Course guides
230714 - NSAA - Network Security - Authentication and Authorization

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).
Academic year: 2018  ECTS Credits: 5.0  Languages: English

LECTURER
Coordinating lecturer: 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

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>86,0</td>
<td>68.80</td>
</tr>
<tr>
<td>Hours small group</td>
<td>39,0</td>
<td>31.20</td>
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</tbody>
</table>

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%