



Course guides

320181 - DJ - Jacquard Design

Last modified: 29/05/2020

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 CHEMICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN TEXTILE TECHNOLOGY AND DESIGN ENGINEERING (Syllabus 2009). (Optional subject).

Academic year: 2020 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: Mònica Ardanuy

Others:

PRIOR SKILLS

It is compulsory to follow the course classes regularly. It is a practical course and the software used to design is only available at the class.

TEACHING METHODOLOGY

Sessions of theory
Sessions of practical work at class

LEARNING OBJECTIVES OF THE SUBJECT

OAG1. To know the possibilities and limitations of Jacquard looms.
OAG2. To know how to choose the best way to design depending on the fabric to manufacture and the loom to use.
OAG3. To be able to design Jacquard fabrics.

STUDY LOAD

| Type | Hours | Percentage |
|-------------------|-------|------------|
| Hours small group | 30,0 | 20.00 |
| Hours large group | 30,0 | 20.00 |
| Self study | 90,0 | 60.00 |

Total learning time: 150 h



CONTENTS

TOPIC 1. JACQUARD MACHINES AND CONFIGURATIONS

Description:

- 1.1. Introduction and history
- 1.2. Identification of Jacquard fabrics
- 1.3. Jacquard machines and implications on the design
- 1.4. Jacquard templates. Interpretation and implications on the picks

Specific objectives:

- OE1. To understand the implications of the Design on the use of the Jacquard machines
- OE2. To be able to select the most suitable machine for the design to make

Related activities:

1

Full-or-part-time: 12h 30m

Theory classes: 5h

Self study : 7h 30m

TOPIC 2. INTRODUCTION TO JACQUARD DESIGN

Description:

- 2.1. Steps to follow for a Jacquard Design
- 2.2. Calculations for a Jacquard Design
- 2.3. Structures of weaves of one face
- 2.4. Structures of weaves of two or more faces

Specific objectives:

- OE3. To know the effects of the number of warps and wefts used.
- OE4. To know the effects of the weaves used.

Related activities:

2

Full-or-part-time: 25h

Theory classes: 10h

Self study : 15h

TOPIC 3. WEAVE DESIGN

Description:

- 3.1. Fundamental weaves and its application
- 3.2. Complex weaves. Double face fabrics
- 3.3. Weaves with more than one warp and/or weft
- 3.4. Unitary, Binary, ternary combinations

Specific objectives:

- OE5. To know the steps to generate a design

Related activities:

1,2

Full-or-part-time: 37h 30m

Theory classes: 15h

Self study : 22h 30m



TOPIC 4. PROCESS OF JACQUARD DESIGN

Description:

4.1. Previous calculations

Specific objectives:

OE5. Two know the steps to generate a design

Related activities:

3

Full-or-part-time: 37h 30m

Laboratory classes: 15h

Self study : 22h 30m

TOPIC 5. ANALYSIS OF JACQUARD FABRICS

Description:

4.1. How to tackle a design in function of one initial concept, from a picture or from a fabric.

Related activities:

3

Full-or-part-time: 12h 30m

Laboratory classes: 5h

Self study : 7h 30m

TOPIC 6. CAD SIMULATION

Description:

4.1. How to tackle a design in function of one initial concept, from a picture or from a fabric.

Specific objectives:

OE6. To be able to select the most appropriate method to make a project for a specific design.

Full-or-part-time: 25h

Laboratory classes: 10h

Self study : 15h



ACTIVITIES

ACTIVITY 1. THEORY CLASSES

Description:

Classes of theory

Specific objectives:

OE1, OE2, OE3, OE4, OE5, OE6

Material:

Basic and complementary bibliography.
Power point presentations

Delivery:

Exam

Full-or-part-time: 62h 30m

Theory classes: 25h

Self study: 37h 30m

ACTIVITY 4. ANALYSIS OF TEXTILE STRUCTURES

Description:

To make analysis of complex structures applied to Jacquard fabrics

Specific objectives:

OE3, OE4, OE5

Material:

Jacquard Fabrics

Delivery:

Report of results

Full-or-part-time: 25h

Laboratory classes: 10h

Self study: 15h

ACTIVITY 5. VIRTUAL MATERIALIZATION OF JACQUARD DESIGNS

Description:

Simulation with CAD

Specific objectives:

OE6

Material:

Basic and complementary bibliography.
Power point presentations

Delivery:

Designs simulated

Full-or-part-time: 37h 30m

Laboratory classes: 15h

Self study: 22h 30m



ACTIVITY 2. STUDY OF JACQUARD LOOM

Description:

Analysis of Jacquard looms

Specific objectives:

OE2

Material:

Jacquard loom

Bibliography.

Power point presentations

Delivery:

Deliverable

Full-or-part-time: 12h 30m

Practical classes: 5h

Self study: 7h 30m

ACTIVITY 3. IMAGE MODIFICATIONS

Description:

Treatment of images

Specific objectives:

OE5

Material:

Computers CAD

Image software

Delivery:

Image

Full-or-part-time: 12h 30m

Laboratory classes: 5h

Self study: 7h 30m

GRADING SYSTEM

Exam: 30%

Deliverables: 70% (20% 1st term, 50% 2nd term)



BIBLIOGRAPHY

Basic:

- Montava Seguí, J.J. Teoría del diseño de los tejidos de calada ornamentales y artísticos. Alcoy: Agrupación Empresarial Textil Alcoyana, DL 2001. ISBN 8493163503.
- Morera García, S. Dibujo y ornamentación de tejidos. Tarrasa: [s.n.], 1958.
- Watson, William. Textile design and colour. London: Longmans, 1946.
- Watson, William. Advanced textile design. 3rd ed. London: Longmans, [1948].
- Galcerán Escobet, V. Tecnología del tejido, vol. 1, Teoría de los tejidos. Tarrasa: Editograf PINA, 1960.
- Galcerán Escobet, V. Tecnología del tejido, vol. 2, Análisis de tejidos y técnica de su fabricación. Tarrasa: Editograf PINA, 1961.
- Giudici, Oscarre. Tessuti di lana e di cotone: analisi e fabbricazione. 5a ed. Milano: Ulrico Hoepli, 1945.
- Goerner, Doris. Woven structure and design. Leeds: Wira Technology Group, 1986. ISBN 0900820179.
- Hernández Avellaneda, J. La tejeduría (algodonera). Sant Bartomeu del Grau: [s.n.], 2000. ISBN 8460713326.
- Hoye, John. Tejidos de algodón: nombres, descripciones y usos de los tejidos en crudo, blanqueados, tintados y acabados. Barcelona: Gili, 1952.
- Roca Lleonart, I. Tecnología del diseño en el tejido de calada. Terrassa: Universitat Politècnica de Catalunya, 1988-1998.

Complementary:

- Victori Companys, J. Tisaje: aspectos descriptivos y de análisis en el proceso de tejer. Barcelona: Universitat Politècnica de Catalunya, 1991. ISBN 8476531206.
- Victori Companys, J. Tisaje 2: métodos de trabajo en el proceso de tejer. Barcelona: Universitat Politècnica de Catalunya, 1997. ISBN 8476536410.