

# Global Learning Semesters

## Course Syllabus

Course: BENG-300 Data Compression and Transmission

Department: Engineering

Host Institution: University of Nicosia, Nicosia, Cyprus



Course Summary		
Course Code	Course Title	Recommended Credit Hours
BENG-300	Data Compression and Transmission	3
Semester Offered	Contact Hours	Prerequisites
Spring	42	BENG-280 Television, BENG-285 Audio & Video Technology, MATH-191 Calculus & Analytic Geometry II. An overall understanding of television; Introduction to analogue and digital audio and video technology; General knowledge of differential and integral calculus.
Department	Level of Course	Language of Instruction
Engineering	Upper Division	English

### Course Description

The different compression standards and modulation techniques currently used in Radio and Television production and broadcasting will be thoroughly explained through the course. Specific topics include: compression principles, why compression is necessary, processing for compression, audio and Video compression, compression applications, drawbacks of compression, JPEG, MJPEG, MPEG and MPEG bit streams, JPEG and MPEG source coding of video signals, MPEG-2 systems, multiplexing and packets, statistical multiplexing, forward error correction, digital modulation techniques, digital audio broadcasting (DAB), digital video broadcasting-terrestrial (DVB-T), digital video broadcasting-satellite (DVB-S), digital video broadcasting-cable (DVB-C), and measurement in digital television.

### Instructor

Dr. George Gregoriou

### Course Aims and Objectives

To develop an overall understanding of the compression principles, to explain why video and audio data compression is necessary, and to provide an essential introduction to the processing used for compressing video and audio data.

### Teaching Methods

The course is delivered through a mixture of lectures and projects.

### Course Teaching Hours

The course is 42 hours long and is delivered in 14 weeks (3 hours/week).

## Evaluation and Grading

Homework/Projects:	20%
Mid-Term Exam:	30%
Final Exam:	50%

## Readings and Resources

### Required Textbook

None

### Recommended Readings

- John Watkinson, The MPEG Handbook, Focal Press, 2001
- Ulrich Reimers, Digital Video Broadcasting: the International Standard for Digital Television, Springer Verlag, 2003