STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Multimedia systems and technology**		Code **1010805131010840145**

Field of study **Electronics and Telecommunications**	Profile of study (general academic, practical) **general academic**	Year /Semester **2 / 3**

Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **elective**

Cycle of study: **Second-cycle studies**	Form of study (full-time,part-time) **part-time**

No. of hours Lecture: **15** Classes: **-** Laboratory: **-** Project/seminars: **-**	No. of credits **6**

Status of the course in the study program (Basic, major, other) **major**	(university-wide, from another field) **from field**

Education areas and fields of science and art
 	
technical sciences
      Technical sciences
	ECTS distribution (number and %**)**
	
	6 100%
	      6 100%

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	He has ordered , mathematical underpinnings knowledge of the acquisition , human perception , quality assessment , processing, digital representation, compression and transmission of video signals , speech and audio for use in multimedia systems
		It has a basic knowledge of the development trends of the issues related to the processing and image processing
2	**Skills**	He can freely communicate in English, able to speak in English for professional purposes , can benefit from understanding the literature in English
3	**Social competencies**	Capable of self-learning (books, computer programs)He acts actively in class, asks questions, knowingly uses the contact with the teacher (eg consultation).

Assumptions and objectives of the course:

Get to know the techniques of image acquisition and the impact of the acquisition system parameters (including the optical path) on the quality of the resulting digital image. Introduction to stereoscopic presentation systems acquisition and presentation aspects of human perception system of stereoscopic images. Introduction to techniques for photographic printing, paper media types. Moving the issues of calibration track acquisition and image presentation.

Pokazanie technik kompresji sekwencji wizyjnych (AVC/H2.264,VC1, AVS). Wprowadzenie do telewizja trójwymiarowej.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Has knowledge of the systems acquisition and presentation of picture and sound. - [K2_W01]

2. It has a basic knowledge of the video sequence compression systems. - [K2_W01]

3. It has a basic knowledge of the acquisition and presentation of stereoscopic images. - [K2_W01]

4. It has a basic knowledge of the construction and operation of three-dimensional television system. - [K2_W01]

Skills:

1. It can acquire data from the literature and other sources, is able to integrate the information obtained, to make their interpretation, as well as to formulate and justify opinions. - [K2_U01]

2. Able to analyze the effect of three-dimensional television system, and define its parameters. - [K2_U16]

3. The system is able to analyze video data compression, and the parameters and limitations of such a system. - [K2_U16]

4. Can define the parameters of the multimedia system and design it - [K2_U16]

Social competencies:

1. It is open to the possibility of continuous training and understands the need to improve professional competence. - [K2_K04]

Assessment methods of study outcomes

1. Written or oral exam or test.

2. Reports from laboratory classes.

3. Activity and preparation for the classes.

Course description

? Techniques for image acquisition - CMOS sensors, CCD, the impact of acquisition parameters and the parameters of the optical path on the quality of the digital image.

? Images stereoscopic systems - Acquisition and presentation aspects of human perception system of stereoscopic images.

? Techniques photographic print - pigment, dye, sublimation. Media types of paper. Calibration of the track kamera/skaner-> Monitor-> printer.

? Techniques for compression of video sequences (AVC/H2.264, VC1, AVS)

? three-dimensional television technology acquisition, compression and presentation

? Software implementations of selected algorithms for image processing or sound.

Basic bibliography:

1. 1.　　Domański M., Obraz cyfrowy, WKŁ, Warszawa 2010.

2. 2.　　Wieczorkowska A., Multimedia, Wyd PJWSTK 2008

Additional bibliography:

1. 1. ITU-R Rec., BT.500-1, Methodology for the subjective assessment of the quality of television pictures, 2002.

2. 2. ITU-T Rec., H.264, Advanced video coding for generic audiovisual service, 2003

Result of average student's workload

Activity	Time (working hours)
1. Classes that require personal contact with the teacher academic	60
2. Preparing for the lab and prepare a report (report)	15
3. Reading literature (manuals, catalogs)	15
4. Exam Preparation	15
5. consultations with lectures and laboratory project	15

Student's workload

Source of workload	hours	ECTS
Total workload	150	6
Contact hours	60	2
Practical activities	60	2