graduates of this major are expected to have a solid understanding of fibers and fiber-based materials, and master in modern nonwoven materials and their manufacturing process. They can be engaged in scientific research, product design, technology development, product quality inspection, quality control, domestic foreign trade and management in the nonwoven industry.

The objectives can be categorized into the following five groups:

1. Possessing good occupational quality and social responsibility, willing and capable to serve the society;
2. Equipped with a solid understanding of non-woven materials and engineering, capable of applying the knowledge in analyzing and solving the complicated technological problems in the manufacturing process;
3. Qualified for the engagements in product design, technical development, quality control, operation management, inspection, etc. in the field of non-woven industry, having the potential to become the technical and management backbones in enterprises;
4. Capable of communicating with domestic and overseas counterparts fluently, possessing team spirit and international perspectives;
5. Capable of active learning, and sustained developments in both personal and professional abilities.

二、毕业要求

II. Programme Outcomes

非织造工程专业毕业生应达到以下十二个方面的毕业要求:

1. **工程知识:** 能够运用数学、自然科学、工程基础和非织造工程专业知识, 解决纤维及其制品的设计、加工、检验等非织造工程领域复杂工程问题。
2. **问题分析:** 能够应用数学、自然科学、工程科学和非织造技术的基本原理, 结合对科技文献研究的结果, 对非织造工程领域复杂工程问题进行识别、表达、分析和实证, 并获得有效结论。
3. **设计/开发解决方案:** 能够针对非织造工程项目设计与纤维制品开发的复杂工程问题, 设计满足特定需求的工程项目方案或工艺流程, 并能够在设计环节中体现创新意识, 考虑社会、健康、安全、法律、文化以及环境等因素。
4. **研究:** 能够基于科学原理并采用科学方法对非织造工程领域复杂工程问题进行研究, 包括设计实验、分析与解释数据、并通过信息综合得到合理有效的结论。
5. **使用现代工具:** 能够在纤维及其制品设计、加工中掌握并使用恰当的工程技术、方法和工具, 并运用现代工程工具和信息技术对非织造工程领域复杂工程问题进行分析与预测, 并能够理解其局限性。
6. **工程与社会:** 了解与非织造工程学科相关的技术标准、知识产权、产业政策和法律法规的基础上, 能基于非织造工程相关背景和知识进行合理分析, 正确评价非织造工程实践和复杂工程问题解决方案和应用对社会、健康、安全、法律以及文化的影响, 并理解应承担的责任。
7. **环境和可持续发展:** 在理解国家环境可持续发展战略及相关政策、法律和法规的基础上, 能正确认识非织造工程领域复杂工程问题的工程实践对环境、社会可持续发展的影响。
8. **职业规范:** 树立正确的世界观、价值观、人生观, 具有良好的心理素质、人文社会科学素养, 社会责任感强, 能够在非织造工程实践中理解并遵守工程职业道德和规范, 履行责任。
9. **个人和团队:** 能够在多学科背景下的团队中承担个体、团队成员以及负责人的角色。
10. **沟通:** 能够就非织造工程领域复杂工程问题与业界同行及社会公众进行有效的沟通和交流, 包括撰写报告和设计文稿、陈述发言、清晰表达或回应指令。并具备一定的国际视野, 能够在跨文化背景下进行沟通与交流。
11. **项目管理:** 理解并掌握工程管理原理与经济决策方法, 并能在多学科环境中应用。
12. **终身学习:** 具有自主学习和终身学习的意识, 有不断学习和适应发展的能力。

Graduates from non-woven technology and engineering should meet the following twelve requirements:

1. Knowledge in engineering: be capable of solving complex engineering issues in nonwoven engineering fields with mathematics, science, engineering knowledge.
2. Issue analysis: be capable of identifying, expressing, analyzing, and demonstrating complicated engineering issues in nonwoven technology and engineering and summarizing effective conclusions with basic principle of mathematics, science, engineering, and nonwoven technology, combined with literature review.
3. Design/Development solutions: be capable of designing engineering project plans or technological processes that satisfy specific demands for complicated engineering issues in nonwoven engineering project design and fibrous product development, with considerations of social responsibility, health, security, legislation, culture and environment.
4. Research: be capable of conducting research on complex engineering issues in nonwoven engineering field with scientific principles and scientific methods, including designing experiments, analyzing data, and summarizing effective conclusions.
5. Utilizing modern technologies: Be capable of mastering and applying appropriate engineering technologies, methods, and tools in the design and manufacturing of fibrous products, to analyse and predict the complex engineering problems in nonwoven fields with modern engineering tools and information technology, and

understand their limitations.

