STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Systems of Surveillance and Security**		Code **1010802121010842903**
Field of study **Electronics and Telecommunications**	Profile of study (general academic, practical) **general academic**	Year /Semester **1 / 2**
Elective path/specialty **Information and Communication**	Subject offered in: **English**	Course (compulsory, elective) **elective**
Cycle of study: **Second-cycle studies**	Form of study (full-time,part-time) **full-time**	

No. of hours				No. of credits **4**
Lecture: **2**	Classes: **1**	Laboratory: **1**	Project/seminars: **-**	

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 %**)**
	4 100%
	      4 100%

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	K1_W01 K1_W03 K1_W09 K1_W11 K1_W24
2	**Skills**	K1_U01 K1_U15 K1_U16
3	**Social competencies**	K1_K01 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:

Course meets the latest trends in the industrial use of new media technologies in telecommunication systems for the identification of persons or property, access control and surveillance zones and dedicated people.Knowledge and understanding of the fundamental design video surveillance systems, CCTV systems.The course is presented extended information about the hardware and software for use in surveillance systems and security support.

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

Knowledge:

1. It has a working knowledge of the systems to ensure the safety of persons and property. - [K2_W01]

2. It has a practical knowledge of the design principles of CCTV systems using sophisticated dedicated software, equipment, first-class equipment. - [K2_W01]

Skills:

1. Has the ability to build CCTV systems to the core functions are to identify what kinds of events, to identify persons, the identification of persons, identification of vehicles - [K2_U03]

2. Can design intelligent video surveillance system for a public building. - [K2_U03]

Social competencies:

1. Is aware of the limitations of his/her current knowledge and skills; is committed to lifelong learning. - [K2_K04]

2. Is aware of the necessity to approach solving technical problems with responsibility and professionalism. - [K2_K05]

Assessment methods of study outcomes

1. A written or oral exams or test questions.

2. Reports from a thematically block of laboratory.

3. Checking preparation for classes and activities in the laboratory.

Course description

Video Converters and improve image quality (noise reduction, restaurant image)Traffic analysis (motion estimation, optical flow method)Automatic segmentation of video sequences (methods of sowing area, segmentation because of the characteristics of objects)Infrared surveillance video (emissivity, thermal image analysis, bolometric arrays, practical performance measurement, thermal equipment)Intelligent video surveillance systems, algorithms (detection of moving objects detection, missing object, object counting, identifying abnormal behavior of objects)Monitoring systems (design, cameras, wired and wireless networks, devices coaxial)Recording and analyzing audio surveillance systems.Support for CAD in designing CCTV (VideoCAD)Design of CCTV systems for public facilities (public places).An introduction to biometric identification (basic biometrics, biometrics fusion).

Basic bibliography:

1. Anthony C. Caputo, Digital Video Surveillance and Security, Butterworth-Heinemann; 1 edition (March 15, 2010)

2. Herman Kruegle, CCTV Surveillance, Second Edition: Video Practices and Technology, Butterworth-Heinemann; 2 edition (December 16, 2006)

3. Nillson, Intelligent Network Video: Understanding Modern Video Surveillance Systems, CRC Press; Har/Dvdr edition (September 10, 2008)

4. Domański, Zaawansowane techniki kompresji obrazów i sekwencji wizyjnych, Wydawnictwo Politechniki Poznańskiej, 2000

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

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

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

8. ISO/IEC IS 13818 / ITU-T Rec. H.262, Information technology ? Generic coding of moving pictures and associated audio information, 1997

9. Kuczyński K. 2008 ? ?Zastosowanie termowizji w diagnostyce urządzeń elektrycznych? ? Dom Wydawniczy Medium, Elektro.info ? 11/2008

10. Madura H., 2004 ? ?Pomiary termowizyjne w praktyce? ? Agenda Wydawnicza PAK ? Warszawa

11. Minkina W. 2004 ? ?Pomiary termowizyjne ? przyrządy i metody? - Wydawnictwo Politechniki Częstochowskiej

12. Anil K. Jain (Author), Arun A. Ross (Author), Karthik Nandakumar (Author), Introduction to Biometrics, Springer, 2011

13. Anil K. Jain (Editor), Patrick Flynn (Editor), Arun A. Ross (Editor), Handbook of Biometrics, Springer, 2010

Additional bibliography:

1. Klonecki W.: Statystyka dla inżynierów. Wydawnictwo Naukowe PWN SA, Warszawa, 1999

2. Sobczyk M.: Statystyka. Wydawnictwo Naukowe PWN SA, Warszawa, 2002

Result of average student's workload

Activity	Time (working hours)
1. Lectures and practical classes	60
2. Preparation for the classes and writing a final report	15
3. Literature study	10
4. Preparation for the completion of the course	15
5. consultations with lectures and laboratory project	3
6. participation in the test completing the course	2

Student's workload

Source of workload	hours	ECTS
Total workload	105	4
Contact hours	65	2
Practical activities	45	2