

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>New trends in multimedia technologies</b>		Code <b>1010512311010518759</b>
Field of study <b>Computing</b>	Profile of study (general academic, practical) <b>general academic</b>	Year /Semester <b>1 / 1</b>
Elective path/specialty <b>Software Engineering</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>Second-cycle studies</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: - Classes: - Laboratory: <b>15</b> Project/seminars: <b>30</b>		No. of credits <b>3</b>
Status of the course in the study program (Basic, major, other) <b>major</b>		(university-wide, from another field) <b>from field</b>
Education areas and fields of science and art <b>technical sciences</b>		ECTS distribution (number and %) <b>3 100%</b>
<b>Responsible for subject / lecturer:</b> dr inż. Ewa Łukasik email: Ewa.Lukasik@cs.put.poznan.pl tel. 61 665 2922 Wydział Informatyki ul. Piotrowo 3 60-965 Poznań		<b>Responsible for subject / lecturer:</b> dr inż. Ewa Łukasik email: Ewa.Lukasik@cs.put.poznan.pl tel. 61 665 2922 Wydział Informatyki ul. Piotrowo 3 60-965 Poznań
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	A student starting this course should have a basic knowledge of hardware and software information systems, databases and HCI
2	<b>Skills</b>	A student should have the ability to gain knowledge from the various sources.
3	<b>Social competencies</b>	A student should also understand the necessity of expanding his/her competences and be ready to cooperate within the team. In addition, in the field of social competence, the student must present such attitudes as honesty, responsibility, perseverance, cognitive curiosity, creativity, personal culture and respect for other people.
<b>Assumptions and objectives of the course:</b>		
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.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. 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 - [K2st_W1]		
2. The student has advanced detailed knowledge of selected multimedia topics - [K2st_W3]		
3. 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 - [K2st_W4]		
4. The student has advanced and detailed knowledge of the processes life cycle of multimedia hardware and software - [K2st_W5]		
<b>Skills:</b>		

<p>1. 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 - [K2st_U1]</p> <p>2. 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 - [K2st_U3]</p> <p>3. The student can use experimental methods and simulations to formulate and solve engineering tasks and simple research problems in the field of multimedia - [K2st_U4]</p> <p>4. 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]</p> <p>5. The student is able to assess the usefulness of new achievements (methods and tools) and new multimedia products - [K2st_U6, ]</p> <p>6. The student can critically analyze the existing technical solutions in the field of multimedia and propose their improvements - [K2st_U8]</p> <p>7. 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; - [K2st_U9]</p> <p>8. The student is able to solve complex IT tasks, including atypical tasks concerning multimedia elements and research tasks using the available tools, - [K2st_U10]</p>
<p><b>Social competencies:</b></p> <p>1. The student understands that knowledge and skills related to computer science quickly become obsolete - [K2st_K1]</p> <p>2. The student understands the importance of using the latest knowledge in the field of computer science in solving practical problems of multimedia - [K2st_K2]</p>

