COURSE DESCRIPTION CARD - SYLLABUS

Course name
New Trends in Multimedia Technologies [S2Inf1E-IO>NTTM]

Course

Field of study
Computing

Year/Semester
1/1

Area of study (specialization)
Software Engineering

Profile of study
general academic

Level of study
second-cycle

Course offered in
English

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
0

Laboratory classes
15

Other
0

Tutorials
0

Projects/seminars
30

Number of credit points

3,00

Coordinators

dr inż. Ewa Łukasik prof. PP
ewa.lukasik@put.poznan.pl

Lecturers

Prerequisites

The student starting this course should have basic knowledge of hardware and software information systems, databases and human-computer communication Should be able to obtain information from the indicated sources. He should be ready to cooperate as part of the team. Moreover, in terms of social competences, the student must present attitudes such as honesty, responsibility, perseverance, cognitive curiosity, creativity, personal culture and respect for other people.

Course objective

1. Providing students with basic knowledge of multimedia technologies and the social consequences of their use 2. Developing students" skills in acquiring knowledge about new trends in multimedia technologies and popularizing knowledge in this field 3. Shaping students" communication skills using multimedia tools.

Course-related learning outcomes

Knowledge:
the student has knowledge about development trends and the most important new achievements in the field of multimedia technologies and other related scientific disciplines, including social sciences

the student has advanced detailed knowledge of selected multimedia topics
the student has advanced and in-depth knowledge of widely understood multimedia systems, theoretical foundations of their construction and methods, programming tools and environments used to implement them
the student has advanced and detailed knowledge of the processes life cycle as well as multimedia hardware and software

Skills:
the student is able to apply experimental methods and simulations to formulate and solve engineering tasks and simple research problems in the field of multimedia
the student is able to plan and carry out experiments, including computer simulations, interpret results, draw conclusions and formulate and verify hypotheses related to complex engineering problems and simple research problems
the student has the ability to gain knowledge from literature, databases and other sources (in english), integrate, interpret and critically evaluate it, draw conclusions, formulate and fully justify opinion
the student is able - while formulating and solving engineering tasks - to integrate knowledge from various areas of computer science, multimedia techniques and social sciences and to apply a system approach to their analysis - including non-technical aspects (k2st_u5)
the student is able to solve complex it tasks, including atypical tasks concerning multimedia elements and research tasks using the available tools,
the student is able to assess the usefulness of methods and tools for solving an engineering task, involving the evaluation of a multimedia system or its components, including the limitations of these methods and tools;
the student can critically analyze the existing technical solutions in the field of multimedia and propose their improvements

Social competences:
the student understands the importance of using the latest knowledge in the field of computer science in solving practical problems of multimedia
the student understands that knowledge and skills related to computer science quickly become obsolete

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomespresented above are verified as follows:
Formative assessment:
a) seminars
- based on systematic knowledge acquisition and active participation in discussions,
b) laboratories
- on the basis of the current progress assessment and the results of tasks results.
Summative assessment:
a) seminars:
verification of the assumed learning outcomes is accomplished by:
- assessment of the degree of acquiring knowledge and skills demonstrated during topical discussions throughout the course. The final task concerns the preparation of the speech for the panel debate and active participation in the debate in fornt of an unknown audience.
b) laboratories:
the verification of the assumed learning outcomes is carried out by:
-rating the results of the laboratory exercises and multimedia projects promoting knowledge in the field of multimedia,
- assessing the preparation and conduct a panel discussion in front of an unknown audience.
It is possible to obtain additional bonuses for activity during classes, especially for:
- discussing additional aspects of the issue,
- remarks related to the improvement of didactic materials,
- indicating the perceptual difficulties of students enabling ongoing improvement of the didactic process.

Programme content

Seminars:
1. Definition of multimedia, characteristics of multimedia technologies and their use in various fields
2. Marshall McLuhan"s media concepts (media as an "extension" of the man, medium is the message, cold and hot media) and media ecology,
3. Creativity and innovation. Verganti and his theory of the design based innovation, perceived quality of multimedia services (QoE - quality of Experience).
4. Characteristics of journals and conferences in the field of multimedia technologies
5. Standardization activity of the MPEG group in the field of multimedia technologies
4. Presentation of magazines and conferences in the field of multimedia technologies
5., 6. and 7. Overview of the latest articles in magazines and conferences devoted to multimedia presented by students,
8. Standardization activities of the MPEG group in the field of multimedia technologies 9. Multimedia information retrieval systems
9. Multimedia information retrieval systems
10. Augmented reality, its elements and applications in desktop computers and mobile devices.
11. The use of multimedia technologies in e.g cultural heritage preservation or in promotion, digital libraries
12. Artificial intelligence in multimedia, machine ethics.
Lab sessions:
Preparation of multimedia promotional and illustrative materials for a debate on a selected topic related to the latest trends in multimedia technologies

Course topics

The course covers the characteristics of multimedia and its applications, the use of AI, and the ethics of multimedia technologies. A key element of the course is a student panel discussion for high school students. Student presentations analyze the latest research published in specialized journals and conference materials.

Teaching methods

1. seminar:
multimedia presentation concerning introductory contents, film recorded panel discussions analysis, identification of trends in the development of multimedia technologies in scientific articles published in magazines and conference materials, European Commission projects revue, multimedia standards revue, panel debate in front of an unknown audience: participation of the student as a debater and as a listener. Summary of experiences.
2. laboratory exercises: practical classes in the implementation of films and audio podcasts, round table discussions in sub-groups, presentation of the results of exploration of a selected issue related to new multimedia techniques.

Bibliography

Basic
1. IEEEXplore DL, ACM DL
2. MPEG Homepage https://mpeg.chiariglione.org/
3. Richard Verganti, Design Driven Innovation, Harvard Bussiness Press, 2009 http://www.designdriveninnovation.com/book.html
4. Marshall Mc Luhan, Understanding media: The extension of man, MIT Press, 1994, http://art310-f12-hoy.wikispaces.umb.edu/file/view/McLuhan+Understanding+Media.pdf/366898300/McLuhan+Understanding+Media.pdf
Additional
1. Magdalena Sroczan, Ewa Łukasik, Innovation of Technology and Innovation of Meaning: Assessing Websites of Companies, 2nd Workshop on Social and Algorithmic Issues in Bussines Support
2. M Werla, J Jackowski, M Chudy, E Łukasik, E Kuśmierek, E Dahlig-Turek, Developing Music Digital Library based on Polish Traditional Music Archives and dLibra, 2018, https://dlfm.web.ox.ac.uk/sites/default/files/dlfm/documents/media/werla-et-al-polish-traditional-music-archives.pdf

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00