HUMAN-COMPUTER INTERACTION

Faculty of Computer Science				
Study programme:	**Computer Science**		Degree level:	**Engineer's degree full-time programme**
Specialization	**---**		Diploma path:	**2026/2027W - 2026/2027S**
Module name:	**Human-Computer Interaction** (Komunikacja człowiek-komputer)			
Module type:	**obligatory**	**Semester: 1**	ECTS:**3**	Module ID:**FCS-00038**
No. of hrs in semester:	Lecture (L) - **20** Classes(C) - **0** Specialization workshop (SW) - **20** Project (P) - **0** Laboratory classes (LC) - **0** Seminar (S) - **0**			
Prerequisites	Object Oriented Programming (FCS-00012),			

Aims and objectives:	To familiarize with the general principles of designing human-computer interfaces (graphics, audio, and custom). Discussion of the philosophical foundations and historical creation of interfaces - from the first computers and punch cards, the origins and development of graphical user interfaces, audio interfaces with speech recognition and generation, and the latest trends, such as, among others, Touch interfaces.		
Forms of teching activities::	lecture, specialization workshop,	Assessment:	Evaluation must be relevant to the intended learning outcomes: Lecture - exam Laboratory - exercise reports
Module content:	Lecture: 1. Principles of designing human-computer interfaces, rules of the UX Design. 2. Review of the development of human-computer interfaces in the historical context. 3. Discussion of text interfaces (LCD screens, text consoles). 4. Discussion of sound interfaces, the basics of psychoacoustics, processing, synthesis and speech recognition. 5. Discussion of graphic user interfaces. 6. Elements of 2D and 3D graphics, principles of GUI creation in window applications. 7. Review of non-traditional interfaces (touch, intercepting gestures and movement, brain). 8. Virtual reality interfaces. Classes: 1. Analysis of text interfaces on the basis of examples of ready-made applications. 2. Project preparation and application implementation using the text-mode interface. 3. Adaptation of the project according to the Model View Controller scheme enabling the exchange of the human-computer communication interface. 4. Preparation of the project and implementation of the application with the use of the graphical mode interface (GUI). 5. Wireframes of an advanced multi-window application, data flow diagram.		
Teaching methods:	project method, programming, lecture problem,		

Learning outcomes

Symbol	Specify min. 4, max. 8 learning outcomes in the following order: knowledge – skills – competence. Each learning outcome must be verifiable	Reference to the programme learning outcomes of education
LO1	knows the methods of human-computer communication and advanced user interfaces. know the elementary methods of data acquisition and signal processing for the purpose of user interaction with the computer	
LO2	can design and select user interfaces, particularly graphical (GUI) and voice response (IVR)	
LO3	can select user interface technique for applications and selected and used technologies suitable for the implementation of this interface	
LO4	can design, program and deploy an advanced user interface, for example. interactive communication system IVR	
LO5	by creating interfaces student draws attention to the non-technical apects: ergonomics, aesthetics, comfort, etc. Able to identify and resolve the dilemmas associated with the divergence of needs / user expectations and technological limitations, economic, etc.	

No. of learning outcome	Methods of assessing the learning outcome	Type of teaching activities (if more than one) during which the outcome is assessed
LO1	exam	L
LO2	report on the exercise grade	Sw
LO3	report on the exercise grade	Sw
LO4	report on the exercise grade	Sw
LO5	exam	Sw

Student's workload (in hours)	**1** - Attendance at lectures	None	20
	2 - Attendance at laboratories	None	20
	3 - Preparation of reports	None	25
	4 - Preparation for the exam	None	10
		TOTAL:	**75**

Quantitative indicators	Student's workload - activities that require direct teacher participation: (2)+(1)	40	**ECTS** 1.6
	Student's workload connected with practical classes (3)+(2)	45	1.8

Basic references:	1. Julie A. Jacko (Ed.). (2012). Human-Computer Interaction Handbook (3rd Edition). CRC Press. ISBN 1-4398-2943-8 2. M.H. Cohen et al: Voice User Interface Design, Addison Wesley, 2004 3. A. Dix, J. Finlay, G. D. Abowd, R. Beale, Human-Computer Interaction (3rd Edition), Pearson, 2004
Further reading	1. W.O. Galitz: The Essential Guide to User Interface Design. An Introduction to GUI Design Principles and Techniques, Wiley, 2007. 2. J. Mariani: Language and Speech Processing, Wiley, 2009. 3. J. Preece, Y. Rogers, H. Sharp: Interaction Design: Beyond Human-Computer Interaction, 3nd ed., Wiley, 2011.

Unit:	Department of Digital Media and Computer Graphics	Lecturer/ instructor	
Date of issuing the programme:	31st March 2026	Author of the programme:	dr inż. Teodora Dimitrova-Grekow

L - lecture, C - classes, LC - laboratory classes, P-project, SW - specialization workshop, S - seminar