230156 - GI - Internet Management

Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit: 744 - ENTEL - Department of Network Engineering
Academic year: 2019
Degree: BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR'S DEGREE IN ELECTRONIC SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Teaching unit Optional)
ECTS credits: 6
Teaching languages: Spanish

Teaching staff
Coordinator: 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>Total learning time: 150h</th>
<th>Hours large group: 52h</th>
<th>34.67%</th>
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<tbody>
<tr>
<td></td>
<td>Self study: 98h</td>
<td>65.33%</td>
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| **Internet Management** | **Learning time:** 13h  
Self study : 13h |
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<tbody>
<tr>
<td><strong>Description:</strong></td>
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| Internet Monitoring Introduction  
Management Information Base  
Internet Management Protocols  
Web based services, Policy based internet management, Configuration Management |
| **Related activities:**  |                     |
| - Virtual laboratory practise  
- Specific homeworking  
- Debate forum |
| **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 |

| **2. Structure of Management Information (SMI)** | **Learning time:** 9h  
Practical classes: 4h  
Self study : 5h |
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<tr>
<td><strong>Description:</strong></td>
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</table>
| Description, notation and definition of the management information  
- Tree structure  
- Object identifier, naming, registration |

| **3. MIB, Management Information Base** | **Learning time:** 20h  
Practical classes: 8h  
Self study : 12h |
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<tr>
<td><strong>Description:</strong></td>
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</table>
| The management information is defined and implemented by means of MIBs  
- MIB structure  
- MIB examples  
- Practical use |
### 4. SNMP versions 1 & 2 protocols

**Learning time:** 24h  
**Practical classes:** 8h  
**Self study:** 16h  

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

### 5. SNMP version 3 protocol

**Learning time:** 15h  
**Practical classes:** 4h  
**Self study:** 11h  

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

### 6. RMON Remote Monitoring

**Learning time:** 10h  
**Practical classes:** 4h  
**Self study:** 6h  

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

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

**Learning 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

**Learning time:** 14h
- Practical classes: 4h
- Self study: 10h

### 9. Configuration management using NetConf and YANG

**Description:**
- New configuration systems using files
  - NetConf
  - YANG

**Learning 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

**Learning time:** 18h
- Practical classes: 8h
- Self study: 10h
Planning of 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

Qualification 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:


Others resources: