



Academic year	2017-18
Subject	11544 - Security and Distribution of Multimedia Contents on the Internet
Group	Group 1, 2S
Syllabus	C
Language	English

Subject

Name	11544 - Security and Distribution of Multimedia Contents on the Internet
Credits	1.44 in-class (36 hours) 4.56 distance (114 hours) 6 total (150 hours).
Group	Group 1, 2S (Campus Extens)
Period	Second semester
Language	English

Lecturers

Lecturers	Office hours for students					
	Starting time	Finishing time	Day	Start date	End date	Office
Macià Mut Puigserver macia.mut@uib.es	You need to book a date with the professor in order to attend a tutorial.					
Maria Magdalena Payeras Capellà mpayeras@uib.es	11:30	13:30	Wednesday	04/09/2017	30/06/2018	118

Context

Security and Distribution of Multimedia Content explains the network infrastructure and the protocols related with the transmission of multimedia contents. Includes information coding and compression and the topics related with the safe storage and transmission of information.

Requirements

Recommended

Basic knowledge of TCP/IP networks.

Skills

Specific

- * CE 7- Design, develop, manage and evaluate mechanisms for certifying and guaranteeing data security in a local or distributed processing system..
- * CE 15 -Create and exploit virtual environments and create, manage and distribute multimedia content..
- * CE-5 Understand and apply the workings and organisation of internet, new-generation network technologies and protocols, models of components, intermediary software and services..



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Generic

- * CG-8 Integrate and apply the knowledge acquired and solve problems in new or little-known situations within broader (or multidisciplinary) contexts..
- * CG -9 Understand and apply ethical responsibility, legislation and codes of practice to professional activity in computer engineering..

Basic

- * You may consult the basic competencies students will have to achieve by the end of the Master's degree at the following address: http://estudis.uib.cat/master/comp_basiques/

Content

Theme content

1. Multimedia Transmission

1. Introduction to Multimedia Networks
 - * Delivery of digital content
 - * Barriers and Evolution
 - * Time requirements
 - * Security Requirements
2. Quality of Service IP multimedia networks
 - * Perception of quality of service
 - * Mechanisms to obtain quality service
 - * Integrated services and differentiated services. comparison
3. Multicast Distribution
 - * IP Multicast
 - * IP multicast addresses
 - * Internet Group Management Protocol (IGMP)
 - * multicast Backbone
4. Protocols for Multimedia Distribution
 - * Streaming.
 - * Transport and Control Mechanisms.

2. Security

1. PKI infrastructure
 - * Public key Cryptography
 - * X.509 Certificates
 - * Practical uses of the Public Key Cryptography

3. Encoding

1. Information Theory
 - * Introduction, Measure of information
 - * Statistical model for information source
 - * Entropy and Information rate
2. Fundamental Limits on Performance
 - * Source coding theorem
 - * Huffman coding
 - * Discrete Memory Less Channels

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- * Mutual information
- * Channel Capacity
- 3. Compression Methods
 - * No-lossless Methods
 - * Lossless Methods
- 4. Channel Coding
 - * Introduction to Error Control Coding
 - * Types of errors,
 - * Systematic Codes
 - * Linear Codes
 - * Error detection and correction
 - * Standard arrays and table look up for decoding
 - * Cycle Codes
 - * Encoding using an (n-k) bit shift register
 - * Syndrome calculation

Teaching methodology

In-class work activities

Modality	Name	Typ. Grp.	Description	Hours
Theory classes	Lessons	Large group (G)	Explanation of the contents	22
Seminars and workshops		Medium group (M)	Specific topics.	5
Practical classes		Medium group (M)	Exercises	8
ECTS tutorials		Small group (P)	Tutorials ECTS	1
Assessment		Large group (G)	Tests	0
Assessment		Large group (G)	Final exam	0

At the beginning of the semester a schedule of the subject will be made available to students through the UIBdigital platform. The schedule shall at least include the dates when the continuing assessment tests will be conducted and the hand-in dates for the assignments. In addition, the lecturer shall inform students as to whether the subject work plan will be carried out through the schedule or through another way included in the Campus Extens platform.

Distance education work activities

Modality	Name	Description	Hours
Individual self-study		Individual study	46
Group self-study		Group assignments	68

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Specific risks and protective measures

The learning activities of this course do not entail specific health or safety risks for the students and therefore no special protective measures are needed.

Student learning assessment

L'avaluació es realitzarà a partir de la nota de les pràctiques i de la nota dels examens i controls parcials. En l'itinerari A es faran dos controls alliberatoris. En l'itinerari B es farà un examen final. Puntuació mínima dels examens per a fer mitja: 4.5. En els dos itineraris les parts suspeses es podran recuperar a la convocatòria de juliol.

Practical classes

Modality	Practical classes
Technique	Student internship dissertation (non-retrievable)
Description	Exercises
Assessment criteria	
Final grade percentage:	50% for the training plan A
Final grade percentage:	50% for the training plan B

Assessment

Modality	Assessment
Technique	Objective tests (retrievable)
Description	Tests
Assessment criteria	
Final grade percentage:	50% for the training plan A with minimum grade 4.5
Final grade percentage:	0% for the training plan B

Assessment

Modality	Assessment
Technique	Objective tests (retrievable)
Description	Final exam
Assessment criteria	
Final grade percentage:	0% for the training plan A
Final grade percentage:	50% for the training plan B with minimum grade 4.5

Resources, bibliography and additional documentation

"Error-correcting Codes: Theory and Applications". A. Poli, L. Huguet. Ed Prentice Hall
 "Comunicación Digital". J. Rifà, L. Huguet. Ed. Masson.
 "Electronic Commerce". Gary P. Schneider. Course Technology, Cengage Learning (9th Edition)



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"Network Security Essentials Applications and Standards", 5/e William Stallings, Prentice Hall.

"Multimedia Networking: From Theory to Practice" Jenq-Neng Hwang, Cambridge University Press.

Basic bibliography

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Complementary bibliography

Es podran suggerir lectures complementàries d'articles i tutorials de les bases de dades científiques a les que la UIB té accés.

Notes de classe i altres materials que es proporcionaran a través de la plataforma Campus Extens

