

GENERAL INFORMATION

Data of the subject	
Subject name	Multimedia Telecommunication Services
Subject code	DTC-GITT-425
Main program	Bachelor's Degree in Engineering in Telecommunication Technologies
Involved programs	Grado en Ingeniería en Tecnologías de Telecomunicación [Fourth year]
Level	Reglada Grado Europeo
Quarter	Semestral
Credits	6,0 ECTS
Type	Optativa (Grado)
Department	Department of Telematics and Computer Sciencies
Coordinator	Miguel Ángel Sanz Bobi
Office hours	Contact with Professor

Teacher Information	
Teacher	
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DESCRIPTION OF THE SUBJECT

Contextualization of the subject
Prerequisites
No special requirements

Course contents

Contents
TOPIC 1: ENCODING OF MULTIMEDIA INFORMATION
1.1 Definition of multimedia telematic services and multimedia communication networks. 1.2 Standards and standardization organizations
TOPIC 2: ENCODING AND VOICE COMPRESSION
2.1 Voice and audio characteristics.



- 2.2 Psychoacoustic models
- 2.3 Voice and audio compression algorithms.
- 2.4 MPEG audio. Basics and features

TOPIC 3: ENCODING AND IMAGE COMPRESSION

- 3.1 Image capture and digitization. Formats
- 3.2 Image compression algorithms
- 3.3 JPEG. Fundamentals, coding, evolution and characteristics

TOPIC 4: VIDEO ENCODING AND COMPRESSION

- 4.1 Video compression algorithms
- 4.2 MPEG video. Fundamentals and coding.

TOPIC 5: INFORMATION FLOW THROUGH MULTIMEDIA NETWORKS

- 5.1 Multimedia network applications
- 5.2 Quality of service. streaming

EVALUATION AND CRITERIA

Evaluation activities	Evaluation criteria	Weight
Final Exam	<ul style="list-style-type: none">• Understanding concepts through open tests that allow evaluating the understanding and skill in handling learned knowledge.• Application of the concepts acquired in the resolution of practical cases.• Presentation and written communication.	50
Continuous performance evaluation	<ul style="list-style-type: none">• Individual or group practical work cluster.• Projects developed by students.• Exercises or problems solved in a individually or in a group.• Short continuous assessment tests.• Class participation.• Attendance and attitude in class.	15
Evaluation of experimental work	<ul style="list-style-type: none">• Woks for evaluation of subject practices.• Participation in the subnject practices.• Subject practice reports practice reports carried out individually or in a group.	35

Grading

Class attendance is mandatory. According to the general rule of the Engineering School, non-attendance without justification of 15% of teaching hours eliminates the possibility of passing the subject in both calls: ordinary and extraordinary. If this occurs, **Not Passed** will be recorded as final grade in both calls.

Ordinary Call

Class attendance is mandatory. According to the general rule of the Engineering School, non-attendance without justification of 15% of teaching hours eliminates the possibility of passing the subject in both calls: ordinary and extraordinary. If this happens, **Not Passed** will be recorded in the records of both calls.

The qualification in the ordinary call will be obtained as:

- 50% is coming from the final exam.
- 15% is coming from the continuous evaluation.
- 35% is coming from the subject practices.

To pass the course in the ordinary call it will be necessary to obtain 5 points or more out of 10 both in the qualification of the subject practices and in the average of the final exam grade plus the continuous evaluation grade.

The grade to appear for the course will be obtained according to the assessment percentage stated above on the different parts evaluated in the course for the regular call.

The previous weighted evaluation will NOT be made to obtain the grade for the course when in one of the parts (subject practices or final exam + continuous evaluation) the mark of 5 points has not been exceeded, appearing in the record of the course the lower mark obtained between the two mentioned parts. In case of having passed with a grade equal to or greater than 5 points one of the parts but not the other one and having, therefore, failed the course, the approved part will be kept ONLY until the call extraordinary of the current academic year.

Extraordinary Call

The grade in the extraordinary call is obtained as follows:

- 65% is coming from the final exam.
- 35% is coming from the subject practices.

In order to PASS the course in the extraordinary call it will be necessary to obtain 5 points or more out of 10 both in the qualification of the subject practices and in the qualification of the final exam. The grade that will appear in the records will be built according to the percentage stated above on the different parts evaluated in the course for the extraordinary call.

The previous weighted evaluation will NOT be made to obtain the grade for the course when in one of the parts (subject practices or final exam) the mark of 5 points has not been exceeded, appearing in the record of the course the lower mark obtained between the two mentioned parts. In case of having passed with a grade equal to or greater than 5 points one of the parts but not the other one and having, therefore, failed the course, the approved part will be not kept for the next academic year.

WORK PLAN AND SCHEDULE

Activities	Date of realization	Delivery date
Reading and study of the theoretical contents of the material of the course	after each session	
Resolution of the proposed exercises	Weekly	
Deliveries of subject practices		One week after the proposal of the subject practice
Tests to be taken during class hours	Between weeks 5 and 10	
Final Exam Preparation	End of December	

BIBLIOGRAPHY AND RESOURCES

Basic References

Specific material of the course developed by the teacher accessible through the MOODLE portal.

Further reading

- **Z. Li, M. S. Drew, J. Liu. "Fundamentals of Multimedia ". Springer, 2014. (Reference book for the course)**
- **J. Hwang. "Multimedia Networking from Theory to Practice". Cambridge Press, 2009. (Reference book for the course)**
- R. Mayer. "Multimedia Learning" (3rd ed.). Cambridge University Press. 2020. (Complementary reference book for the course)
- D. Salomon, "Data Compression. The Complete Reference", 4th edition, Springer, 2007. (Complementary reference book for the course)
- J. Ohm, Multimedia Communication Technology, Springer, 2004.
- J. Kurose, K. Ross, "Computer Networking: A Top-Down Approach", Addison-Wesley, 2008.
- F. Halsall, "Multimedia Communication: Applications, Networks, Protocols", Addison-Wesley, 2000.

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