320181 - DJ - Jacquard Design

**Coordinating unit:** 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering  
**Teaching unit:** 714 - ETP - Department of Textile and Paper Engineering  
**Academic year:** 2018  
**Degree:** BACHELOR’S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
BACHELOR’S DEGREE IN TEXTILE TECHNOLOGY AND DESIGN ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
**ECTS credits:** 6  
**Teaching languages:** Catalan

### Teaching staff

**Coordinator:** Mònica Ardanuy

### 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 known 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

| Total learning time: 150h | Hours large group: 30h | 20.00% | Hours small group: 30h | 20.00% | Self study: 90h | 60.00% |
## 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

**Related activities:**
- 1

**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

**Learning 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

**Related activities:**
- 2

**Specific objectives:**
- OE3. To know the effects of the number of warps and wefts used.
- OE4. To know the effects of the weaves used.

**Learning 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

**Related activities:**
1, 2

**Specific objectives:**
OE5. Two know the steps to generate a design

<table>
<thead>
<tr>
<th>Learning time: 37h 30m</th>
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<tbody>
<tr>
<td>Theory classes: 15h</td>
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<tr>
<td>Self study : 22h 30m</td>
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</tbody>
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### TOPIC 4. PROCESS OF JACQUARD DESIGN

**Description:**
- 4.1. Previous calculations

**Related activities:**
3

**Specific objectives:**
OE5. Two know the steps to generate a design

<table>
<thead>
<tr>
<th>Learning time: 37h 30m</th>
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</thead>
<tbody>
<tr>
<td>Laboratory classes: 15h</td>
</tr>
<tr>
<td>Self study : 22h 30m</td>
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### 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

<table>
<thead>
<tr>
<th>Learning time: 12h 30m</th>
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</thead>
<tbody>
<tr>
<td>Laboratory classes: 5h</td>
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<tr>
<td>Self study : 7h 30m</td>
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</table>
### TOPIC 6. CAD SIMULATION

<table>
<thead>
<tr>
<th>Learning time:</th>
<th>25h</th>
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<tbody>
<tr>
<td>Laboratory classes:</td>
<td>10h</td>
</tr>
<tr>
<td>Self study :</td>
<td>15h</td>
</tr>
</tbody>
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**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.
## Planning of activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
<th>Description</th>
<th>Support materials</th>
<th>Specific objectives</th>
</tr>
</thead>
</table>
| **ACTIVITY 1. THEORY CLASSES** | **62h 30m** | Theory classes: 25h  
Self study: 37h 30m | Classes of theory  
Basic and complementary bibliography.  
Power point presentations | OE1, OE2, OE3, OE4, OE5, OE6 |
| **ACTIVITY 4. ANALYSIS OF TEXTILE STRUCTURES** | **25h** | Laboratory classes: 10h  
Self study: 15h | To make analysis of complex structures applied to Jacquard fabrics | OE3, OE4, OE5 |
| **ACTIVITY 5. VIRTUAL MATERIALIZATION OF JACQUARD DESIGNS** | **37h 30m** | Laboratory classes: 15h  
Self study: 22h 30m | Simulation with CAD  
Basic and complementary bibliography.  
Power point presentations | OE6 |
### ACTIVITY 2. STUDY OF JACQUARD LOOM

**Hours:** 12h 30m  
Practical classes: 5h  
Self study: 7h 30m

**Description:**  
Analysis of Jacquard looms

**Support materials:**  
Jacquard loom  
Bibliography.  
Power point presentations

**Descriptions of the assignments due and their relation to the assessment:**  
Deliverable

**Specific objectives:**  
OE2

### ACTIVITY 3. IMAGE MODIFICATIONS

**Hours:** 12h 30m  
Laboratory classes: 5h  
Self study: 7h 30m

**Description:**  
Treatment of images

**Support materials:**  
Computers CAD  
Image software

**Descriptions of the assignments due and their relation to the assessment:**  
Image

**Specific objectives:**  
OE5

### Qualification system

Exam: 30%  
Deliverables: 70% (20% 1st term, 50% 2nd term)
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Bibliography

Basic:


Morera García, S. Dibujo y ornamentación de tejidos. Tarrasa: [s.n.], 1958.


Complementary:
