

## Course guide

### 320084 - DIPT - Integral Development of Textile Products

**Last modified:** 19/04/2023

**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:** 2023    **ECTS Credits:** 6.0    **Languages:** Catalan, Spanish

#### LECTURER

**Coordinating lecturer:** Ventura Casellas, Heura

**Others:** Ventura Casellas, Heura  
Cano Casas, Francesc

#### PRIOR SKILLS

Previously studying the subject Materials for Textile Product Design is highly desirable.

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

**Specific:**

CE21-GETDT. Ability to develop comprehensive textile products and industrial garment making. (Specific Technology Module: Textile)

#### TEACHING METHODOLOGY

- Presential sessions for the exposure of results. Student involvement.
- Presential sessions of practical work.
- Self-directed study and preparation of deliverables.
- Preparation and development of assessable group activities.

#### LEARNING OBJECTIVES OF THE SUBJECT

GLO1. To acquire the foundations and techniques for the textile design of yarns, fabrics, garments, household textiles and technical fabrics.

GLO2. To develop the ability to use the previous techniques to solve practical problems by combining a designer's creativity and an engineer's scientific rigour.

GLO3. To develop the specific and transversal skills associated to the academic work.

#### STUDY LOAD

Type	Hours	Percentage
Hours medium group	45,0	30.00
Self study	90,0	60.00
Hours large group	15,0	10.00

**Total learning time:** 150 h

## CONTENTS

### Topic 1: FUNDAMENTALS OF TEXTILE PRODUCTS DESIGN

**Description:**

- 1.1. Basics concepts of textile product design.
- 1.2. Specifications analysis in textile products.
- 1.3. Fibre and yarn selection criteria for projecting the main fabric types.
- 1.4. Design stages for a fashion good.
  - 1.4.1. Basic design and fashion item.
  - 1.4.2. Inspiration sources and trends.
  - 1.4.3. Preparation sequence for a collection.
- 1.5. Use of design fundamentals to develop an integral project for a specific item.

**Specific objectives:**

- SO1. To understand the foundations of textile design and fashion through practical cases.
- SO2. To learn the use of textile designer's tools.

**Full-or-part-time:** 35h

Theory classes: 3h

Practical classes: 10h

Self study : 22h

### Topic 2: PROJECTION OF FANCY AND SPECIAL EFFECTS YARNS

**Description:**

- 2.1. Fancy effects obtained in the spinning process.
- 2.2. Production of the main types of fancy yarns with twistors and special machines.
- 2.3. Conceptual and formal considerations of yarns produced by non-conventional spinning systems.
- 2.4. Design of various types of special yarns for technical fabrics and non-textile uses.
- 2.5. Design of a specific yarn to be used in the integral project.

**Specific objectives:**

- SO3. To acquire knowledge of fancy yarns and the calculations involved in their industrial production.
- SO4. To be able to develop new yarns.

**Full-or-part-time:** 40h

Theory classes: 5h

Practical classes: 10h

Self study : 25h

### Topic 3: COMPUTER AIDED DESIGN OF WOVEN FABRICS

**Description:**

- 3.1. Fundamental concepts and stages for development of collections of fabrics.
- 3.2. Fundamental criteria for the computer assisted projection of yarns and fabrics.
- 3.3. Description of the textile CAD tools.
- 3.4. Capabilities and limitations of CAD tools.
- 3.5. Practical computer-assisted development of a collection of fabrics.
- 3.6. Use of CAD for the integral design project.

**Specific objectives:**

- SO5. To know the state of the art in the computer assisted simulation of fabrics.
- SO6. To use the knowledge acquired about fabric theory for industrial design and the production of the prototype developed in class.
- SO7. To understand the relationship between design, industrial production and their costs.

**Full-or-part-time:** 40h

Theory classes: 5h

Practical classes: 10h

Self study : 25h

### Topic 4: PROJECTION OF COLOURS FOR DYEING AND PRINTING. DESIGN OF FINISHES AND FINISHING EFFECTS

**Description:**

- 4.1. Design of colouring effects in mixtures of fibres, yarns and fabrics obtained by sustainable dyeing processes.
- 4.2. Fashion effects by printing processes with a low environmental impact.
- 4.3. Incorporation of products of finishes and finishing processes with a high value-added.
- 4.4. Critical analysis of the whole production process for a textile product.
- 4.5. Perspective axes for the design of new textiles with enhanced functionalities.

**Specific objectives:**

- SO8. To relate the knowledge acquired about materials, yarns and fabrics to their colouration, dyeing and finishing potential.
- SO9. To understand the value-added provided by chemical processes in the integral development of garment, household and technical fabrics.

**Full-or-part-time:** 35h

Theory classes: 2h

Practical classes: 15h

Self study : 18h

## GRADING SYSTEM

Continuous assessment is followed in order to balance self-directed learning and teamwork.

Final mark will be calculated through the evaluation of the activities:

- Deliverables and questionnaires of the practical activities (laboratories, exercises, study cases): 30%
- Deliverables and questionnaires of the course project: design part (10%), spinning part (20%), weaving part (20%), finishing part (10%)
- Oral presentation and defence of the course project: 10%

## BIBLIOGRAPHY

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### Basic:

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