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190. Curriculum for Joint Master's Degree Programme in Human-Computer Interaction at the University of Salzburg

(Version 2019)

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In its session on 18.6.2019, the Paris-Lodron-University of Salzburg Senate formally approved the curriculum for the joint master's degree programme in Human-Computer Interaction (HCI) finalised by the Human-Computer Interaction curriculum committee at the University of Salzburg in its meeting on 8.4.2019 in the version that follows.

The legal basis for the curriculum is the 2002 Federal Act on the Organisation of Universities and their Studies (Universities Act 2002 – UG), Federal Law Gazette No. 120/2002, and the section of the Statutes of the University of Salzburg pertaining to university studies.

The formal basis of this joint master's degree programme in Human-Computer Interaction is a cooperation contract between the Paris-Lodron-University of Salzburg (PLUS) and the Salzburg University of Applied Sciences (SUAS) signed on 9.10.2018. Besides financial and administrative-technical regulations, in this cooperation contract an HCI board is defined, consisting of teaching personnel of both institutions as well as students, which serves as a contact point for all administrative bodies of both institutions. Furthermore, for all the individual course admission regulations and examinations, the corresponding regulations of the institution hosting the course are applied as defined in the contract.

§ 1 General Provisions

(1) The number of ECTS points necessary to complete a degree in the master's programme in Human-Computer Interaction is 120. This corresponds to four semesters of study.

(2) Graduates of the master's programme in Human-Computer Interaction hold a Master of Science in Engineering degree (abbreviated MSc).

(3) In order to be admitted to the master's programme in Human-Computer Interaction, students must hold a bachelor's degree in an equivalent or related field from an accredited Austrian or foreign institute of higher education (cf. UG2002 §64 para. 5).

(4) If a student's bachelor's degree is not deemed equivalent to an acceptable extent, the student may be required to complete additional work worth up to 45 ECTS points; these requirements must be satisfied by the end of the master's programme. Based on the suggestion of the HCI board, only the rectorate or a member of staff at the University of Salzburg designated by the rectorate is authorised to make a determination of equivalency.

(5) The number of students who can be admitted on this programme is limited to 30 places per academic year from the beginning of the winter semester. The selection of candidates is made on the basis of the application supporting documents and an interview conducted by both institutions. A detailed description of the process can be found in Annex II: Application procedure.

(6) All graduation requirements to be fulfilled by students have been assigned ECTS points. One ECTS point equals 25 hours of study, which corresponds to the average number of hours required to achieve the expected learning objectives. An academic year consists of 1500 hours, corresponding to 60 ECTS points.

(7) Students with disabilities and/or chronic illnesses will not be subject to any form of dis- crimination in their studies. The University is committed to the basic principles laid out in the UN Convention on the Rights of Persons with Disabilities and Austrian nondiscrimination laws as well as the policy of positive action.

§ 2 Overview of the degree programme and professional skills

(1) Overview of the degree programme

The goal of Human-Computer Interaction and thus of the joint degree master's programme is the research, design, and improvement of interfaces between users and technical systems including their user experiences (UX). One mission of HCI is to promote the basic understanding and design of technology, taking into account various aspects of human capabilities and social phenomena. Interdisciplinary research and education in the fields of design, computer science and human sciences are necessary to create novel and innovative solutions for problems in the fields of economy, politics and society.

Digitalization or digital transformation describes the change in society and economy through the successive introduction of digital technologies in all areas of life. At the intersection of users and various types of technical systems, HCI specialists can provide support and design interactive products and services. The design includes all aspects that users can experience: the form (e.g., interface or device), the function (i.e. capabilities or purpose the interactive artifact fulfils in a particular context) as well as emotional (e.g., aesthetics) and other characteristics (e.g., reaction speed). Design per se is understood as a creative process in which an entity (a material object, a structure, a process, a situation, an interaction, etc.) is created, modified or developed.

