# 230156 - GI - Internet Management

**Coordinating unit:** 230 - ETSETB - Barcelona School of Telecommunications Engineering  
**Teaching unit:** 744 - ENTEL - Department of Network Engineering  
**Academic year:** 2018  
**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

| Total learning time: 150h | Hours large group: 52h | 34.67% | Self study: 98h | 65.33% |
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## Content

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<thead>
<tr>
<th>Internet Management</th>
<th>Learning time: 13h</th>
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<tr>
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<td>Self study : 13h</td>
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### Description:
- 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 |
<table>
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<tbody>
<tr>
<td>Description:</td>
<td>Practical classes: 4h</td>
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<td>Self study : 5h</td>
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### Description:
- Description, notation and definition of the management information
  - Tree structure
  - Object identifier, naming, registration

### 3. MIB, Management Information Base | Learning time: 20h |
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<tbody>
<tr>
<td>Description:</td>
<td>Practical classes: 8h</td>
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<tr>
<td></td>
<td>Self study : 12h</td>
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</tbody>
</table>

### Description:
- 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
<table>
<thead>
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<th>7. Monitoring applications</th>
<th>Learning time: 17h</th>
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<tbody>
<tr>
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<td>Practical classes: 4h</td>
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<tr>
<td></td>
<td>Self study: 13h</td>
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**Description:**
Applications architecture. Practical use of free software tools
- Functionalities and architecture of the applications
- Vendor tools
- Free software tools

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<tr>
<th>8. Policy based management. COPS protocol</th>
<th>Learning time: 14h</th>
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<tr>
<td></td>
<td>Practical classes: 4h</td>
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<td>Self study: 10h</td>
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**Description:**
A new management paradigm to apply to multimedia services and quality of service
- Definition and architecture
- COPS protocol

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<tr>
<th>9. Configuration management using NetConf and YANG</th>
<th>Learning time: 10h</th>
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<tr>
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<td>Practical classes: 4h</td>
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<td>Self study: 6h</td>
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</table>

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

<table>
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<tr>
<th>10. Web services based on management</th>
<th>Learning time: 18h</th>
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<td>Practical classes: 8h</td>
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<td>Self study: 10h</td>
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**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
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: