



Lodz University
of Technology

Study programme

Faculty:	Faculty of Electrical, Electronic, Computer and Control Engineering
Major:	Human - Computer Interaction
Level of study:	second-cycle programme (magister)
Form of study:	full-time studies
Academic year:	2025/26

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Basic information

Name of the field of study:	Human - Computer Interaction
Level of study:	second-cycle programme (magister)
Study profile:	general academic
Form of studies:	full-time studies
Duration of studies (number of semesters):	4
The number of ECTS points required to complete studies:	120
Total number of hours of classes:	1500
The number of ECTS points a student obtains as part of classes conducted with the direct participation of academic teachers or other persons conducting classes:	60
Professional title awarded to graduates:	magister
ISCED code:	0688
Language of study:	English

Assigning the course to the disciplines to which the learning outcomes relate

Discipline	Percentage share
Technical computing and telecommunications	100%

Learning outcomes (in relation to the PQF)

No.	Learning outcome code	Learning Outcome Content	Reference to the universal characteristics of the first level of PRK	Reference to the second-level characteristics of the PRK, taking into account the second-level characteristics enabling the acquisition of engineering competences
1	2HCI1	Understands concepts from technical, social sciences and design in relation to human-computer interaction, as well as theories explaining the complex interdependencies between them; is familiar with the main development trends in the field.	P7U_W	P7S_WG
2	2HCI2	Has in-depth knowledge and understanding of issues related to interactive IT systems, including non-technical aspects of conducting research and development activities, taking into account the principles of industrial property rights and copyright protection.	P7U_W	P7S_WG, P7S_WK
3	2HCI3	Is able to analyse complex and unusual problems and propose solutions, demonstrating creativity in combining knowledge of computer science and other disciplines specific to the problem at hand.	P7U_U	P7S_UW
4	2HCI4	Is able to design, prototype and evaluate interactive IT systems that meet user needs, adapting existing methods and tools or developing new ones in the field of human-computer interaction.	P7U_U	P7S_UW
5	2HCI5	Can apply research methods and techniques, including empirical research, to conduct research and development work in the field of human-computer interaction, as well as formulate and test hypotheses concerning the designed solutions.	P7U_U	P7S_UW
6	2HCI6	Is able to critically select appropriate sources of information, synthesise and present them, as well as interpret research results and then apply them in the process of developing solutions, combining theories of human-computer interaction with specialist knowledge from computer science and social sciences.	P7U_U	P7S_UW
7	2HCI7	Can communicate on general and specialised topics, including in a foreign language at B2+ level, with a diverse audience, lead a debate, work individually and in a group, including as a leader, and plan and implement self-learning.	P7U_U	P7S_UK, P7S_UO, P7S_UU
8	2HCI8	Is ready to perform professional and social roles responsibly, based on legal and ethical principles, including as an initiator of activities for the benefit of society and the profession, thinking and acting in an entrepreneurial manner.	P7U_K	P7S_KO, P7S_KR
9	2HCI9	Is ready to critically analyse their knowledge and the received content, including accepted assumptions, arguments and supporting data; understands the role of knowledge in problem solving, uses experts' opinions and is able to identify areas to act as an expert.	P7U_K	P7S_KK

Matrix of course modules in relation to learning outcomes and curriculum content

No.	Course name	Program content	2HCI1	2HCI2	2HCI3	2HCI4	2HCI5	2HCI6	2HCI7	2HCI8	2HCI9
1	HCI Fundamentals		x		x			x	x		
2	3D Computer Graphics & Modelling			x	x	x		x			
3	Prototyping Interactive Systems		x	x	x	x					
4	Accessibility and Universal Design			x	x	x		x			
5	Gestural Interaction										
6	Script Programming				x	x					
7	Sport Interaction and Motor Learning			x	x	x		x			
8	Aesthetics and Data Visualisation										
9	Wearable Computing			x	x	x		x			
10	English for Science Communication								x		
11	Introduction to UI			x		x					
12	Virtual Environments Programming										
13	Research Methods in HCI										
14	Introduction to Human-Robot Interaction										
15	Interaction Design				x	x			x		
16	Ethics of New Technologies			x	x	x		x			
17	User Experience Design and Practice		x	x	x	x					
18	Introduction to Machine Learning and Data Science		x			x					
19	Civic Knowledge and Engagement I										
20	Interdisciplinary Team Project			x		x	x	x	x		

No.	Course name	Program content	2HCI1	2HCI2	2HCI3	2HCI4	2HCI5	2HCI6	2HCI7	2HCI8	2HCI9
21	Social Computing & CSCW										
22	Human-AI Collaboration Systems										
23	Current Topics in HCI										
24	Neuro-Physiological Signals in HCI										
25	Civic Knowledge and Engagement II										
26	Final Project										
27	MSc. Seminar										
28	Diploma Research Studio						x	x			
29	Internship										

ECTS - subjects

No.	Course name	ECTS	Subjects in the field of humanities and social sciences	Elective subjects	Profile items	Classes in a foreign language
1	HCI Fundamentals	6			6	6
2	3D Computer Graphics & Modelling	8		8		8
3	Prototyping Interactive Systems	7			7	7
4	Accessibility and Universal Design	8		8		8
5	Gestural Interaction	8		8		8
6	Script Programming	4			4	4
7	Sport Interaction and Motor Learning	8		8		8
8	Aesthetics and Data Visualisation	3			3	3
9	Wearable Computing	8		8		8
10	English for Science Communication	2				2
11	Introduction to UI	4			4	4
12	Virtual Environments Programming	4		4		4
13	Research Methods in HCI	10			10	10
14	Introduction to Human-Robot Interaction	4		4		4
15	Interaction Design	6			6	6
16	Ethics of New Technologies	4		4		4
17	User Experience Design and Practice	5			5	5
18	Introduction to Machine Learning and Data Science	4			4	4
19	Civic Knowledge and Engagement I	1	1			1
20	Interdisciplinary Team Project	10	10	10		10
21	Social Computing & CSCW	4			4	4

No.	Course name	ECTS	Subjects in the field of humanities and social sciences	Elective subjects	Profile items	Classes in a foreign language
22	Human-AI Collaboration Systems	5			5	5
23	Current Topics in HCI	2			2	2
24	Neuro-Physiological Signals in HCI	4			4	4
25	Civic Knowledge and Engagement II	1	1			1
26	Final Project	20		20		20
27	MSc. Seminar	3			3	3
28	Diploma Research Studio	4			4	4
29	Internship	3				3

ECTS indicators

Name	Value
The total number of ECTS credits that a student must obtain through elective courses (amounting to no less than 30% of the total ECTS credits required to obtain the qualification corresponding to the given level of study).	42/120 (35%)
The total number of ECTS credits to be earned by a student through courses in the fields of humanities or social sciences	12
The total number of ECTS credits that a student must obtain from courses related to research conducted at the university, amounting to more than 50% of the total ECTS credits required to graduate from a given level of study	71/120 (59.17%)

Methods of verifying and assessing learning outcomes

Verification of achieved learning outcomes requires the use of diverse forms of student assessment, appropriate to the categories of knowledge, skills, and social competencies to which these outcomes relate. The selection of suitable tools also depends on the specifics of the subject and the form of classes, and is described in the syllabi of individual courses. The achievement of the required learning outcomes is verified through:

1. Written work (exams, tests, reports, essays, projects, posters, thesis, etc.);
2. Oral statements (oral knowledge checks, public presentations such as delivering a paper, presentation, etc.);
3. Practical and/or project tasks (both group and individual);
4. Observation and evaluation of student activity during classes;
5. Self-assessment and peer assessment (especially in the case of group projects);
6. Competency exam and diploma exam.

Verification may be formative (partial, repeated during classes) and/or summative (final assessment). The final verification result is given according to the currently applicable grading scale.

The course coordinator or instructor is obliged, during the first class, to discuss the course syllabus and to formulate and provide documented information to students regarding the methods of verification and the conditions for conducting assessments of learning outcomes.

Professional internships

Duration: 3 months → 4 weeks

ECTS credits obtained: 12 → 3?

Internships are carried out in accordance with the study program, in a form adapted to the profile and specifics of the field of study, and according to the rules established by the faculty and the University.

Characteristics of the course

Graduate profile

A graduate of the Human-Computer Interaction program possesses unique competencies that combine technical, design, and social knowledge, enabling them to comprehensively prepare, analyse, and implement modern interactive systems in response to user needs and market requirements. They have a deep understanding of the entire design process—from gathering requirements and conducting user research, through prototyping and optimisation, to evaluating and implementing solutions—and can carry it out using the latest digital technologies.

They are proficient in the field of user experience (UX) research and design, guided by a human-centred approach (HCD) and employing appropriate methodologies and design frameworks (e.g., Design Thinking, Challenge-Based Learning). They are prepared to conduct empirical research using diverse, well-selected methods and techniques. The graduate is skilled in working within interdisciplinary, international research and design teams, supported by strong social competencies, including teamwork and communication.

They are capable of creating innovative technological solutions that respect digital accessibility principles and ethical standards. They can identify problems requiring creative approaches and think critically about the relationship between technology and society. Thanks to their interdisciplinary education, they are prepared to work across various industries, from ICT and digital services through consumer electronics, automotive, robotics, the space industry, medical technologies, and telecare, contributing to socio-economic development by creating technologies that truly serve people.

The relationship between the field of study and the university's strategy

The Human-Computer Interaction program aligns with the mission of Lodz University of Technology, which aims to establish a modern, research-oriented university that fosters innovation, collaboration, and social development. As a beneficiary of the “Excellence Initiative – Research University” (IDUB) program, Lodz University of Technology identifies, within its priority research area (POB1), the development of user-friendly human-computer interaction systems as one of the key specialised scientific fields pursued at the university. The HCI program implements these objectives through research and development projects that impact the socio-economic environment and advance the discipline globally.

The international nature of the program fosters internationalisation, enabling students to work in teams from different countries. A strong emphasis on innovation and technology transfer is evident in projects that combine technological expertise with interaction design for computer systems. Students benefit from modern educational and research infrastructure, enabling them to tackle ambitious tasks in a creative and supportive environment. The program is based on a collaborative partnership between students and faculty, creating a culture of openness and shared growth. Mentorship support and an individualised approach to talented students, along with the development of their aptitudes, enable them to build competencies and plan career paths.

HCI promotes sustainable development by designing technologies that are user- and environmentally friendly. The program's education combines professional preparation with research competencies, aligning with labour market requirements and current scientific trends. As a result, graduates are well-prepared to work in the IT industry, R&D centres, and to pursue research at the doctoral level. The HCI program exemplifies synergy between the university's strategy and a modern approach to education, addressing the needs of the region, the country, and the world. The HCI program at Lodz University of Technology provides an additional boost to the development of the creative industry ecosystem by offering professionals with competencies that go beyond the technical domain—supporting further innovation in the university's socio-economic environment.

The Human-Computer Interaction Program Council (RKS HCI) includes faculty members from the WEEIA department, specialists in designing and researching human-computer interaction systems, with appropriate education and documented achievements in various aspects of shaping key competencies in interdisciplinary HCI-related issues. Experts from the socio-economic sector complement the teaching team.

Educational objectives and employment and continuing education opportunities

The second-cycle Human-Computer Interaction program aims to educate specialists prepared to meet the demands of a dynamically developing and changing international labour market, equipped with skills that enable independent problem-solving during their professional practice. Graduates possess knowledge and technical skills in the use of information and communication technologies (ICT), including both hardware and software. They are capable of carrying out the entire process of designing interactive IT systems based on end-user interaction, including requirements gathering, design, prototyping, evaluation, and monitoring. Graduates are

prepared to work effectively in multidisciplinary, international project teams where English is the language of communication.

A graduate of the second-cycle Human-Computer Interaction program can find employment as: a user experience and user interface designer (UX/UI), a designer of modern information and communication technologies, a researcher in research and development units, an academic researcher.

Graduates of the second-cycle Human-Computer Interaction program are also prepared to continue their education at the third-cycle (doctoral) level.

Description of the process and outcome of consultations on the proposed study program with the socio-economic environment

The concept of education in Human-Computer Interaction, along with the key modules of the program, was developed in collaboration with HCI specialists from leading academic centres in Europe and beyond (including TU Wien, University of Bergen, Chalmers University of Technology, Ludwig-Maximilian University) as well as industry experts working for global companies (e.g., Google Inc., Elsevier). The program was also consulted with the Education Team of the ICT Poland Central Cluster.

As a result of consultations with the socio-economic environment and based on the analysis of the report “The Future of Jobs Report 2025”, the key competencies of an HCI graduate were defined as:

1. Technical and design competencies,
2. Analytical and research competencies,
3. Social skills, empathy, and active listening,
3. Critical thinking,
4. Resilience, flexibility, and agility
5. Motivation and self-awareness.

Description of competencies expected from a candidate applying for admission to studies

In accordance with the recruitment resolution in force for a given academic year.

