Course guides
230156 - GI - Internet Management

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

Degree:
- BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Optional subject).
- BACHELOR’S DEGREE IN ELECTRONIC SYSTEMS ENGINEERING (Syllabus 2009). (Optional subject).
- 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 SYSTEMS ENGINEERING (Syllabus 2010). (Optional subject).
- BACHELOR’S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Optional subject).
- BACHELOR’S DEGREE IN ELECTRONIC ENGINEERING AND TELECOMMUNICATION (Syllabus 2018). (Optional subject).

Academic year: 2021  ECTS Credits: 6.0  Languages: Spanish

LECTURER
Coordinating lecturer: ANTONIO BARBA
Others: ANTONIO BARBA

PRIOR SKILLS
ETSETB Academic regulations.

TEACHING METHODOLOGY
NO classes.
- Practices (local or remote).
- Group work (distance learning).
- Individual work (distance learning).
- Exercises.
- Testing short answer.
- Testing llarga response.
- Other activities.

LEARNING OBJECTIVES OF THE SUBJECT

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>98,0</td>
<td>65.33</td>
</tr>
<tr>
<td>Hours large group</td>
<td>52,0</td>
<td>34.67</td>
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</tbody>
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Total learning time: 150 h
## Internet Management

**Description:**
- Internet Monitoring Introduction
- Management Information Base
- Internet Management Protocols
- Web based services, Policy based internet management, Configuration Management

**Specific objectives:**
- To distinguish between internet monitoring and internet management
- To know different internet management databases
- To distinguish among the current internet management protocols
- To understand the new internet management systems

**Related activities:**
- Virtual laboratory practise
- Specific homeworking
- Debate forum

**Full-or-part-time:** 13h
Self study : 13h

### 2. Structure of Management Information (SMI)

**Description:**
- Description, notation and definition of the management information
  - Tree structure
  - Object identifier, naming, registration

**Full-or-part-time:** 9h
Practical classes: 4h
Self study : 5h

### 3. MIB, Management Information Base

**Description:**
- The management information is defined and implemented by means of MIBs
  - MIB structure
  - MIB examples
  - Practical use

**Full-or-part-time:** 20h
Practical classes: 8h
Self study : 12h
4. SNMP versions 1 & 2 protocols

**Description:**
Primitives definition. Architecture aspects. Performance evaluation, compatibility, tools, management procedures
- SNMP evolution
- Primitive definitions
- Architectures
- Tools and practical cases

**Full-or-part-time:** 24h  
Practical classes: 8h  
Self study : 16h

5. SNMP version 3 protocol

**Description:**
Primitive description of the protocol. Comparative analysis with previous versions, performance, functionalities
- Primitives and administration
- Architecture
- Tools

**Full-or-part-time:** 15h  
Practical classes: 4h  
Self study : 11h

6. RMON Remote Monitoring

**Description:**
Structure description. Architecture, functionality and procedures
- Remote monitoring architecture
- RMONv1 and RMONv2
- Practical cases

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

7. Monitoring applications

**Description:**
Applications architecture. Practical use of free software tools
- Functionalities and architecture of te applications
- Vendor tools
- Free software tools

**Full-or-part-time:** 17h  
Practical classes: 4h  
Self study : 13h
8. Policy based management. COPS protocol

Description:
A new management paradigm to apply to multimedia services and quality of service
- Definition and architecture
- COPS protocol

Full-or-part-time: 14h
Practical classes: 4h
Self study: 10h

9. Configuration management using NetConf and YANG

Description:
New configuration systems using files
- NetConf
- YANG

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

10. Web services based on management

Description:
The use of web servers requires a new system management based on web services
- Java management, JMAPI, JMX
- WBM and XML/DTD/Schema representation

Full-or-part-time: 18h
Practical classes: 8h
Self study: 10h

ACTIVITIES

(ENG) PRÁCTICAS (AL MENOS UNA EN CADA TEMA)

(ENG) EJERCICIOS: (AL MENOS UNO EN CADA TEMA)

(ENG) CONTROLES DE RESPUESTA CORTA: 10

(ENG) EXAMEN DE RESPUESTAS LARGAS: A MITAD DEL CURSO Y AL FINAL
GRADING SYSTEM

Final mark of the course will be obtained: either from the continuous assessment score (proposed by the professor throughout the course work and laboratory practice) or final exam, according to the following criteria:

Final exam: 100%
Continuous Assessment: Two partial tests: 30% + 30%
  - Exercises: 20%
  - Practices: 20%

BIBLIOGRAPHY

Basic:

Complementary: