Course guide
230714 - NSAA - Network Security: Authentication and Authorisation

Last modified: 11/04/2025

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

Degree: MASTER'S DEGREE IN TELECOMMUNICATIONS ENGINEERING (Syllabus 2013). (Optional subject).
MASTER'S DEGREE IN ADVANCED TELECOMMUNICATION TECHNOLOGIES (Syllabus 2019). (Optional subject).
MASTER'S DEGREE IN CYBERSECURITY (Syllabus 2020). (Compulsory subject).

Academic year: 2025 **ECTS Credits:** 5.0 **Languages:** English

LECTURER

Coordinating lecturer: JUAN BAUTISTA HERNANDEZ SERRANO

Others:

PRIOR SKILLS

Basic knowledge of Linux OS.
Understanding of security-related topics; for instance: cryptography, network security protocols, etc.
Medium-average computer programming skills.

TEACHING METHODOLOGY

Theoretical classes encouraging the students to participate in the class discussion
Lab sessions that reinforce the contents learnt during the theoretical classes and put them into practice.

LEARNING OBJECTIVES OF THE SUBJECT

Upon finishing this course, students should be able to understand how authentication and authorization methods and protocols work at the different OSI layer, to identify the potential threats, and to know best practises and countermeasures.

STUDY LOAD

Type	Hours	Percentage
Hours small group	19,5	15.60
Hours large group	19,5	15.60
Self study	86,0	68.80

Total learning time: 125 h

CONTENTS

Crypto Background

Description:
An overview of the necessary cryptographic background

Full-or-part-time: 19h
Laboratory classes: 6h
Self study : 13h

Authentication Protocols

Description:
Understanding authentication protocols based on something you have, something you are and/or something you know. It includes replay attacks, nonces, SK authentication, PK authentication, DS authentication, passwords, hashed passwords, password cracking, biometrics, 2-factor authentication.

Full-or-part-time: 48h
Laboratory classes: 15h
Self study : 33h

Access Authentication

Description:
Access Authentication, PAP; CHAP, MSCHAP, EAP, RADIUS, DIAMETER, WPA-Enterprise

Full-or-part-time: 19h
Laboratory classes: 6h
Self study : 13h

Web Authentication

Description:
Sessions, Tokens, OAuth, OpenID connect

Full-or-part-time: 19h
Laboratory classes: 6h
Self study : 13h

Mid-term exam

Description:
Theory and lab

Full-or-part-time: 10h
Laboratory classes: 3h
Self study : 7h

Final exam

Description:
Final exam: theory and lab

Full-or-part-time: 10h
Laboratory classes: 3h
Self study : 7h

GRADING SYSTEM

Mid-term exam: 30%
Final exam: 40%
Assignments: 20%
Attitude: 10%