

340360 - XAMU-C9X44 - Multimedia Networks

Coordinating unit:	340 - EPSEVG - Vilanova i la Geltrú School of Engineering
Teaching unit:	744 - ENTEL - Department of Network Engineering
Academic year:	2019
Degree:	BACHELOR'S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2018). (Teaching unit Compulsory) BACHELOR'S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2010). (Teaching unit Compulsory) BACHELOR'S DEGREE IN ELECTRONIC SYSTEMS ENGINEERING (Syllabus 2010). (Teaching unit Optional)
ECTS credits:	6
Teaching languages:	Catalan, Spanish, English

Teaching staff

Coordinator:	Rafael Morillas Varón
Others:	Rafael Morillas Varón

Prior skills

It is recommended to have attended previous courses Computer Networks (Q4) and Internet (Q5).

Degree competences to which the subject contributes

Specific:

1. CETI1. Ability to understand the environment of an organization and its needs in the field of information technology and communications.
2. CETI2. Ability to select, design, develop, integrate, value, construct, manage, exploit and maintain technologies of machines, programming and nets, keeping suitable costs and quality parameters.
3. CETI4. Ability to select, design, deploy, integrate and manage network and communications infrastructure in an organization.
4. CETI6. Ability to design systems, applications and services based on network technologies, including internet, website, e-commerce, multimedia, interactive services and mobile computing.

Transversal:

5. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
6. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.
7. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.

Teaching methodology

The course has been designed following a methodology adapted to the new EEES, and focuses the learning on the student. The method will be PBL, this method increases the implication of the student and helps them be continuously evaluated, helping them to improve the basis learned in the theoretical lessons.

is designed to Siguiendo a methodology adapted to the new European Space for Higher Education Area (EHEA), and ye focused on estudiante Learning. Methods will be applied to the Problem Based Learning (PBL), the implications of this Método mejora estudiante y su ayuda in Assessment continuously reforzando and complementando them conocimientos adquiridos in las clases theoretical.

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Learning objectives of the subject

The objectives of the course are distributed in a descending pattern. After an introduction / presentation of the subject, the multimedia applications are defined and their requirements to the network architecture for an efficient transport. After that, a general introduction to the techniques of data compression. Once we've got that basis, transport protocols are studied due to its common use in Internet. Afterwards techniques related with video transportation are shown, as congestion control, error protection, etc. Finally the most common network technologies for transporting multimedia data will be shown.

Study load

Total learning time: 150h	Hours large group:	45h	30.00%
	Hours medium group:	0h	0.00%
	Hours small group:	15h	10.00%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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Content

Introction	Learning time: 16h Theory classes: 8h Self study : 8h
Multimedia Applications	Learning time: 16h Theory classes: 8h Self study : 8h
Multimedia Transport Protocols	Learning time: 12h Theory classes: 6h Self study : 6h
Planning and monitoring mechanisms	Learning time: 16h Theory classes: 8h Self study : 8h
Integrated Services	Learning time: 9h Theory classes: 4h Self study : 5h
RSVP	Learning time: 9h Theory classes: 4h Self study : 5h
Differentiated Services	Learning time: 9h Theory classes: 4h Self study : 5h

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<p>Activity 1</p>	<p>Learning time: 10h Guided activities: 2h Self study : 8h</p>
<p>Description: Classroom presentation on a topic of interest</p>	
<p>Activity 2</p>	<p>Learning time: 10h Guided activities: 2h Self study : 8h</p>
<p>Description: Study, presentations and demonstrations of a multimedia product or service</p>	
<p>Practice 1</p>	<p>Learning time: 8h Laboratory classes: 4h Self study : 4h</p>
<p>Description: Multimedia protocols: Analysis and Operation</p>	
<p>Practice 2</p>	<p>Learning time: 12h Laboratory classes: 4h Self study : 8h</p>
<p>Description: Multimedia data compression: algorithms and products</p>	
<p>Practice 3</p>	<p>Learning time: 8h Laboratory classes: 4h Self study : 4h</p>
<p>Description: Multimedia data compression: tools and products</p>	

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Practice 4	Learning time: 10h Laboratory classes: 2h Self study : 8h
Description: Multimedia Applications	

Qualification system

The evaluation of the subject, is divided in theory/problems (60%) and practice/activities (40%). The theory grade / problems will be determined through two exams that are the continuous evaluation of the subject, those exams count about 40% and 60% each one.

$$N_Theory = \max [0.4 (\text{Midterm ex.}) + 0.6 (\text{Final ex.}), \text{Final ex.}]$$

$$N_Subject = 0.6 (N_Theory) + 0.3 (N_Practice) + 0.1 (N_Activities)$$

Bibliography

Basic:

Kurose, James F.; Ross, Keith W. *Redes de computadoras : un enfoque descendente*. 5a ed. Madrid [etc.]: Pearson, 2010. ISBN 9788478291199.

Halsall, Fred. *Multimedia communications : applications, networks, protocols, and standards*. Harlow [etc.]: Addison-Wesley, 2001. ISBN 0201398184.

Complementary:

Simpson, Wes. *Video Over IP : IPTV, Internet Video, H.264, P2P, Web TV, and Streaming: A Complete Guide to Understanding the Technology* [on line]. 2nd. Amsterdam: Focal Press, 2008 [Consultation: 10/02/2015]. Available on: <<http://proquest.safaribooksonline.com/9780240810843?uicode=politicat>>. ISBN 9780240810843.