230025 - CM - Multimedia Communications

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 AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN NETWORK 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: Jorge Mata Diaz
Others: Juan José Alins Delgado

Prior skills

Basic understanding of IP protocols
TCP and UDP Socket Programming
Fundamentals of source coding, channel coding and cryptography
Fundamentals of digitization and quantification of sound and image

Requirements

Data Transmission - Prerequisite
Audiovisual Signal Processing and Communications - Prerequisite
Applications and Telematic Services - Prerequisite

Degree competences to which the subject contributes

Generical:

1. They will have acquired knowledge related to experiments and laboratory instruments and will be competent in a laboratory environment in the ICC field. They will know how to use the instruments and tools of telecommunications and electronic engineering and how to interpret manuals and specifications. They will be able to evaluate the errors and limitations associated with simulation measures and results.
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Teaching methodology

- Application class
- Lectures
- Laboratory classes
- Group assignment
- Individual assignment
- Test with long answer
- Lab Test
- Laboratory

Learning objectives of the subject

The objective of this course is to train students in aspects of multimedia communications used by audiovisual services and applications. Starting from basics of capture and storage of audiovisual information, the student will acquire the skills needed to locate, request and transport multimedia information over IP networks. Related to the multimedia services to deploy the necessary metrics will be established in order to determine a level of quality experienced by the user.

The expected student learning outcomes are:

a) Have ability to build, operate and manage services and telecom applications, particularly those related multimedia audiovisual services and applications, including acquisition systems, analog and digital processing, coding, transport, representation, processing, storage, reproduction, management and presentation of these services and applications.

b) Has ability to create, encode, manage, disseminate, distribute, multimedia content, based on criteria of usability and accessibility of audiovisual, broadcast and interactivity.

c) Planning and use the necessary information for a project or academic work.

d) Design experiments and steps to verify hypotheses or to validate the operation of equipment, process, systems or services in the ICT field. Select equipment and performs advanced data analysis with software tools.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 39h</th>
<th>26.00%</th>
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<tbody>
<tr>
<td></td>
<td>Hours small group: 26h</td>
<td>17.33%</td>
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<tr>
<td></td>
<td>Self study: 85h</td>
<td>56.67%</td>
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## Content

<table>
<thead>
<tr>
<th>(ENG) Introduction to Multimedia Communications</th>
<th>Learning time: 47h</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>Theory classes: 8h</td>
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<tr>
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<td>Self study : 28h</td>
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<table>
<thead>
<tr>
<th>(ENG) Multimedia Data Transport over IP networks</th>
<th>Learning time: 65h</th>
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<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>Theory classes: 18h</td>
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<tr>
<td>Characteristics of multimedia traffic. Encapsulation of audiovisual contents. Transport protocols. Transport protocols for real time communications. Real time control protocol for media transport.</td>
<td>Laboratory classes: 13h</td>
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<td>Self study : 34h</td>
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<tr>
<th>(ENG) Multimedia Content Delivery over IP networks</th>
<th>Learning time: 10h</th>
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<tr>
<td><strong>Description:</strong></td>
<td>Theory classes: 3h</td>
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<tr>
<td>IP routing multicast. Management multicast groups. Interconnection of multicast networks</td>
<td>Laboratory classes: 1h</td>
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<td>Self study : 6h</td>
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<tr>
<th>(ENG) Establishing and controlling multimedia sessions</th>
<th>Learning time: 13h</th>
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<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>Theory classes: 5h</td>
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<tr>
<td>Multimedia session concept. Description multimedia sessions. Multimedia sessions announcements. Protocols for establishing multimedia sessions.</td>
<td>Laboratory classes: 1h</td>
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<td>Self study : 7h</td>
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Evaluation:
Attendance: 10%
Individual and group: 10%
Quizzes: 45%
Practice tests: 35%

This course will assess generic skills:
- Knowledge of instrumentation and experimental (High Level)

Bibliography

Basic:

Complementary: