340456 - PMUD-I7P23 - Cross-Platform and Distributed Programming

Coordinator unit: 340 - EPSEVG - Vilanova i la Geltrú School of Engineering
Teaching unit: 723 - CS - Department of Computer Science
Academic year: 2018
Degree: BACHELOR’S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2018). (Teaching unit Optional) BACHELOR’S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2010). (Teaching unit Optional)
ECTS credits: 6
Teaching languages: Catalan

Teaching staff
Coordinator: Esteve Cusine, Jordi
Others: Esteve Cusine, Jordi

Opening hours
Timetable: See the current timetable in the EPSEVG people list:
https://web3.epsevg.upc.edu/coneix-lepsevg/directori-epsevg

Prior skills
Knowledge of HTML and CSS.

Requirements
Have been passed FOPR, PRO1, ESIN and PROP subjects.

Degree competences to which the subject contributes

Specific:
I_CEFC11. CEFC11. Knowledge and application characteristics, functions and structure of Distributed Systems, Computer Networks and the Internet and design and implement applications based on them.
I_CEFC17. CEFC17. Ability to design and evaluate computer interfaces that guarantee accessibility and usability of informative systems, services and applications.
I_CEIS3. CEIS3. Ability to solve problems of integration in terms of strategies, standards and available technologies.
I CETI3. CETI3. Ability to set up methodologies focused on user and development organization, valuation and application management and systems based on information technologies which secure ergonomic accessibility and use of
I CETI6. CETI6. Ability to design systems, applications and services based on network technologies, including internet, website, e-commerce, multimedia, interactive services and mobile computing.

Transversal:
04 COE N2. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.
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.
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.
340456 - PMUD-I7P23 - Cross-Platform and Distributed Programming

Teaching methodology

Presentation in the classroom, in participatory lessons, of concepts associated with the subjects. Performing individually practices in attendance and non-attendance way.

Mainly workshop, always developed in front of a computer. The student is responsible for his own learning.

Learning objectives of the subject

1. Understanding the implications behind the fact of developing a cross-platform application.
2. Learning to program web multiplatform applications with HTML5, CSS3 and using java-script libraries.
3. Understanding the implications behind the fact of developing on distributed applications.
4. Learning to program web applications and mobile devices that interact with ERP using an API.
5. Obtain the resources to stay current in this rapidly changing world.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 30h</th>
<th>20.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 0h</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>Hours small group: 30h</td>
<td>20.00%</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Self study: 90h</td>
<td>60.00%</td>
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</table>
# 340456 - PMUD-I7P23 - Cross-Platform and Distributed Programming

## Content

<table>
<thead>
<tr>
<th>Multiplatform Programming</th>
<th><strong>Learning time:</strong> 4h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 2h</td>
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<tr>
<td></td>
<td>Self study : 2h</td>
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</table>

**Description:**
Theoretical aspects of Multiplatform Programming

<table>
<thead>
<tr>
<th>Practice 1. Multiplatform Website with Nikola</th>
<th><strong>Learning time:</strong> 6h</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Laboratory classes: 2h</td>
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<tr>
<td></td>
<td>Self study : 4h</td>
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</tbody>
</table>

**Description:**
Develop a Multiplatform Website with Nikola.

<table>
<thead>
<tr>
<th>Practice 2: HTML5 and CSS3</th>
<th><strong>Learning time:</strong> 14h</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Laboratory classes: 4h</td>
</tr>
<tr>
<td></td>
<td>Self study : 10h</td>
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</table>

**Description:**
Develop basic web pages with HTML5 and CSS3. Discovery the new HTML5 and CSS3 features.

<table>
<thead>
<tr>
<th>Practice 3: Java-Script</th>
<th><strong>Learning time:</strong> 20h</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Laboratory classes: 6h</td>
</tr>
<tr>
<td></td>
<td>Self study : 14h</td>
</tr>
</tbody>
</table>

**Description:**
Discovery of Java-Script programming language and its features. Practice developing an interactive static website programmed in Java-Script.

<table>
<thead>
<tr>
<th>Practice 4: jQuery library</th>
<th><strong>Learning time:</strong> 14h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Laboratory classes: 4h</td>
</tr>
<tr>
<td></td>
<td>Self study : 10h</td>
</tr>
</tbody>
</table>

**Description:**
Features and advantages of jQuery library. Development of a small project with HTML5, CSS3 and Java-Script using jQuery.
### Practice 5: AngularJS + Bootstrap frameworks

**Description:**
Development of a small project about a dynamical and multi-platform website with AngularJS + Bootstrap.

**Learning time:** 6h  
Laboratory classes: 2h  
Self study: 4h

### Distributed Programming

**Description:**
Theoretical aspects of Distributed Programming.

**Learning time:** 4h  
Theory classes: 2h  
Self study: 2h

### Practice 6. Installing Tryton ERP and remotely interaction via XML-RPC

**Description:**
Installing Tryton ERP and script programming for the external interaction via XML-RPC.

**Learning time:** 4h  
Laboratory classes: 2h  
Self study: 2h

### Practice 7. Protocol JSON-RPC

**Description:**
Study of the protocol JSON-RPC and see how it is used in communication between server and clients (desktop and web) of Tryton ERP.

**Learning time:** 4h  
Laboratory classes: 2h  
Self study: 2h

### Final project

**Description:**
Develop a web-based application with AngularJS + Bootstrap that can consult the parties (companies, individuals, ...) of Tryton ERP.

**Learning time:** 38h  
Laboratory classes: 8h  
Self study: 30h
340456 - PMUD-I7P23 - Cross-Platform and Distributed Programming

### Research work

**Description:**
Research work around multiplatform and distributed programming. There will be a public presentation in class (30-40 min. exposure + 15 min. questions).

### Learning time:
- Theory classes: 11h
- Self study: 25h

### Qualification system

60% Work done in classroom and evaluation of the applications submitted (30% work during the course, 30% final work).
30% Preparation and public presentation of a technical work analyzing the state of the question.
10% Participation and motivation (if any additional activity is necessary for this last 10%, it may be in the form of a control or mini-test).

Because 100% of the subject is evaluated with practical work, there is not a final control or a review control in the form of a written test.

### Bibliography