Last update: 04-07-2019

230714 - NSAA - Network Security - Authentication and Authorization

Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit: 744 - ENTEL - Department of Network Engineering
Academic year: 2018
Degree: MASTER'S DEGREE IN TELECOMMUNICATIONS ENGINEERING (Syllabus 2013). (Teaching unit Optional)
ECTS credits: 5 Teaching languages: English

Teaching staff

Coordinator: JUAN BAUTISTA HERNANDEZ SERRANO

Others: Segon quadrimestre:
JUAN BAUTISTA HERNANDEZ SERRANO - 31

Prior skills

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

Requirements

Network Security

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

Total learning time: 125h	Hours small group:	39h	31.20%
	Self study:	86h	68.80%

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Content

Crypto Background

Learning time: 19h
Laboratory classes: 6h
Self study : 13h

Description:
An overview of the necessary cryptographic background

Authentication Protocols

Learning time: 48h
Laboratory classes: 15h
Self study : 33h

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.

Access Authentication

Learning time: 19h
Laboratory classes: 6h
Self study : 13h

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

Web Authentication

Learning time: 19h
Laboratory classes: 6h
Self study : 13h

Description:
Sessions, Tokens, OAuth, OpenID connect

Mid-term exam

Learning time: 10h
Laboratory classes: 3h
Self study : 7h

Description:
Theory and lab

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Final exam	Learning time: 10h Laboratory classes: 3h Self study : 7h
Description: Final exam: theory and lab	

Qualification system

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

Bibliography