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

Total learning time: 125 h
### CONTENTS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
<th>Full-or-part-time</th>
<th>Laboratory classes</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crypto Background</strong></td>
<td>An overview of the necessary cryptographic background</td>
<td>19 h</td>
<td>6 h</td>
<td>13 h</td>
</tr>
<tr>
<td><strong>Authentication Protocols</strong></td>
<td>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.</td>
<td>48 h</td>
<td>15 h</td>
<td>33 h</td>
</tr>
<tr>
<td><strong>Access Authentication</strong></td>
<td>Access Authentication, PAP; CHAP, MSCHAP, EAP, RADIUS, DIAMETER, WPA-Enterprise</td>
<td>19 h</td>
<td>6 h</td>
<td>13 h</td>
</tr>
<tr>
<td><strong>Web Authentication</strong></td>
<td>Sessions, Tokens, OAuth, OpenID connect</td>
<td>19 h</td>
<td>6 h</td>
<td>13 h</td>
</tr>
<tr>
<td><strong>Mid-term exam</strong></td>
<td>Theory and lab</td>
<td>10 h</td>
<td>3 h</td>
<td>7 h</td>
</tr>
</tbody>
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**Final exam**

**Description:**
Final exam: theory and lab

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

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**GRADING SYSTEM**

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