6. Engineering and society: being aware of the technical criterion, intellectual property rights, industrial policy, laws and legislations; be capable of conducting reasonable analysis based on the knowledge of nonwoven engineering and technology, correctly evaluating the influence of nonwoven engineering practice and complex problem solutions on society, health, safety, legislation and culture, and understand the responsibility.

7. Environmental and sustainable developments: being aware of understanding the national sustainable-development strategy and corresponding policy, laws and legislations, capable of correctly evaluating the influence of engineering practice of complex projects in nonwoven engineering fields on the environment and socially sustainable development.

8. Career norm: establish world outlook and philosophy of life and value. Possess good mental quality, and humanistic sciences and social sciences accomplishment. Possess a strong sense of social responsibility. Understand and obey engineering career morals and norms, and perform the duty in nonwoven engineering practice.

9. Individuality and team: Be capable of working independently and working as a team member in a multidiscipline environment.

10. Communication: Be capable of communicating effectively with business counterparts or the public regarding complex engineering issues, including report writing, document organization, presentation, clear expression and command responding. Be capable of communicating with others from the international perspective under cross-cultural background.

11. Project management: Understand and master engineering-management principles and economic decision-making methods, and be capable to utilize them in a multi-disciplinary environment.

12. Life-long learning: Possess the idea of initiative-learning and life-long learning and the ability of adaptation to developments with continuous learning.

三、主干学科及课程设置

III.Primary Discipline and curriculum

1、主干学科： 纺织科学与工程

Primary Discipline (s) : textile science and engineering

2、核心课程(7 门): 纺织材料学、纺织材料实验技术、非织造学 I、非织造学 II、高分子材料学、非织造布后整理、非织造材料性能与测试。

Core Cours : Textile Material Science、Experimental Technique of Textile Material、Nonwovens I、Nonwovens II、Polymer Materials Science、Non-woven Fabric Finishing、Performance Testing of Nonwovens

3、主要实践教学环节:

军训、社会实践、专业课程实验、工程训练 I、生产实习、学年论文、专业课程设计、毕业实习、毕业设计(论文)。

Main Practical Teaching Tache:

Military Training, Social Practice, Professional Course Experiment, Professional Course Cognition Practice, Engineering training I, Production Practice, Academic Papers, Professional Course Exercise, Graduation Practice,

Graduation Design Project (Thesis). I II IIIIV V VIVIIVIIIIX X

四、学制与学位

IV. Length of Schooling and Degree

修业年限： 4 年， 3-8 年弹性学制。

Duration: 4 years,

Length of Schooling: 3 to 8 years

授予学位： 工学学士学位

Degrees conferred: Bachelor of engineering

五、毕业学分

V. Graduation Requirements

总学分达到 **189** 分（各平台学分满足最低要求） 且第二课堂成绩单合格，可准予毕业。

Graduation qualification can be granted when a student's total credits to 189 with credits for each course category meeting the minimum standard as well as for the extra-curriculum courses meeting the minimum standard.

六、学分分配

VI.Credit Allocation

学分分配表 (Table of Credits)				
课程类别 Courses Classified		学分 Credit		学分比例 Proportion of Period
		理论 Theory	实践 Practice	
通识课程平台 General Courses	必修 Required	36	8	23.28%
	选修 Elective	8	0	4.23%
学科基础课程平台 Basic Courses	必修 Required	45.5	5.5	26.98%
专业课程平台 Major Courses	必修 Required	22.5	2	13.23%
	选修(含方向 课/选修课学 分) Elective	23	1.5	12.7%
创新创业平台 Innovation and Entrepreneurship Courses	必修 Required	2	0	1.06%
	选修 Elective	0	2	1.06%
实践教学平台 Practical Teaching	必修 Required	0	31	13.5%
	选修 Elective	0	2	5.1%
		137	52	
最低毕业学分 The Lowest Graduate Credit		189 学分		

七、教学进程计划表/ X、Teaching Schedule Form

表一： 通识课程平台 / Form 1:General Courses

通识必修课程（通修课）

General Compulsory Courses(General Required)