<p><b>Assessment methods of study outcomes</b></p>
<p>Formative assessment:</p> <p>a) seminars</p> <ul style="list-style-type: none"> <li>- based on systematic knowledge acquisition active participation in discussions,</li> </ul> <p>b) laboratories</p> <ul style="list-style-type: none"> <li>- on the basis of the current progress assessment and the results of tasks results.</li> </ul> <p>Summative assessment:</p> <p>a) seminars:</p> <p>verification of the assumed learning outcomes is accomplished by:</p> <ul style="list-style-type: none"> <li>- assessment of the degree of acquiring knowledge and skills demonstrated during topical discussions during the course. The final task concerns the preparation of the speech for the panel debate and active participation in the debate..</li> </ul> <p>b) laboratories:</p> <p>the verification of the assumed learning outcomes is carried out by:</p> <ul style="list-style-type: none"> <li>- rating the results of the laboratory exercises and multimedia projects promoting knowledge in the field of multimedia,</li> <li>- assessing the preparation and conduct of a panel discussion in front of an unknown auditorium.</li> </ul> <p>It is possible to obtain additional bonuses for activity during classes, especially for:</p> <ul style="list-style-type: none"> <li>- discussing additional aspects of the issue,</li> <li>- remarks related to the improvement of didactic materials,</li> <li>- indicating the perceptual difficulties of students enabling ongoing improvement of the didactic process.</li> </ul>
<p><b>Course description</b></p>
<p>Seminars:</p> <ol style="list-style-type: none"> <li>1. Definition of multimedia, characteristics of multimedia technologies and their use in various fields</li> <li>2. Marshall McLuhan's media concepts (media as an "extension" of the man, medium is the message, cold and hot media) and media ecology,</li> <li>3. Creativity and innovation. Verganti and his theory of the design based innovation, perceived quality of multimedia services (QoE - quality of Experience).</li> <li>4. Presentation of journals and conferences in the field of multimedia technologies</li> <li>5. Standardization activity of the MPEG group in the field of multimedia technologies</li> <li>6. Basics and current solutions in the field of processing, coding and compression of audio signals</li> <li>7. Basics and current solutions in the field of image processing, coding and compression</li> <li>8. Basics and current solutions in the field of video processing, coding and compression</li> <li>9. Multimedia information retrieval systems</li> <li>10. Augmented reality, its elements and applications in desktop computers and mobile devices.</li> <li>11. The use of multimedia technologies in e.g. cultural heritage preservation or in promotion,; e.g. companies and cities.</li> <li>12. Artificial intelligence in multimedia, machine ethics.</li> </ol>

<p>Teaching methods:</p> <p>1. seminar: initial multimedia presentation, film record of debates, identification of trends in the development of multimedia technologies in articles in magazines and conference materials, competitions for European Commission projects, multimedia standards, panel debate in front of a foreign audience: participation of the student as a debater and as a listener.</p> <p>2. laboratory exercises: practical classes in the implementation of films and audio sub-groups, discussion at a round table, presentation of the results of exploration of a selected issue related to new multimedia techniques.</p>		
<p><b>Basic bibliography:</b></p> <p>1. IEEEExplore DL, ACM DL</p> <p>2. Richard Verganti, Design Driven Innovation, Harvard Business Press, 2009  <a href="http://www.designdriveninnovation.com/book.html">http://www.designdriveninnovation.com/book.html</a></p> <p>3. Marshall McLuhan, Understanding media: The extension of man, MIT Press, 1994, <a href="http://art310-f12-hoy.wikispaces.umb.edu/file/view/McLuhan+Understanding+Media.pdf/366898300/McLuhan+Understanding+Media.pdf">http://art310-f12-hoy.wikispaces.umb.edu/file/view/McLuhan+Understanding+Media.pdf/366898300/McLuhan+Understanding+Media.pdf</a></p>		
<p><b>Additional bibliography:</b></p> <p>1. Magdalena Sroczan, Ewa Łukasik, Innovation of Technology and Innovation of Meaning: Assessing Websites of Companies, 2nd Workshop on Social and Algorithmic Issues in Business Support</p> <p>2. M Werla, J Jackowski, M Chudy, E Łukasik, E Kuśmierk, E Dahlig-Turek, Developing Music Digital Library based on Polish Traditional Music Archives and dLibra, 2018, <a href="https://dlfm.web.ox.ac.uk/sites/default/files/dlfm/documents/media/werla-et-al-polish-traditional-music-archives.pdf">https://dlfm.web.ox.ac.uk/sites/default/files/dlfm/documents/media/werla-et-al-polish-traditional-music-archives.pdf</a></p>		
<p><b>Result of average student's workload</b></p>		
<p><b>Activity</b></p>		<p><b>Time (working hours)</b></p>
<p>1. Participation in laboratory classes, discussing the content of project tasks, evaluation of the correctness of project implementation</p>		<p>15</p>
<p>2. Preparation of multimedia materials as part of my own work.</p>		<p>15</p>
<p>3. Preparation of literature review,</p>		<p>10</p>
<p>4. Preparation of the speech in the debate</p>		<p>30</p>
<p>5. Participation in seminars, conducting a panel debate</p>		<p>3</p>
<p>6. Consulting the design and the education process.</p>		
<p><b>Student's workload</b></p>		
<p><b>Source of workload</b></p>	<p><b>hours</b></p>	<p><b>ECTS</b></p>
Total workload	77	3
Contact hours	47	2
Practical activities	20	1