

# Course Syllabus

**1. Course Name: Textile Materials: Fibers and Yarns**

**2. Course Code:** TEME120351

**3. Credit Units:** 2 (2/0/4) (2 units of theory, 0 unit of practice, 4 units of self-study)

Duration: 10 weeks (3 hours of theory + 0 hours of practice, 4 hours of self-study per week)

**4. Course Instructors**

- 1/ Dr. Nguyen Tuan Anh
- 2/ Dr. Nguyen Phuoc Son
- 3/ M.Sc. Ta Vu Thuc Oanh
- 4/ M.Sc. Nguyen Thi Luyen

**5. Course Requirements**

Prerequisite courses: No

Previous courses: No

**6. Course Descriptions**

This course belongs to the fundamental knowledges of programme of garment technology which introduces origin, structure, properties and end-uses of textile fibers and yarns. Accordingly, student can apply the knowledge in identificating, analyzing, evaluating and solving the problems of textile products.

**7. Course Goals**

Goals	Goal descriptions	ELOs	Scale
<b>G2</b>	Properties and quality of common fibers and yarns.	ELO-04	4
<b>G4</b>	Selection of appropriate fibers and yarns and features of garment products and proposes of using and caring solutions in fact.	ELO-07	2
		ELO-13	4
<b>G3</b>	Communication, teamwork, informational synthetizing skills	ELO-10	3
		ELO-11	2

**8. Course Learning Outcomes (CLOs)**

CLOs	CLO Descriptions	ELOs	Scale
<b>G2</b>	<b>CLO1</b> Analyze and solve problems of textile fibers in fact.	ELO-04	4
	<b>CLO2</b> Understand professional attitude in researching textile materials	ELO-07	2
<b>G3</b>	<b>CLO3</b> Apply the communication of text, email and presentation in manufacturing textile industry	ELO-10	3
	<b>CLO4</b> Illustrate textile terminologies in English.	ELO-11	2
<b>G4</b>	<b>CLO5</b> Identify contexts in business and production activities in terms of garment technology	ELO-13	4

**9. Learning Ethics:**

Students must do homework by themselves. If plagiarism is found students will get zero point.

**10. Course Contents:**

Week	Contents	CLOs	Scale
1	<b>Chapter 1: Overview of textile fibers</b>		
	A/ Content and pedagogical methods in class: (3)	CLO1	4
	<b>Content</b>	CLO2	2
	1.1. Definitions	CLO5	4
	1.2. History		
	1.3. Classifications		
	1.4. Fiber and yarn production		
	- Fiber forming		

	+ <i>Forming of natural fibers</i>		
	+ <i>Forming of synthetic fibers</i> - <i>Spinning methods</i> <b>Pedagogical methods</b> Presentation, movie, questions & answers		
	<b>B/ Self-study contents: (6)</b> <b>Problem 1:</b> (1) Look for the information of current textile market in Vietnam (2) Find some job positions related to textile materials	CLO2	2
	<b>Chapter 1: Overview of textile fibers (continued)</b>		
2	<b>A/ Content and pedagogical methods in class: (3)</b> <b>Content</b> 1.5. <i>Structural characteristics of textile fiber</i> 1.6. <i>Common properties of textile fibers</i> - <i>Appearances (length, twist, purity, evenness, color fastness)</i> - <i>Mechanical properties (strength, stiffness, abrasion)</i> - <i>Electric and thermal properties (electric conductivity, thermal resistance, fire retardance)</i> - <i>Chemical and biological properties (alkali, acidic, antibacterial)</i> <b>Pedagogical methods</b> Presentation, movie, questions & answers	CLO1 CLO5	4 4
	<b>B/ Self-study contents: (6)</b> Find the identification of common textile fibers	CLO2	2
	<b>Chapter 2: Natural Fibers</b>		
3	<b>A/ Content and pedagogical methods in class: (3)</b> <b>Content</b> 2.1. <i>Plant fibers</i> 2.1.1. <i>Cellulose fibers</i> 2.1.2. <i>Cellulose structure</i> 2.1.3. <i>Cotton fibers</i> - <i>Cotton production and spinning processes</i> - <i>Properties of cotton fibers</i> - <i>End-uses</i> 2.1.4. <i>Other plant fibers</i> - <i>Flax fiber</i> - <i>Jute fiber</i> <b>Pedagogical methods</b> Presentation, movie, questions & answers	CLO1 CLO5	4 4
	<b>B/ Self-study contents: (6)</b> Find the information of other fibers (ramie, coir, manila, bamboo fibers)	CLO2	2
	<b>Chapter 2: Natural Fibers (continued)</b>		
4	<b>A/ Content and pedagogical methods in class: (3)</b> <b>Content</b> 2.2. <i>Wool fibers</i> 2.2.1. <i>Production</i> 2.2.2. <i>Protein structure of wool fibers</i> 2.2.3. <i>Highlighted properties of wool</i> 2.2.4. <i>End-uses</i> <b>Pedagogical methods</b> Presentation, movie, questions & answers	CLO1 CLO5	4 4

