

## 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

Total learning time: 150h	Hours large group:	52h	34.67%
	Self study:	98h	65.33%

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### Content

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

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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)	

### 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%

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### Bibliography

#### Basic:

Stallings, W. Cryptography and network security: principles and practice. 6th ed. Boston: Prentice Hall, 2014. ISBN 9780273793359.

Rifà, J.; Huguet, L. Comunicació digital: teoria matemàtica de la informació, codificació algebraica, criptologia. Barcelona: Masson, 1991. ISBN 8431105763.

#### Complementary:

López García, C.; Fernández Veiga, M. Teoría de la información y codificación. 2a ed. Vigo: Universidad de Vigo, 2013. ISBN 9788484087328.

#### Others resources: