



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Multimedia mobile application [S2EiT1E-TIT>MAMm]

Course

Field of study Electronics and Telecommunications	Year/Semester 2/3
Area of study (specialization) Information and Communication Technologies	Profile of study general academic
Level of study second-cycle	Course offered in English
Form of study full-time	Requirements elective

Number of hours

Lecture 30	Laboratory classes 15	Other 0
Tutorials 0	Projects/seminars 0	

Number of credit points

4,00

Coordinators

dr hab. inż. Dawid Mieloch prof. PP
dawid.mieloch@put.poznan.pl

Lecturers

Prerequisites

Has a detailed knowledge about the contemporary telecommunication systems that deliver multimedia services. The student should pass the courses on introduction to telecommunications, communication networks, digital transmission, introduction to multimedia, multimedia communications, multimedia systems. Is able to obtain information from literature and databases as well as other sources in English; is able to integrate obtained information, interpret it, draw conclusions and justify opinions. Knows the limits of his own knowledge and abilities, understands the need for ongoing education.

Course objective

Students gain the knowledge of mobile-specific multimedia applications, knowledge about contemporary development trends in the area of mobile multimedia services.

Course-related learning outcomes

Knowledge:

Have a structured knowledge on development of multimedia mobile communication and the respective applications.

Skills:

Can evaluate the suitability of various media and the architecture required to incorporate them in mobile applications.

Social competences:

Is aware of the limitations of his/her current knowledge and skills; is committed to further self-study. Is aware of the main challenges facing electronics and telecommunication in the 21st century. Is aware of the impact electronics and ICT systems and networks will have on the development of the information society. A student is open to constant learning and understands the need to improve his/her professional competences.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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The knowledge acquired in the lecture is verified on the written and / or oral exam. The exam consists of several open questions with different levels of difficulty with the assigned number of points. The questions relate to the content presented during the lectures. Credit threshold: 50% of points.

Laboratory - the knowledge acquired on laboratories is verified through the ongoing assessment of student activity during laboratories and/or through the reports of tasks performed during the laboratories. Credit threshold: 50% of points.

Programme content

Lecture:

Wireless multimedia transport. Dynamic streaming of multimedia content. MPEG-DASH, DVB-DASH.

MPEG Media Transport MMT - personalised broadcasting.

Mobile multimedia platforms - multimedia subsystem.

Mobile television , e.g. DVB-T2Lite.

Mobile applications for virtual reality.

Mobile multimedia search applications for augmented reality. CDVS and CDVA. Multimedia distributed databases - MPEG-7 and MPEG-21.

Mobile video surveillance.

Video coding for machines. Video coding and transmission for V2V and V2X.

Laboratory:

Streaming of multimedia, multimedia description, elements of virtual and augmented reality applications.

Course topics

Lecture:

Wireless multimedia transport. Dynamic streaming of multimedia content. MPEG-DASH, DVB-DASH.

MPEG Media Transport MMT - personalised broadcasting.

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Teaching methods

Lecture - presentation using a projector, illustrated with examples on the board. Slides available to students .

Laboratory - computer classes using software that allows advanced simulation and analysis of audiovisual signals. Solving problems given by the teacher and / or specified in the laboratory instruction. Interpretation of the received solution and drawing conclusions.

Bibliography

Basic

1. Jens R. Ohm, Multimedia Communication Technology, Springer 2004.
2. B. Bing, Broadband Wireless Multimedia Networks, Wiley.

Additional

1. D. Bull, Communicating Pictures, Elsevier, 2014
2. L. Chariglione, The MPEG Representation of Digital Media, Springer, 2012

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	58	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	42	2,00