课程 编号 Course Code	课程名称 Courses Names	考 核 方 式	学 分 数 Crs.		总 学 时 Hrs.	学时类型 Period Classification				各学期学时分配 Division of class-hour in Every Week of Each Term								备注 Notes
			理 论	实 践		讲 课 Lec.	实 验 Exp.	上 机 Ope.	实 践 Pra.	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th	
17312001	思想道德修养与法律基础 Cultivation of Morals and Fundamentals of Law	考试	2.5	0	40	40					40							
17310008	大学生心理健康教育 Mental Health Education	考查	2	0	32	32			0	32								
17312002	中国近现代史纲要 Essentials of China Modern and Contemporary History	考试	2.5	0	40	40							40					
17312003	马克思主义基本原理 Marxist Fundamentals	考试	3	0	48	48						48						
17312004	毛泽东思想与中国特色社会 主义理论体系概论 Introduction to Mao Zedong Thought and China characteristic socialist	考试	4	0	64	64									64			
17312005	思想政治实践 Ideological and political practice	考试	0	2	32				32						32			
17200100	形势与政策 Current Affairs and Policy	考查	2	0	64	64				8	8	8	8	8	8	8	8	1-8 学 期分散 教学
10312001	大学英语 A I College English A I	考试	3.5	0	56	56				56								
10312002	大学英语 A II College English A II	考试	4	0	64	64					64							
10312003	大学英语 A III College English A III	考试	4	0	64	64						64						
10312004	大学英语 A IV College English A IV	考试	3.5	0	56	56							56					
04310012	计算机基础 Fundamentals of Computer Technology	考试	0	1	32			32		32								
12310001	体育 I Physical Education I	考试	0	1	30				30	30								
12310002	体育 II Physical Education II	考试	0	1	32				32		32							
12310003	体育 III Physical Education III	考试	0	1	32				32			32						

课程 编号 Course Code	课程名称 Courses Names	考 核 方 式	学 分 数 Crs.		总 学 时 Hrs.	学时类型 Period Classification				各学期学时分配 Division of class-hour in Every Week of Each Term								备注 Notes
			理 论	实 践		讲 课 Lec.	实 验 Exp.	上 机 Ope.	实 践 Pra.	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th	
12310004	体育IV Physical Education IV	考试	0	1	32				32				32					
98310002	军事训练 Military Training	考查	0	1	2W				2W	2W								
98310003	军事理论 Military Theory	考查	1	0	36				36	36								
01310001	工程概论 I Introduction to Engineering I	考查	1	0	16							16						
16310001	工程概论 II Introduction to Engineering II	考试	1	0	16								16					
07310001	工程概论 III Introduction to Engineering III	考试	1	0	16									16				
01310002	工程概论 IV Introduction to Engineering IV	考查	1	0	16										16			
小计			36	8	818+2W													
学分要求: 44 学分必修 44 学分																		
Demand of Credit: 44 Required: 44																		

通识选修课程（通选课） /Form I (B): General Elective Courses

课程类别 Classification of Courses	学分要求 Demand of Credit	合计 Amount
通识选修课程 General Elective Courses	≥8	128/8

表二： 学科基础课程

Form II. Basic Course

课程类别 Courses Classi- fied	课程编号 Numbers of courses	课程名称 Courses Names	考核方式	学分数 Crs.		总学时 Hrs.	学时类型 Period Classification				各学期学时分配 Division of class-hour in Every Week of Each Term								核心课程 (Core)	备注 Notes	
				理论	实践		讲课 Lec.	实验 Exp.	上机 Ope.	实践 Pra.	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th			
学科基础必修 Require Basic Courses	04332010	高等数学 A(I) Advanced Mathematics A(I)	考试	5	0	80	80					80									
	04332011	高等数学 A(II) Advanced Mathematics A(II)	考试	6	0	96	96						96								
	04330026	线性代数 Linear Algebra	考试	2.5	0	40	40							40							
	04330023	概率论与数理统计 Probability and Mathematical Statistics	考试	3	0	48	48								48						
	03330001	大学物理 A(I) College Physics A(I)	考试	3.5	0	56	56						56								
	03330002	大学物理 A(II) College Physics A(II)	考试	3.5	0	56	56							56							
	03332005	大学物理实验 College Physics Experiments	考试	0	2.5	60		60							60						
	03330006	电工技术 A Electrical Technology(A)	考试	2.5	0.5	48	40	8						48							
	03330008	电子技术 A Electronic technique(A)	考试	3	0.5	56	48	8							56						
	02330003	工程图学 B Engineering Graphics(B)	考试	3.5	0.5	64	56		8			64									
	04330209	Java 程序设计 JAVA Programming	考试	3	1	64	40		24					64							
	02330045	工程力学 Engineering Mechanics	考查	3.5	0.5	64	56	8					64								
	02330076	机械设计基础 B Mechanical Design Basis(B)	考查	3	0	48	48							48							
	05330134	普通化学 B General Chemistry(B)	考试	3.5	0	56	56						56								
		小计			45.5	5.5															
学分要求: 51 学分必修 51 学分																					
Demand of Credit:51 Required:51																					

