205215 - PCP - Creative Programming with Processing

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 739 - TSC - Department of Signal Theory and Communications
Academic year: 2019
Degree: BACHELOR’S DEGREE IN INDUSTRIAL TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR’S DEGREE IN AEROSPACE TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR’S DEGREE IN AEROSPACE VEHICLE ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR’S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR’S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR’S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR’S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR’S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR’S DEGREE IN TEXTILE TECHNOLOGY AND DESIGN ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR’S DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING (Syllabus 2010). (Teaching unit Optional)
ECTS credits: 3
Teaching languages: English

Teaching staff
Coordinator: IGNASI ESQUERRA LLUCIÀ

Teaching methodology
This is a full practical course taught in a computer laboratory. Each lecture consists in an introduction to new concepts, followed by students' work on programming exercises.

Learning objectives of the subject
Processing is a programming language that was developed for easy use in creating art performances with real-time audiovisual interaction. This course goal is to introduce and learn to program interactive applications using Processing, from the very basics to more advanced topics.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 75h</th>
<th>Hours large group: 30h</th>
<th>40.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours medium group:</td>
<td>0h</td>
<td>0.00%</td>
</tr>
<tr>
<td>Hours small group:</td>
<td>0h</td>
<td>0.00%</td>
</tr>
<tr>
<td>Guided activities:</td>
<td>0h</td>
<td>0.00%</td>
</tr>
<tr>
<td>Self study:</td>
<td>45h</td>
<td>60.00%</td>
</tr>
</tbody>
</table>
## Content

<table>
<thead>
<tr>
<th>Module 1: BASIC COMMANDS</th>
<th>Learning time: 12h 30m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 5h</td>
</tr>
<tr>
<td></td>
<td>Self study : 7h 30m</td>
</tr>
</tbody>
</table>

**Description:**
Introduction to Processing. Basics commands.

**Related activities:**
Project I

<table>
<thead>
<tr>
<th>Module 2: INTERACTION</th>
<th>Learning time: 12h 30m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 5h</td>
</tr>
<tr>
<td></td>
<td>Self study : 7h 30m</td>
</tr>
</tbody>
</table>

**Description:**
Mouse and keyboard interaction.

**Related activities:**
Project II

<table>
<thead>
<tr>
<th>Module 3: IMAGE AND SOUND</th>
<th>Learning time: 12h 30m</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 5h</td>
</tr>
<tr>
<td></td>
<td>Self study : 7h 30m</td>
</tr>
</tbody>
</table>

**Description:**
Image, sound and video processing.

**Related activities:**
Project III

<table>
<thead>
<tr>
<th>Module 4: DATA VISUALIZATION</th>
<th>Learning time: 12h 30m</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 5h</td>
</tr>
<tr>
<td></td>
<td>Self study : 7h 30m</td>
</tr>
</tbody>
</table>

**Description:**
Data visualization.

**Related activities:**
Project IV
### Module 5: COMPUTER VISION

**Learning time:** 12h 30m  
Theory classes: 5h  
Self study: 7h 30m

**Description:**  
Processing of webcam images

**Related activities:**  
Project V

### Module 6: ADVANCED TOPICS

**Learning time:** 12h 30m  
Theory classes: 5h  
Self study: 7h 30m

**Description:**  
Exporting images, videos and applications.

**Related activities:**  
Project VI

### Qualification system

Each module is evaluated with programming exercises. The final grade is the average of tasks. All works must be done individually.

### Bibliography

**Complementary:**
