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:** 2019
**Degree:** BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Teaching unit Optional)
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN NETWORK ENGINEERING (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: 52h</th>
<th>Self study: 98h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34.67%</td>
<td>65.33%</td>
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</table>
### Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Learning time</th>
<th>Theory classes</th>
<th>Practical classes</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Theory of channel coding</td>
<td>Lineal codes; Cyclic codes; Practical codes: BCH, Reed-Solomon</td>
<td>35h</td>
<td>9h</td>
<td>3h</td>
<td>23h</td>
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<tr>
<td>2. Convolutional codes and coded modulation</td>
<td>Coding and decoding convolutional codes; Coded Modulation; Turbocodes.</td>
<td>30h</td>
<td>8h</td>
<td>2h</td>
<td>20h</td>
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<tr>
<td>(ENG) 3. Concatenation of Codes. Analysis.</td>
<td>Channel modes; Inner and outer coding and interleaving; User probability of error.</td>
<td>10h</td>
<td>3h</td>
<td>1h</td>
<td>6h</td>
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<tr>
<td>4. Network security fundamentals</td>
<td>Security services and mechanisms. Symmetric cryptography and public-key cryptography; digital signature; Perimeter security.</td>
<td>10h</td>
<td>4h</td>
<td>6h</td>
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## 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%

### 5. Authentication and Key Management.

**Learning time:** 25h  
Theory classes: 6h  
Practical classes: 2h  
Self study: 17h

**Description:**  
Authentication protocols and mechanisms; Key management protocols; Public Key infrastructures (PKI); Trust models.

### 6. Internet Security Protocols

**Learning time:** 25h  
Theory classes: 6h  
Practical classes: 2h  
Self study: 17h

**Description:**  
IP Security and Virtual Private Networks; Email security; Web security

### 7. Privacy

**Learning time:** 15h  
Theory classes: 4h  
Practical classes: 2h  
Self study: 9h

**Description:**  
Anonymous communication systems; statistical disclosure control (SDC)
Bibliography

Basic:


Complementary:


Others resources: