Course guides
230152 - CSI - Information Security and Coding

Last modified: 29/04/2020

Unit in charge: Barcelona School of Telecommunications Engineering
Teaching unit: 744 - ENTEL - Department of Network Engineering.

Degree: BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2010). (Optional subject).
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Optional subject).
BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Optional subject).

Academic year: 2020 **ECTS Credits:** 6.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: 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

Type	Hours	Percentage
Hours large group	52,0	34.67
Self study	98,0	65.33

Total learning time: 150 h

CONTENTS

1. Theory of channel coding

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

Full-or-part-time: 35h
Theory classes: 9h
Practical classes: 3h
Self study : 23h

2. Convolutional codes and coded modulation

Description:
Coding and decoding convolutional codes; Coded Modulation; Turbocodes.

Full-or-part-time: 30h
Theory classes: 8h
Practical classes: 2h
Self study : 20h

(ENG) 3. Concatenation of Codes. Analysis.

Description:
Channel modes; Inner and outer coding and interleaving; User probability of error.

Full-or-part-time: 10h
Theory classes: 3h
Practical classes: 1h
Self study : 6h

4. Network security fundamentals

Description:
Security services and mechanisms. Symmetric crytography and public-key cryptography; digital signature; Perimeter security.

Full-or-part-time: 10h
Theory classes: 4h
Self study : 6h

5. Authentication and Key Management.

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

Full-or-part-time: 25h
Theory classes: 6h
Practical classes: 2h
Self study : 17h

6. Internet Security Protocols

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

Full-or-part-time: 25h
Theory classes: 6h
Practical classes: 2h
Self study : 17h

7. Privacy

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

Full-or-part-time: 15h
Theory classes: 4h
Practical classes: 2h
Self study : 9h

ACTIVITIES

(ENG) PRESENTACIONES ORALES

(ENG) EXAMEN DE RESPUESTAS LARGAS

GRADING SYSTEM

The final grade will be obtained from the continous assesment (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%

BIBLIOGRAPHY

Basic:
- Rifà, J.; Huguet, L. Comunicación digital: teoría matemática de la información, codificación algebraica, criptología. Barcelona: Masson, 1991. ISBN 8431105763.
- Stallings, W. Cryptography and network security: principles and practice [on line]. 7th ed. Boston: Prentice Hall, 2017 [Consultation: 03/07/2020]. Available on: https://ebookcentral.proquest.com/lib/upcatalunya-ebooks/detail.action?docID=5186001. ISBN 9781292158587.

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