Course guide

320082 - PAA - Finishing Processes

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 702 - CEM - Department of Materials Science and Engineering.
Degree: BACHELOR'S DEGREE IN TEXTILE TECHNOLOGY AND DESIGN ENGINEERING (Syllabus 2009). (Compulsory subject).

Academic year: 2022 ECTS Credits: 6.0 Languages: Catalan, Spanish

LECTURER

Coordinating lecturer: Riba Moliner, Marta
Others: Buscio Olivera, Valentina

PRIOR SKILLS

Previously studying the subject Materials for Textile Product Design is highly desirable.
Previously studying the subject of Desing of bleaching and dyeing processes. Colorimetry is highly desirable.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. TEX: Applied knowledge of sizing and finishing processes

CE23. TEX: knowledge of unitary operations of preparing, dyeing and blanching

CE25. TEX: Knowledge of the chemical compound behaviour for the for the textile ennoblement.

Transversal:
3. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.

TEACHING METHODOLOGY

- Presental lecturing sessions for delivery of the topics with active student involvement.
- Presental sessions of practical work (Mandatory attendance)
- Self-directed study and preparation of reports. Cooperative learning.
- Preparation and completion of assessable teamwork activities.
  - Oral and written presentation work performed individually or in group

LEARNING OBJECTIVES OF THE SUBJECT

GLO1. To become professionals in the design of chemical and mechanical finishing processes, the management of quality and safety in industrial processes, and the criteria for international trade

GLO2. To acquire a sound knowledge of finished textiles manufacturers, the technical specifications for the products and their applicability to other textile processes.

GLO3. To know the existing industrial network of dye and finish enterprises, the technical specifications for finished textile products, and the requirements for the integral design of a textile production process.

GLO4. To develop the specific and transversal skills associated to the academic work.
STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>30,0</td>
<td>20.00</td>
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</tbody>
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Total learning time: 150 h

CONTENTS

**Topic 1: Fundamentals of the mechanical and chemical finishing operations**

**Description:**
1.1. Concept of the mechanical and chemical finishing operations
1.2. Main effects contributed by finishing operations.
1.3. Finishes application systems.
1.4. Drying and condensation/polymerization processes.

**Specific objectives:**
OE4. Evaluation organoleptic and practical effects on textile sizing.
OE5. Influence of finishing on color.

**Full-or-part-time:** 20h
Theory classes: 6h
Laboratory classes: 2h
Self study: 12h

**Topic 2: EFFECT DESIGN BASED ON CONDITIONING FINISHES**

**Description:**
2.1. Unit effects of finishes: stiffening, antislip, run-proof, antipilling, antisnagging, antipicking, matting and softening finishes.
2.2. Combined effects of finishes.
2.3. Measurement standards.

**Full-or-part-time:** 36h
Theory classes: 8h
Laboratory classes: 10h
Self study: 18h
Topic 3: DESIGN OF WASH AND WEAR FINISHES

Description:
3.1. Fields of use and target textiles products for wash and wear with low free-formaldehyde finishes: shrink-proof, crease-proof, "wash and wear", easy ironing.
3.2. Ecotoxicological characteristics related with finishes.

Specific objectives:
Apply acquired knowledge for planning trials of finishing wash and wear.
OE8. Learn to identify and implement quality controls required by the final destination of the finished article.
OE9. Criteria for the submission of results, effects on international trade.

Full-or-part-time: 28h
Theory classes: 6h
Laboratory classes: 6h
Self study: 16h

Topic 4: FINISHES FOR TECHNICAL TEXTILES

Description:
4.2. Bacteria and fungi: antimicrobial (bactericidal and fungicidal), deodorizing and insecticide (moth-proof) finishes.
4.3. Behaviour of textile materials in fire.
4.4. Fundamentals of Individual Protection Equipment (IPE)
4.5. Flame retardation mechanisms.
4.6. Fire-proofing systems.
4.7. Fire-proofing of textile fibres.
4.8. Standards and methods for testing effects.

Specific objectives:
OE10. Knowledge of technical fabrics and fields of application.
OE11. Apply knowledge of the effects of different articles repellencia
OE12. Get quality controls to determine the effects of repellency contributed textiles
OE13. Apply theoretical knowledge about Fireproofing in different tissues
OE14. Learn the controls to determine the quality of the effects of Fireproofing contributed textiles

Full-or-part-time: 42h
Theory classes: 8h
Laboratory classes: 10h
Self study: 24h
Topic 6: FINISHING TECHNOLOGY AND PRODUCT DESIGN

Description:
6.1. Design of textile products via the following operations:

- Calendering effects
- Napping
- Grinding
- Shearing

Related competencies:
04 COE N3. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.

Full-or-part-time: 24h
- Theory classes: 2h
- Laboratory classes: 2h
- Self study: 20h

GRADING SYSTEM

Students will be assessed in a continual manner for self-directed learning and team work. The presence to practical work sessions is mandatory. Only 2 justified absences will be accepted. Knowledge and skill acquisition will be assessed as follows:

- Oral and written tests (First evaluation: 30%, Second evaluation: 30%)
- Laboratory: 30%
- Other deliveries: 10%

Students who have suspended the first partial exam may choose, by communicating to the teacher, a review of recovery. Recovery will perform the first exam is written with a prueba, the second day of the exam, después del mismo, con calificación de 0 to 5. The note obtenido sustituirá la initial calificación long as it higher.

The teacher will be able to request at any moment, a Justification of the conclusions of the reports has hecho the students to demonstrate the active participation of students.

For those students who meet the requirements and submit to the reevaluation examination, the grade of the reevaluation exam will replace the grades of all the on-site written evaluation acts (tests, midterm and final exams) and the grades obtained during the course for lab practices, works, projects and presentations will be kept. If the final grade after reevaluation is lower than 5.0, it will replace the initial one only if it is higher. If the final grade after reevaluation is greater or equal to 5.0, the final grade of the subject will be pass 5.0.

BIBLIOGRAPHY

Basic: