300042 - DSA - Service and Application Design

Coordinating unit: 300 - EETAC - Castelldefels School of Telecommunications and Aerospace Engineering
Teaching unit: 701 - DAC - Department of Computer Architecture
744 - ENTEL - Department of Network Engineering

Academic year: 2019
Degree: BACHELOR’S DEGREE IN AEROSPACE SYSTEMS ENGINEERING/BACHELOR’S DEGREE IN NETWORK ENGINEERING (Syllabus 2015). (Teaching unit Compulsory)
BACHELOR’S DEGREE IN NETWORK ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
BACHELOR’S DEGREE IN AEROSPACE SYSTEMS ENGINEERING (Syllabus 2015). (Teaching unit Optional)
BACHELOR’S DEGREE IN AIR NAVIGATION ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR’S DEGREE IN AIRPORT ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR’S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional)

ECTS credits: 10  Teaching languages: Catalan, Spanish

Teaching staff
Coordinator: Definit a la infoweb de l’assignatura.
Others: Definit a la infoweb de l’assignatura.

Prior skills
- Basic knowledge of object oriented programming language
- Basic skills in programming
- Knowledge of transport and application layer protocols

Degree competences to which the subject contributes

Specific:
1. CE 23 TEL. Capacidad de construir, explotar y gestionar servicios telemáticos utilizando herramientas analíticas de planificación, de dimensionado y de análisis. (CIN/352/2009, BOE 20.2.2009.)
2. CE 26 TEL. Capacidad de diseñar arquitecturas de redes y servicios telemáticos. (CIN/352/2009, BOE 20.2.2009.)

General:
5. PROJECT MANAGEMENT - Level 3: Define the objectives of an extensive project and open, multidisciplinary.
   Schedule tasks and resources, track and integration of the parties. To evaluate the intermediate and final results,
   restating the objectives if necessary.
8. EFFICIENT USE OF EQUIPMENT AND INSTRUMENTS - Level 1: Using instruments, equipment and software from
   the laboratories of general or basic use. Realising experiments and proposed practices and analyzing obtained results.

Transversal:
3. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its
   relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most
   suitable information sources.
4. 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.
6. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in
   with the future needs of the graduates of each course.
7. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working
   with others, assessing the effectiveness of a team and presenting the final results.
9. EFFECTIVE USE OF INFORMATION RESOURCES - Level 2. Designing and executing a good strategy for advanced searches using specialized information resources, once the various parts of an academic document have been identified and bibliographical references provided. Choosing suitable information based on its relevance and quality.

Teaching methodology

Course applies the following methodologies:
- Autonomous learning
- Cooperative learning
- Project based learning
- Autoevaluation
- Laboratory

Learning objectives of the subject

- Intermediate Java skills
- Use and design of relational databases
- Design and development of RESTful web services
- Design and development of Android Applications
- Design and development of web user interfaces with HTML5 and jQuery
- Real project design and development

Study load

<table>
<thead>
<tr>
<th>Total learning time: 250h</th>
<th>Hours large group:</th>
<th>0h</th>
<th>0.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
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<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>Hours small group:</td>
<td>70h</td>
<td>28.00%</td>
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<tr>
<td></td>
<td>Guided activities:</td>
<td>40h</td>
<td>16.00%</td>
</tr>
<tr>
<td></td>
<td>Self study:</td>
<td>140h</td>
<td>56.00%</td>
</tr>
<tr>
<td>Topic</td>
<td>Learning time</td>
<td>Related activities:</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------</td>
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<td>---------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Introduction to Java development with Maven and Git</strong></td>
<td><strong>3h</strong></td>
<td>(ENG) 1</td>
<td></td>
</tr>
<tr>
<td><strong>Version Control with Git</strong></td>
<td><strong>8h</strong></td>
<td>Guided activities: 3h  Self study : 5h</td>
<td></td>
</tr>
<tr>
<td><strong>Java basics</strong></td>
<td><strong>36h</strong></td>
<td>Guided activities: 6h  Self study : 30h</td>
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</tr>
<tr>
<td><strong>Databases and JDBC</strong></td>
<td><strong>12h</strong></td>
<td>Laboratory classes: 4h  Guided activities: 3h  Self study : 5h</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
(ENG) 3.1 Direccions IP, URLs i URIs
3.2 Sockets per a clients
3.3 Sockets per a servidors
3.4 Datagrames i sockets UDP
3.5 Sockets multicast
3.6 Connexions URL
3.7 Apache HttpClient

(ENG) 1
<table>
<thead>
<tr>
<th>Topic</th>
<th>Learning time:</th>
<th>Laboratory classes:</th>
<th>Guided activities:</th>
<th>Self study:</th>
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<tbody>
<tr>
<td>Java Web Applications with Servlets and JSP</td>
<td>21h</td>
<td>8h</td>
<td>3h</td>
<td>10h</td>
</tr>
<tr>
<td>RESTful web services</td>
<td>54h</td>
<td>15h</td>
<td>9h</td>
<td>30h</td>
</tr>
<tr>
<td>Web user interfaces with Bootstrap and jQuery</td>
<td>28h</td>
<td>10h</td>
<td>3h</td>
<td>15h</td>
</tr>
<tr>
<td>Android development introduction</td>
<td>28h</td>
<td>10h</td>
<td>3h</td>
<td>15h</td>
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</tbody>
</table>
Planning of activities

<table>
<thead>
<tr>
<th>(ENG) TÍTOL ACTIVITAT 1: PROJECTE</th>
<th>Hours: 250h</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Laboratory classes: 75h</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 35h</td>
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<tr>
<td></td>
<td>Self study: 140h</td>
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</tbody>
</table>

Qualification system

The weights to calculate the final qualification are:
- Deliver in time the course tasks (10%)
- Exams (40%)
- Project (40%)
- Attitude and involvement (10%)

The task delivery is evaluated with the maximum between the exams qualification and project qualification if all the tasks have been delivered in time, and with zero if not.

The project is evaluated with an average group qualifications. Students divide the qualification in such a way that the final average is equal to the average qualification given by the teachers.

Bibliography

Basic:


Complementary:

Northover, Steve; Wilson, Mike. SWT, the standard widget toolkit. Boston [etc.]: Addison-Wesley, 2004-. ISBN 0321256638.

Others resources: