

Bialystok University of Technology									
Field of study	Computer Science							Degree level and programme type	Master's degree full-time programme
Specialization/ diploma path	Biometry and Image Processing							Study profile	academic
Course name	Human-Machine Interaction							Course code	INF2ICM
								Course type	obligatory
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	3
	15				30			No. of ECTS credits	3
Entry requirements									
Course objectives	The aim of the course is to present issues related to human-machine interaction and information that will allow the design of interfaces for selected ways of human-machine interaction.								
Course content	lectures: 1. Introduction to human-machine interaction. 2. Interfaces and methodology for the evaluation of human-machine interfaces. 3. Basic interaction technologies: optical, acoustic, tactile, movement and biometric. 4. Selected input devices and ways of interaction. Practical classes: 1. Motion detection using selected sensors. 2. Face detection in human-machine systems. 3. Practical tasks related to human-machine interfaces. 4. Sample topics: voice control, hand gestures etc. 5. Implementation of human-machine interaction algorithms.								
Teaching methods	lecture problem, brainstorming, programming,								
Assessment method	L: Test at the end of lectures. Pc: A prerequisite for getting credit is attendance and all exercises provided for in the program. Reports from a specialist workshop apply. Each report is subject to evaluation. Based on individual assessments, the grade from Pc.								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	knows and understands the concepts associated with human-machine interfaces and ways of interaction							INF2_W05 INF2_U02	
LO2	has structured knowledge about the ways of human-machine interaction							INF2_W05	
LO3	can use the acquired knowledge for the practical implementation of sample human-machine interfaces							INF2_U02 INF2_U08	
LO4	uses the role of interfaces and the importance of human-machine interaction in modern reality							INF2_U08 INF2_K01	
Symbol of learning outcome	Methods of assessing the learning outcomes							Type of tuition during which the outcome is assessed	
LO1	test, reports							L, Pc	
LO2	test							L	
LO3	reports							Pc	
LO4	reports							Pc	
Student workload (in hours)								No. of hours	
Calculation	1 - Participation in lectures - 15x1h							15	
	2 - Participation in classes - 15x2h							30	
	3 - Preparation of laboratory or studio reports and / or carrying out homework (homework) -							15	
	4 - Participation in teacher hours -							5	
	5 - Implementation of project tasks (including preparation of presentations) -							5	
	6 - Preparation for passing finale test -							5	
TOTAL:								75	
Quantitative indicators								HOURS	No. of ECTS credits
Student workload - activities that require direct teacher participation								50 (2)+(1)+(4)	2.0
Student workload - practical activities								50 (2)+(3)+(5)	2.0
Basic references	1. Jia Zhou , Gavriel Salvendy (Eds.) Human Aspects of IT for the Aged Population Applications in Health, Assistance, and Entertainment LNCS International Conference, Las Vegas, NV, USA, July 15-20, 2018. 2. Rajkumar R., de Niz D., Klein M., Cyber-physical systems, Addison-Wesley Publ., 2017. 3. Murphy R. R., Disaster robotics, Cambridge London The MIT Press, 2014. 4. Ryszard S Choraś, Image processing and communications challenges, Berlin Springer 2010. 5. Bednarczyk H., Leszek W., Wojciechowicz B., Relacje edukacyjne człowiek-maszyna, Wydaw. Instytutu Technologii Eksploatacji, 1995.								
Supplementary references	1. Hollfield B., Oliver D., Nimmo I., HabibiE., The High Performance HMI Handbook, Plant Automation Services, 2008. 2. Guccione S., McKirahan J., Human Machine Interface: Concepts and Projects, Industrial Press, 2016. 3. Yuen P. C., Tang Y. Y., Wang P. S., Multimodal: Interface for Human-Machine Communication, World Scientific Publishing Company, 2002. 4. Roth E.M., Bennett K.B., Woods D.D., Human interaction with an "intelligent" machine, International Journal of Man-Machine Studies, November 1987, Pages 479-525. 5. Dudek G., Jenkin M.: Computational Principles of Mobile Robotics , Cambridge University Press, 2000. 6. HCI International 2016 - Posters' Extended Abstracts: 18th International Conference, HCI International 2016, Toronto, Canada, July 17-22, 2016, Proceedings.								
Organisational unit conducting the course	Department of Digital Media and Computer Graphics							Date of issuing the programme	
Author of the programme	dr inż. Teodora Dimitrova-Grekow							May 22, 2020	

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