The unit organizing education

Faculty of Electrical, Electronic, Computer and Control Engineering

Education program

Semester 1

Course	Number of hours	ECTS points	Form of verification	Obligatory
HCI Fundamentals	Seminar: 15 Laboratory classes: 30 Lecture: 15	6	Exam	Obligatory
Prototyping Interactive Systems	Laboratory classes: 25 Project work: 45 Lecture: 5	7	Graded assignment	Obligatory
Script Programming	Laboratory classes: 39 Lecture: 6	4	Graded assignment	Obligatory
Aesthetics and Data Visualisation	Laboratory classes: 15 Lecture: 15	3	Graded assignment	Obligatory
English for Science Communication	Tutorials: 45	2	Graded assignment	Obligatory
Introduction to UI	Project work: 30 Lecture: 15	4	Graded assignment	Obligatory
Elective Courses 1		4	Graded assignment	Obligatory group
Student wybiera 1 przedmiot				
3D Computer Graphics & Modelling	Project work: 30 Lecture: 15	4	Graded assignment	Optional
Accessibility and Universal Design	Project work: 30 Lecture: 15	4	Graded assignment	Optional
Gestural Interaction	Project work: 30 Lecture: 15	4	Graded assignment	Optional
Sport Interaction and Motor Learning	Project work: 30 Lecture: 15	4	Graded assignment	Optional
Wearable Computing	Project work: 30 Lecture: 15	4	Graded assignment	Optional
Sum	345	30		

Semester 2

Course	Number of hours	ECTS points	Form of verification	Obligatory
Research Methods in HCI	Laboratory classes: 30 Project work: 45 Lecture: 30	10	Exam	Obligatory
Interaction Design	Project work: 45 Lecture: 15	6	Graded assignment	Obligatory
User Experience Design and Practice	Seminar: 15 Laboratory classes: 45	5	Graded assignment	Obligatory
Introduction to Machine Learning and Data Science	Project work: 30 Lecture: 15	4	Graded assignment	Obligatory
Civic Knowledge and Engagement 1	Seminar: 0	1	Graded assignment	Obligatory
Elective Courses 2		4	Graded assignment	Obligatory group
Student wybiera 1 przedmiot				
Virtual Environments Programming	Laboratory classes: 30 Lecture: 15	4	Graded assignment	Optional
Introduction to Human-Robot Interaction	Laboratory classes: 30 Lecture: 15	4	Graded assignment	Optional
Ethics of New Technologies	Laboratory classes: 30 Lecture: 15	4	Graded assignment	Optional
Sum	315	30		

Semester 3

Course	Number of hours	ECTS points	Form of verification	Obligatory
Interdisciplinary Team Project	Project work: 75	10	Graded assignment	Obligatory subjects to choose from

Course	Number of hours	ECTS points	Form of verification	Obligatory
Social Computing & CSCW	Seminar: 15 Laboratory classes: 30	4	Graded assignment	Obligatory
Human-AI Collaboration Systems	Seminar: 5 Project work: 40	5	Graded assignment	Obligatory
Current Topics in HCI	Seminar: 15	2	Graded assignment	Obligatory
Neuro-Physiological Signals in HCI	Project work: 30 Lecture: 15	4	Graded assignment	Obligatory
Civic Knowledge and Engagement 2	Seminar: 0	1	Graded assignment	Obligatory
Elective Courses 3		4	Graded assignment	Obligatory group
Student wybiera 1 przedmiot				
3D Computer Graphics & Modelling	Project work: 30 Lecture: 15	4	Graded assignment	Optional
Accessibility and Universal Design	Project work: 30 Lecture: 15	4	Graded assignment	Optional
Gestural Interaction	Project work: 30 Lecture: 15	4	Graded assignment	Optional
Sport Interaction and Motor Learning	Project work: 30 Lecture: 15	4	Graded assignment	Optional
Wearable Computing	Project work: 30 Lecture: 15	4	Graded assignment	Optional
Sum	270	30		

Semester 4

Course	Number of hours	ECTS points	Form of verification	Obligatory
Final Project	Diploma Thesis: 0	20	Graded assignment	Obligatory subjects to choose from

Course	Number of hours	ECTS points	Form of verification	Obligatory
MSc. Seminar	Seminar: 30	3	Exam	Obligatory
Diploma Research Studio	Project work: 15	4	Graded assignment	Obligatory
Internship	Internship: 0	3	Pass	Obligatory
Sum	45	30		