

# MULTIMEDIA SYSTEMS

## 1. KEY INDICATORS

CFU/ECTS: 6

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## 2. OBJECTIVE OF THE COURSE

The course presents the theoretical principles for multimedia data compression, protection and transmission, as well as the applications of such principle in the most relevant multimedia communications standards.

Students gain insight into the architectural and technological issues involved in communication oriented multimedia systems. Besides, students will achieve the capability of devising feasible technological and architectural solutions for a variety of multimedia services including mature and emerging ones, such as broadcasting, video e voice over IP, video conference call, streaming audio video, mobile multimedia services.

## 3. ACQUIRED ABILITIES

Students shall know the main principles and the most important source coding techniques for multimedia data compression. Besides, students shall correctly frame different multimedia services, such as broadcasting, personal communications, mobile services, in accordance to the related source/channel coding, multiplexing and signalling issues.

## 4. PROGRAM

Multimedia systems for communications.

Multimedia communications principles:

Compression efficiency,

Error Resilience,

Multimedia data synchronization and integration.

Source coding techniques: voice, audio, video and image coding: principles

existing and upcoming standards for multimedia coding.

Multimedia data multiplexing:

Multimedia transport format in broadcasting services.

Multimedia transport formats in packet switched networks: Voice over IP, Audio over IP, Video over IP.

Multimedia communications services: specifications and end-to-end protocol architecture: Broadcasting services.

Video telephony and video conference services.

Streaming services.

Mobile multimedia services.

## 5. REFERENCES

Course lecture notes available at the course reference web site:

[http://infocom.uniroma1.it/~colonnese/Multimedia\\_system\\_course.htm](http://infocom.uniroma1.it/~colonnese/Multimedia_system_course.htm) and related bibliography.

## 6. COURSE WEBSITE

[http://infocom.uniroma1.it/~colonnese/Multimedia\\_system\\_course.htm](http://infocom.uniroma1.it/~colonnese/Multimedia_system_course.htm)