



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Rozszerzona wirtualna rzeczywistość - Extended virtual reality

Course

Field of study

Teleinformatics

Year/Semester

1/2

Area of study (specialization)

Profile of study

general academic

Level of study

second-cycle studies

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

30

Other (e.g. online)

Tutorials

0

Projects/seminars

0/0

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

prof. dr hab. inż. Marek Domański, 61 665 3901

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Instytut Telekomunikacji Multimedialnej

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Instytut Telekomunikacji Multimedialnej

Wydział Elektroniki i Telekomunikacji

Prerequisites



A student has good knowledge on the fundamentals of video and audio representation and compression. The student has awareness of the need for professional approach by solving technical problems and the necessity to bear responsibility for the technical solutions proposed. Understands fast developments in technical sciences, is aware of limitations of his/her knowledge and skills, understands the needs to learn further .

Course objective

The course is aimed at knowledge and skills in the functions, architectures and the respective solutions for augmented and virtual reality, especially from the point of view media creation, processing and presentation.

Course-related learning outcomes

Knowledge

Functions, architectures and the respective solutions for augmented and virtual reality, especially from the point of view media creation, processing and presentation.

Skills

Ability for right choices of basic methods for solutions of the selected problems related to augmented and virtual reality.

Social competences

Understanding of influence of virtual reality technology on human life, also in its social context.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Final test regarding all the topics of lectures. Test is written and/or oral. The outcomes of laboratory course are assessed on the basis of the current work results during whole semester and test that assess preparation to laboratory classes. The acceptance threshold is 50% of correct answers from all questions and problems asked. This is the threshold for the grade 3.0. The thresholds for higher grades are uniformly distributed between 50% and 100%.

Programme content

Immersive visual and auditory experience.
Augmented reality versus virtual reality.
Acquisition of immersive visual content. VR displays. Displays for augmented reality.
Mathematical fundamentals of spatial operations for virtual/augmented reality technology.
Processing of video and audio for virtual reality.
Examples of practical AR and VR systems.



Teaching methods

Lecture supported by presentations. Active work at laboratory, in particular execution of experiments and measurements.

Bibliography

Basic

1. Free VR book: Steven M. LaValle, VIRTUAL REALITY. Available at <http://lvalle.pl/vr/>. To be published by Cambridge University Press.
2. Lectures of S.M. LaValle available at:
<https://www.youtube.com/playlist?list=PLbMVogVj5nJSyt80VRXYC-YrAvQuUb6dh>
3. Stanford Univ. Course EE 267: Virtual Reality, Available at:
<https://stanford.edu/class/ee267/projects.html>

Additional

Breakdown of average student's workload

	Hours	ECTS
Total workload	86	3.0
Classes requiring direct contact with the teacher	45	2.0
Student's own work (preparation for tests, preparation for laboratory classes, literature studies)	41	1.0