The joint degree master's programme Human-Computer Interaction aims at a scientifically sound education and an application-oriented practical training at university level. The guiding principle of a university education of the highest possible quality and scientific character (professional qualification, research ability, dissertation capability) is pursued.

(2) Professional skills and competences (Learning Outcomes)

In order to cope with current and future tasks, graduates of the joint degree master's programme Human-Computer Interaction need a qualification profile that includes a comprehensive knowledge of general approaches (e.g., design thinking, experience-centred design), qualitative aspects and guidelines (e.g., usability, user experience), corresponding methods and tools, current and future interaction approaches, as well as the institutionalization and management of user experience in organizations.

In view of the diversity of positions and activities of graduates of the joint degree master's programme Human-Computer Interaction, the competence profile is structured as a network of different specialist competences.

The general professional competencies are a bundle of basic theories and methodologies in the field of HCI extended and supplemented by technical and design skills (i.e. prototyping) as well as knowledge and skills from other disciplines covered by elective courses.

Graduates:

- have a broad basic knowledge of HCI theories and methodology. This includes naming, explaining and discussing HCI theories and paradigms as well as characterizing and differentiating HCI research methods based on epistemology, goals and applications.
- have the ability to systematically investigate an HCI problem on all determinant factors or components and the ability to abstract, generalise and transfer the results obtained. They can formulate precise research questions, select and apply a methodological approach, design and conduct appropriate (user) studies, adequately analyse the collected data and interpret the results.

- can critically reflect and classify scientific knowledge. This includes the analysis and discussion of current scientific literature and materials on HCI in relation to new theories, methods, technologies and applications.
- are able to present the acquired knowledge in written and oral form. They can write a scientific paper and present it to a professional audience. This also includes answering subject-specific questions on the topic.
- can plan an HCI project independently in terms of tasks, milestones, time resources and responsibilities as well as collaborate in a team.
- have a professional self-conception and consider ethical principles in their actions. They are able to systematically analyse, critically evaluate and discuss their behaviour and to integrate sustainability considerations into their own future-oriented and responsible actions.
- are able to methodically correctly assess the context of use, use practices, and the requirements of a specific HCI application case, analyse the results and document them appropriately.
- are able to shape the interaction between users and interactive systems by applying appropriate methods and processes for interaction design.
- can design and implement prototypes of interactive user interfaces appropriate to the intended use. This includes the analysis and determination of the necessary functional scope, the systematic selection of the type of prototype as well as the consideration of software and hardware.
- can quantitatively evaluate interactive systems or services (user-based) and analyse the collected data using statistical methods. They are able to formulate concrete research questions, design a corresponding (user) study and interpret their results.
- are able to develop an understanding of complex interdisciplinary usage contexts and to structure them. This includes the application of theoretical knowledge as well as technological and methodological skills.
- have in-depth knowledge of statistics and the planning of empirical experiments.
- can apply innovation management methods and techniques appropriately to promote innovation in the HCI field. They accept HCI challenges and systematically develop innovative solutions.
- have practical knowledge of current and future technologies. They are able to identify and use new and emerging technologies to develop concepts and implement prototypes of innovative systems and services.
- have the skills and mastery of the methods to analyse and assess the impact of new technologies on society and the environment through possible applications.
- are able to successfully complete a master's thesis. They can work independently on a complex HCI task at the level of an HCI professional. They apply theoretical knowledge as well as technological and methodological skills to tackle a complex, self-identified research problem. They are able to communicate their findings to a specialist audience in a scientifically appropriate form, both orally and in writing.

(3) Importance and relevance of the degree for society, the scientific community and the labour market

The demand for specialists in Human-Computer Interaction in research and innovation is constantly growing in companies, universities and the public sector. The availability of specialists is of strategic importance for companies when it comes to positioning high-quality products on the interna-

tional market that are oriented towards users. The development of an individual (new) occupational field requires appropriate training.

The central sectors for graduates of the joint degree master's programme Human-Computer Interaction are the creative industries, the software industry, commerce & industry, consulting & training as well as academic and application-oriented research & technology organizations.

