



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Advanced data compression

Course

Field of study

Electronics and Telecommunications

Area of study (specialization)

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

II/IV

Profile of study

general academic

Course offered in

English

Requirements

elective

Number of hours

Lecture

30

Tutorials

0

Laboratory classes

0

Projects/seminars

15

Other (e.g. online)

Number of credit points

4

Lecturers

Responsible for the course/lecturer:

prof. dr hab. inż. Marek Domański

marek.domanski@put.poznan.pl

tel. 616653901

Responsible for the course/lecturer:

Prerequisites

1. Student has a systematic knowledge of mathematical analysis, algebra and theory of probability.
2. Has a systematic knowledge, together with necessary mathematical background, of digital signal processing, introduction to multimedia, multimedia systems.



3. Demonstrates the ability to solve problems related to signal analysis in time domain and in frequency.
4. Basic programming skills.

Course objective

The student will gain the general detailed knowledge on digital television with the emphasis on IP television, video over-the-top and IP multimedia.

Course-related learning outcomes

Knowledge

A student has knowledge on modern television systems mostly based on IP networks, including IP television, video over-the-top and IP multimedia.

Skills

Design skills in television and multimedia systems, in particular related to those based on IP networks.

Social competences

A student recognises the social and economical background of development of modern broadcasting and multicasting systems on consumer market.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

1. Lecture

Written and / or oral exam. The exam consists of a few to over a dozen questions (depending on the assumed nature of the questions) and concerns the content presented during the lectures. The exact nature of the exam questions will be presented to students during one of the last lectures. Pass threshold: 50% of points.

2. Projects

Presentation of the results of projects made by students. Assessment of the results obtained, the complexity of the project and the presentation of the project itself.

Programme content

1. Lecture

Introduction and repetition: Basic television systems worldwide. SDTV/HDTV/UHDTV. 4k and 8k and the forthcoming AV systems.

3D video and audio. Spatial audio. Ambisonics and audio objects.

IP television: interactive services. Video over-the-top: IP multimedia, today and tomorrow, Virtual reality and augmented reality. Virtual navigation. Interactive audiovisual systems of the future. Ultra-realistic IP multimedia systems. Immersive video and audio. OMAF.



Mobile television. DVB-DASH.

New platform: MPEG Media Transport MMT,

2. Projects

Projects are strictly related to the topics of IP multimedia and digital television.

Teaching methods

1. Lecture

Classes with clear elements of traditional lecture and problem lecture (discussion with students of a specific problem), depending on the content of the presented material. Presentation of the theory and methods with examples of their use. Selected contents of the lecture are presented on a multimedia projector or board. The discussion of the issues is accompanied by information on their practical application.

2. Projects

Solving problems given by the teacher. Interpretation of the received solutions and formulation of conclusions. Discussion of the practical application of the methods/algorithms being the subject of projects. Practice in presenting the project results.

Bibliography

Basic

ETSI Standards, available on etsi.org.

U. Reimers, DVB, Springer, 2008 (i inne wydania).

Additional

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,0
Classes requiring direct contact with the teacher	58	2,0
Student's own work (literature studies, preparation for exam, project preparation) ¹	42	2,0

¹ delete or add other activities as appropriate