	<b>B/ Self-study contents: (6)</b> Analyze the effect factor on wool quality based on the knowledge provided in the lesson	CLO2	2
	<b>Chapter 2: Natural Fibers (continued)</b>		
5	<b>A/ Content and pedagogical methods in class: (3)</b> <b>Content</b> 2.3. Silk fibers 2.3.1. Silk worm and mulberry 2.3.2. Structure 2.3.3. Properties 2.3.4. End-uses <b>Pedagogical methods</b> Presentation, movie, questions & answers	CLO1 CLO2 CLO3	4 2 3
	<b>B/ Self-study contents: (6)</b> Find the information of spider yarn, compared to silk yarn Find the information of mineral yarns (asbestos, glass fiber)	CLO2	2
	<b>Chapter 3: Regenerated fibers</b>		
6	<b>A/ Content and pedagogical methods in class: (3)</b> <b>Content</b> 3.1. Regenerated cellulose fibers 3.1.1. Rayon fibers (viscose, cupro, lyocell) 3.1.2. Acetate and triacetate fiber - Production - Properties of acetate and triacetate fibers - End-uses 3.1.3. Regenerated protein (casein, zein) fibers <b>Pedagogical methods</b> Presentation, movie, questions & answers	CLO1 CLO2 CLO3	4 2 3
	<b>B/ Self-study contents: (6)</b> Find the difference between the regenerated and original cellulose fiber or protein fibers, why?	CLO2	2
	<b>Chapter 4: Synthetic fibers</b>		
7	<b>A/ Content and pedagogical methods in class: (3)</b> <b>Content</b> 4.1. Polymerization of synthetic fibers 4.2. Polyamide (PA, nylon) fiber 4.2.1. Manufacturing method 4.2.2. Structure and properties 4.2.3. End-uses	CLO1 CLO2 CLO3 CLO5	4 2 3 4
	<b>B/ Self-study contents: (6)</b> Explain the reason that the nylon fibers are limited in clothing design and the solutions	CLO2	2
	<b>Chapter 4: Synthetic fibers (continued)</b>		
8	<b>A/ Content and pedagogical methods in class: (3)</b> <b>Content</b> 4.3. Polyester (PET, PES) fiber 4.3.1. Manufacturing methods 4.3.2. Structure and properties 4.3.3. End-uses 4.3.4. Modification of polyester <b>Pedagogical methods</b> Presentation, movie, questions & answers	CLO1 CLO2 CLO3 CLO5	4 2 3 4

	<b>B/ Self-study contents: (6)</b> Explain the reason that PET becomes the most common textile materials compared to other fibers	CLO2	2
9	<b>Chapter 4: Synthetic fibers (continued)</b>		
	<b>A/ Content and pedagogical methods in class: (3)</b> <b>Content</b> 4.4. Acrylic fiber 4.4.1. Production 4.4.2. Structure and properties 4.4.3. End-uses 4.5. Polyethylene (PE) fiber 4.5.1. Production 4.5.2. Structure and properties 4.5.3. End-uses <b>Pedagogical methods</b> Presentation, movie, questions & answers	CLO1 CLO2 CLO3 CLO5	4 2 3 4
	<b>B/ Self-study contents: (6)</b> Find the information of Vinyl fiber family such as polyvinyl Alcohol (PVA), Polyvinyl Chloride (PVC) Why can PAN replace wool fiber?	CLO2	2
	<b>Chapter 4: Synthetic fibers (continued)</b>		
	<b>A/ Content and pedagogical methods in class: (3)</b> <b>Content</b> 4.6. Polyurethane (PU) fiber 4.6.1. Production 4.6.2. Structure and properties 4.6.3. End-uses 4.7. Special fibers 4.7.1. Carbon fiber 4.7.2. Basalt fiber <b>Pedagogical methods</b> Presentation, movie, questions & answers	CLO1 CLO2 CLO3 CLO5	4 2 3 4
10	<b>B/ Self-study contents: (6)</b> <b>Essay 1:</b> Collect the common textile fibers in market, determine the origin, properties and end-uses of these materials Why can PU or Spandex replace the rubber?	CLO2	2

### 11. Student Assessment:

- Grading scale:10
- Assessment plan:

Type	Content	Timeline	CLOs	Scale	Assessment method	Assessment tool	Rate (%)
<b>Formative Assessment</b>							<b>50</b>
Problem 1	Look for the information of current textile market in Vietnam Find some job positions related to textile materials	Week 2	CLO2 CLO4	2 2	Essay	Rubric	10
Problem 2	Paper exam in class for chapter 1+2 (30 minutes)	Week 5	CLO1 CLO2 CLO3	4 2 3	Quizzes	Scores	20
Problem	Group activities (3 students): translate the	Week 9	CLO2 CLO4	2 2	Essay	Rubric	20

3	document into Vietnamese.						
<b>Summative Assessment</b>							<b>50</b>
Essay 1	Collect the common	Week 2-9	CLO1	4	Report	Rubric	25
	textile fibers in market, determine the origin, properties and end-uses of these materials		CLO3	3			
Essay 2	Assign a specific topic of textile materials, present it in class after finishing the course	Week 10	CLO2 CLO3	2 3	Presentation	Rubric	25

CLOs	Assessment Types				
	Problem#1	Problem #2	Problem #3	Essay #1	Essay#2
CLO1		x		x	
CLO2	x	x	x		x
CLO3				x	x
CLO4	x		x		

## 12. Learning Resources

- Textbooks:

1. Nguyen Tuan Anh, Textile Materials, HCMC National University Publisher, 2013

- References:

1. Nguyen Van Lan –Textile Material - HUT- 1999
2. Nguyen Trung Thu - Textile Material - HUST - 1999
3. Tran Thuy Binh, Le Thi Mai Hoa, Textbook of Textile Materials, Education Publisher, 2005
4. Kathryn L. Hatch - Textile Science - USA, 1993

13. **Date of first approval:** June 15, 2018

14. **Approved by:**

**Dean**

**Head of Department**

**Instructor**



**Vu Minh Hanh, M.Ed**



**Nguyen Ngoc Chau, PhD**



**Dr. Nguyen Tuan Anh**

15. **Date and up-to-date content**

<b>1<sup>st</sup> time: Date</b>	<b>Instructor</b>
	Head of Department