230152 - CSI - Information Security and Coding

Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit: 744 - ENTEL - Department of Network Engineering
Academic year: 2017
Degree: BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Teaching unit Optional)
BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Teaching unit Optional)
ECTS credits: 6

Teaching languages: Spanish

Teaching staff
Coordinator: Rico Novella, Francisco Jose
Others: Forne Muñoz, Jorge

Teaching methodology
- Lectures
- Application lectures
- Teamwork
- Individual work
- Presentations
- Written exams

Learning objectives of the subject

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group:</th>
<th>52h</th>
<th>34.67%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study:</td>
<td>98h</td>
<td></td>
<td>65.33%</td>
</tr>
</tbody>
</table>
## Content

<table>
<thead>
<tr>
<th><strong>1. Theory of channel coding</strong></th>
<th><strong>Learning time:</strong> 35h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 9h</td>
</tr>
<tr>
<td></td>
<td>Practical classes: 3h</td>
</tr>
<tr>
<td></td>
<td>Self study: 23h</td>
</tr>
</tbody>
</table>

**Description:**
- Lineal codes
- Cyclic codes
- Practical codes: BCH, Reed-Solomon

<table>
<thead>
<tr>
<th><strong>2. Convolutional codes and coded modulation</strong></th>
<th><strong>Learning time:</strong> 30h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 8h</td>
</tr>
<tr>
<td></td>
<td>Practical classes: 2h</td>
</tr>
<tr>
<td></td>
<td>Self study: 20h</td>
</tr>
</tbody>
</table>

**Description:**
- Coding and decoding convolutional codes
- Coded Modulation
- Turbocodes

<table>
<thead>
<tr>
<th><strong>(ENG) 3. Concatenation of Codes. Analysis.</strong></th>
<th><strong>Learning time:</strong> 10h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 3h</td>
</tr>
<tr>
<td></td>
<td>Practical classes: 1h</td>
</tr>
<tr>
<td></td>
<td>Self study: 6h</td>
</tr>
</tbody>
</table>

**Description:**
- Channel modes
- Inner and outer coding and interleaving
- User probability of error

<table>
<thead>
<tr>
<th><strong>4. Network security fundamentals</strong></th>
<th><strong>Learning time:</strong> 10h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 4h</td>
</tr>
<tr>
<td></td>
<td>Self study: 6h</td>
</tr>
</tbody>
</table>

**Description:**
- Security services and mechanisms
- Symmetric cryptography and public-key cryptography
- Digital signature
- Perimeter security
Planning of activities

**ENG** PRESENTACIONES ORALES

**ENG** EXAMEN DE RESPUESTAS LARGAS

Qualification system

The final grade will be obtained from the continuous assessment (active participation in class and delivery of work) and the final exam, according to:

Final exam: 60%
Presentations and teamwork: 30%
Active participation in class: 10%
230152 - CSI - Information Security and Coding

Bibliography

**Basic:**


**Complementary:**


**Others resources:**