

Module/ Course syllabus
Field of study Computer Science
Master's degree programme

Course:	<i>Universal Design in Computer Science</i>
Type of the course:	<i>directional</i>
Course code:	<i>I2S2.19</i>
Year:	1
Semester:	2
Form of the degree programme:	<i>Full-time</i>
Form of classes and number of hours per semester:	30
Lecture	0
Classes	0
Laboratory	0
Project	30
Number of ECTS credits:	2
Form of assessment:	<i>Coursework</i>
Language of instruction:	<i>Polish</i>

Course objective (CO)	
CO1	Ability to design a universal computer system in a teamwork system.
CO2	Ability to implement a universal computer system in a teamwork system.
CO3	Ability to prepare research methodology for verification and suitability of the developed interface.
CO4	Ability to prepare project implementation documentation and its verification.

Prerequisites in terms of knowledge, skills and other competencies	
1	Basic principles of universal design.
2	Basic design of IT systems.
3	Knowledge of programming languages, frameworks, programming methodologies.
4	Object-oriented design of IT systems.
5	Model-driven application development.

Learning outcomes (LO)	
	In terms of skills:
LO1	The student is able to develop a conception of universal design for an IT solution.
LO2	The student is able to implement an IT system on the basis of a defined conception.
LO3	The student is able to develop a research methodology.
LO4	The student is able to analyse a developed solution.

LO5	The student is able to prepare documentation taking into consideration all aspects done in class.
-----	---

	In terms of social competence:
LO6	The student has the ability to work in a team, assign and supervise work in a project group.
LO7	The student is sensitive to problems related to barriers faced by people with disabilities.

Course content

Form of classes - project

	Course content
P1	Recalling the concepts of universal design and user-oriented design. Division into project groups. Presentation of project topics.
P2	Selection of projects. Defining functional and non-functional requirements. Separation of modules. Defining user profiles (Person). Development of a universal design conception. Designing views taking into consideration defined principles of universal design.
P3	Selection of the language, environment and methodologies of programming. Implementation of IT application modules. Testing all functionalities.
P4	Acquainting with WCAG standards. Acquainting with the eye tracker tool.
P5	Planning a research experiment concerning availability of content taking into account WCAG standards and the quality of the interface. Defining scenarios. Defining assessment metrics.
P6	Conducting content availability research taking into consideration the WCAG standard. Data collection. Organising data. Mathematical and statistical processing of data. Description and interpretation of results. Formulating conclusions.
P7	Implementation of interface quality research by means of the eye tracker. Data acquisition. Organising data. Mathematical and statistical processing of data. Description and interpretation of results. Formulating conclusions.
P8	Preparation of final documentation. Presentation of projects. Assessment of projects.

Teaching methods

1	Work in the laboratory (implementation of the IT system in environments intended for this purpose).
2	Work in the Laboratory of Motion Analysis and Interface Ergonomics with the eye tracker tool.

Student's workload

Form of activity	Average number of hours to complete the activity
Number of contact hours with the instructor, including:	30
<i>Participation in projects</i>	30
Student's own work, including:	
<i>Preparation for design classes on the basis of the prepared work schedule</i>	5
<i>Implementation of the IT system</i>	10
<i>Preparation of project documentation</i>	5
Total student's workload	50



Total number of ECTS credits for the course:	2
Number of ECTS credits for practicals (classes, laboratories, projects)	2

Required reading	
1	M. Kasperski, A. Boguska-Torbicz. Projektowanie stron WWW. Użyteczność w praktyce. Helion, 2008.
2	Web Content Accessibility Guidelines (WCAG) Overview, https://www.w3.org/WAI/standards-guidelines/wcag/
3	Miłosz M.: Ergonomia Systemów Informatycznych, Politechnika Lubelska, Lublin, 2014.
Supplementary reading	
1	M. Miłosz, F. Skowroński. Comparative analysis of mobile interfaces services to search public transport connections. Journal of Computer Sciences Institute, 5, 174-178. 2017. https://doi.org/10.35784/jcsi.617

Learning outcomes matrix					
Learning outcome	Reference of a given learning outcome to outcomes defined for the entire programme (CLOs)	Course objectives	Course content	Teaching methods	Assessment methods
LO1	I2A_U07, I2A_U09, I2A_U11, I2A_U17	CO1	P1, P2,	1	A1, A2
LO2	I2A_U10, I2A_U11	CO2	P3	1	A1, A2
LO3	I2A_U04, I2A_U11	CO3	P4, P5	1, 2	A1, A2
LO4	I2A_U08, I2A_U04, I2A_U11, I2A_U12	CO3	P6, P7	1, 2	A1, A2
LO 5	I2A_U03	CO4	P8	1	A1, A2
LO6	I2A_K05	CO1, CO2, CO3	P2-P8	1,2	A1, A2
LO7	I2A_K03, I2A_K06	CO1	P1-P8	1,2	A1, A2



Projektowanie
Uniwersalne

Biuro Projektu
ul. Nadbystrzycka 36B, pokój S118
20-618 Lublin
tel. 81 538 43 49
e-mail: m.latkowska@pollub.pl
www.pun.pollub.pl

Assessment methods and criteria		
Assessment method symbol	Description of the assessment method	Pass threshold
A1	<i>Final documentation</i>	51%
A2	<i>Project presentation</i>	51%

The author of the programme:	dr inż. Maria Skublewska-Paszkowska
E-mail address:	maria.paszkowska@pollub.pl
Organisational unit:	Department of Computer Science



Fundusze Europejskie
Wiedza Edukacja Rozwój

Unia Europejska
Europejski Fundusz Społeczny