七、教学进程计划表 / X、Teaching Schedule Form

表三: 专业课程平台

Form 3: Major Courses

课程类别 Courses Classified	课程编号 Numbers of courses	课程名称 Courses Names	考核方式	学分数 Crs.		总学时 Hrs.	学时类型 Period Classification				各学期学时分配 Division of class-hour in Every Week of Each Term								核心课程 (Core)	备注 Notes
				理论	实践		讲课 Lec.	实验 Exp.	上机 Ope.	实践 Pra.	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th		
专业必修 Required Courses	01330011	纺织材料科学(A) Textile Material Science(A)	考试	4.5	0	72	72						72						▲	
	01332010	纺织材料实验技术 Experimental Technique of Textile Material	考查	0	1.5	36		36					36						▲	
	01330031	非织造学 I Nonwovens I	考试	3.5	0	56	56							56					▲	
	01330032	非织造学 II Nonwovens II	考试	3.5	0	56	56								56				▲	
	01330034	高分子材料科学 Polymer materials science	考试	3	0	48	48							48					▲	
	01330036	专业概论 Introduction to Majors	考查	0.5	0	8	8				8									
	01330027	非织造布后整理 Non-woven Fabric Finishing	考试	2.5	0.5	48	40	8							48				▲	
	01330028	非织造材料性能与测试 Performance Testing of Nonwovens	考查	2	0	32	32								32				▲	
	01330073	纺织工艺学 Textile Technology	考查	3	0	48	48								48					
	小计			22.5	2															
专业选修 Elective courses	01330033	非织造用粘合剂与助剂 Non-woven Adhesives and Additives	考查	2	0	32	32									32				
	01330056	针织工艺学 Knitting Technology Weft Knitting	考查	1.5	0.5	32	24	8							32					
	01330067	织物组织与结构 B Woven Fabric Structure(B)	考查	2	0	32	32								32					
	22330001	科技文献检索 Sci-Tech Literature Retrieval	考查	1	0	16	16										16			
	07330133	现代纺织企业管理 Modern textile enterprise management	考查	2	0	32	32										32			

课程类别 Courses Classified	课程编号 Numbers of courses	课程名称 Courses Names	考核方式	学分数 Crs.		总学时 Hrs.	学时类型 Period Classification				各学期学时分配 Division of class-hour in Every Week of Each Term								核心课程 (Core)	备注 Notes
				理论	实践		讲课 Lec.	实验 Exp.	上机 Ope.	实践 Pra.	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th		
专业选修 Elective courses	01330040	功能纤维及其应用 Functional Fibers and Application	考查	1.5	0	24	24									24				选 24.5 学分
	01330081	非织造工程伦理学 	考查	0.5	0	8	8									16				
	01330079	纺织职业安全与规范 Textile occupational safety and standards	考查	0.5	0	8	8										8			
	01330064	专业前沿讲座 Lectures on Frontier Academics	考查	1	0	16	16										16			
	01330035	产业用纺织品 Industrial textiles	考查	2	0	32	32										32			
	01330044	染整工艺学 Dyeing and finishing technology	考查	1.5	0.5	32	24	8								32				
	11330107	服装设计基础 Fundamentals of Clothing Design	考查	2	0	32	32									32				
	01330086	高分子化学与物理 Polymer Physics	考查	2	0	32	32									32				
	01330029	非织造产品设计与开发 Non-woven Products Applications and Development	考查	1	1	32	16	16								32				
	01330082	非织造过滤材料 Nonwoven filter materials	考查	2	0	32	32									32				
	01330083	非织造土工材料 Nonwoven geotextiles	考查	2	0	32	32									32				
	01330051	现代非织造技术 Non-woven Technology	考查	2	0	32	32									32				
	01330014	纺织复合材料 Textile Composite Materials	考查	2	0	32	32									32				

	Demand of Credit:	49	Required: 24.5	Elective: 24.5
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课程类别 Courses Classi- fied	课程 编号 Numbers of courses	课程名称 Courses Names	考核 方式	学分数 Crs.		总 学 时 Hrs.	学时类型 Period Classification				各学期学时分配 Division of class-hour in Every Week of Each Term								备注 Notes
				理 论	实 践		讲 课 Lec.	实 验 Exp.	上 机 Ope.	实 践 Pra.	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th	
必修 Required Courses	97310003	大学生职业生涯规划 I Career Design I	考查	0.5		8	8					8							
	97310004	大学生职业生涯规划 II Career Design II	考查	0.5		8	8						8						
	97310001	就业指导 Employment Guidance	考查	0.5		8	8							8					
	97310005	大学生创新创业基础 Innovation and Entrepreneurship	考查	0.5		8	8								8				
	小计				2		32												
选修 Elective courses		创新创业课程组 Innovation & Entrepreneurship Courses	考查																课程组 由学校 统一认 定
	小计				2														
学分要求: 3 学分, 其中必修 2 学分, 选修 2 学分。																			
Demand of Credit: 3 Required:2 Elective: 2																			

七、教学进程计划表 / X、Teaching Schedule Form

表五：实践教学平台

Form 5: Practical Teaching

类别 Category		课程编号 Numbers of courses	课程名称 Courses Names	必修 选修	学分 Crs.	周数 Total Period	学时类型 Type of Period		各学期学时分配 Division of class-hour in Every Week of Each Term								备注	地点 Place
							实验 Exp.	实习 Pra.	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th		
实践教学 Teaching Practice	社会实践 Social Practice	01340015	暑期社会实践 I Social Practice I	必修	1	2W				2W								暑假校外
		01340016	暑期社会实践 II Social Practice II	必修	1	2W					2W						暑假校外	
	课程设计 Project Design	01340031	非织造课程设计 	必修	3	3W							3W				本院实验室	
		02340096	机械设计基础课程设 计 	选修	3	3W					3W							
		04340072	Java 程序课程设计 Course Design of C Programming	必修	1	1w					1w						数计学院机房	
	实习实训 Practice and Training	01340039	学年论文 Academic Papers	必修	3	3W								3W				
		01340033	非织造学实验 I Nonwovens Experiment I	必修	2	2W					2W							
		01340032	非织造实验 II Nonwovens Experiment II	必修	2	2W						2W						
		01340044	织物组织与结构实验 Lab for Woven Fabric and Construction)	选修	2	2W						2W						
		01340042	针织纬编实验 (分散) Weft Knitting Experiment	选修	2	2W						2W						
		01340030	纺织实验(分散) Spinning Experiment	选修	2	2W						2W						
		02340062	工程训练(A) Engineering Training(A)	必修	3	3W				3W								
		企业实践 Business Practice	01340038	生产实习(A) Production practice(A)	必修	3	3W							3W				相关企业
	毕业论文（设计） Graduation Project	01340027	毕业设计(论文) Graduation Thesis(Design)	必修	12	12W									(*)	12		
	小计					40	42W											
学分要求： 33 学分，其中必修 31学分，选修2 学分。																		
Demand of Credit: 33						Required:24			Elective:9									

非织造材料与工程专业教学周历

教学环节 周次																											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20						
1 学期 20 周		×	⊙	■	■	←	-	-	-	-	-	-	-	-	-	14		-	→	:	:						
2 学期 20 周		←	-	-	-	-	-	-	-	18		-	-	-	-	-	-	-	→	:	//	★	★				
3 学期 20 周		←	-	-	-	-	-	-	-	18		-	-	-	-	-	-	-	→	:	//	△	△				
4 学期 20 周		←	-	-	-	-	-	-	-	18		-	-	-	-	-	-	-	→	:	//	★	★				
5 学期 20 周		←	-	-	-	-	-	-	-	17		-	-	-	-	-	→	:	○	○	○						
6 学期 20 周		←	-	-	-	-	-	-	-	18		-	-	-	-	-	→	:	//	#	#	#					
7 学期 20 周		←	-	-	-	-	-	-	-	17		-	-	-	-	-	-	→	:								
8 学期 20 周		※	※	※	※	※	※	※	※	※	※	※	※	※	※	※	※	※	◇	×	×						
项目	理论教学	→→		//		:		△		#		※		○		■		×		☆		★		⊙		◇	
小计	108	7		7		0		2		15		0		4		3		4		4		1		1			

学院教学负责人： 蔡光明

培养方案撰稿人： 张如全

八. 专业课程体系逻辑结构图

非织造材料与工程专业