Graduates of the master's programme in Human-Computer Interaction often pursue careers in the following fields:

- HCI/UX Researcher
- HCI/UX Professional/Experts/Specialists
- Professional for Usability and User Experience
- Usability Engineer
- UX & Usability Expert
- User Researcher
- Usability Consultant
- HCI/UX Engineer/Specialist
- Digital Strategy Manager
- Concept & Strategy Developer
- Interface Designer
- Interaction Designer
- UX Designer
- HCI/UX Innovation Managers

§ 3 Structure of the programme

The master's programme in Human-Computer Interaction comprises 11 modules with a total number of 78 ECTS points. In addition, there are 12 ECTS points assigned for elective courses. The master's thesis is worth 25 ECTS points, there are 2 ECTS points assigned for a master's seminar and 3 ECTS points for a master's exam.

	ECTS
HCI Theory & Methodology (HTM)	6
Prototyping for HCI (PFH)	6
Human Factors & Experience Engineering (HFE)	6
Interaction Design & Digital Innovation (IDD)	6
Ethics, Diversity & Society (EDS)	6
Contextual HCI (CHC)	6
Interaction Technologies (INT)	6
HCI & Research (HCR)	12
Advanced Contextual HCI (ACH)	6
HCI Innovations & Future Technologies (HIF)	6
HCI & Industries (HCI)	12
Elective courses	12
Master's seminar	2
Master's thesis	25
Master's exam	3
Total	**120**

§ 4 Course Types

The programme contains the following course types:

Lectures (VO) introduce students to different areas of the subject and provide subject-specific methods and techniques.

Exercise combined with lectures (UV) combine exercises parts with lectures in a course tailored according to specific didactic considerations. UVs allow for the connecting of theoretical content with practical application.

Seminars (SE) promote scientific work and discussion and require students to develop their own scientific contributions.

Integrated courses (ILV) combine knowledge input with experience-based learning. They connect theory-based lectures with practical problem-based exercises carried out by students in order to deepen knowledge of the subject matter.

Laboratory (LB) exercises serve the training of knowledge obtained in lectures and other course types. In the course, students practice laboratory experiments on state-of-the-art equipment and discuss test results (e.g. as preparation for scientific work) in small groups.

Projects (PT) are independent and problem-based solving exercises on complex and practical issues of a larger scope taken by individual students or small groups. Project management is the responsibility of the student(s), including the allocation of time, in consultation with project supervisors.

Individual Training (IT) serves to deepen the theory-based, practice-oriented and discursive examination of selected problems, whereby students are expected to actively acquire knowledge and systematically work out contributions. Particular attention is paid to individual supervision for students.

Note that types VO and UV are used exclusively at PLUS, while types ILV, LB, PT, IT are used exclusively at SUAS. All courses involve continuous assessment with the exception of lectures (VO). In all courses attendance is obligatory with the exception of lectures (VO) at PLUS.

§ 5 Required courses and plan of study

The following contains a list of modules and courses in the master's programme in Human-Computer Interaction. The allocation of the courses to specific semesters is mandatory for those courses held at the Salzburg University of Applied Sciences and recommended for courses held at the University of Salzburg, designed to ensure that the order in which the courses are taken builds on knowledge acquired successively and that the workload of 60 ECTS points in an academic year is not exceeded. If there are no prerequisites, modules and courses can however be taken in a different order in accordance with § 11.

Detailed descriptions of the modules including the knowledge, methods and skills to be acquired can be found in Annex I: Module descriptions.

Master Human-Computer Interaction								
Module	**Course**	**SHrs**	**Type**	**ECTS**	**Semester with ECTS**			
					I	**II**	**III**	**IV**
(1) Compulsory modules								
Modul 1 HCI Theory & Methodology (HTM)								
HCI Theory & Paradigms[1]		2	VO	2	2			
Foundations of HCI Methodologies[1]		2	UV	4	4			
Subtotal for module HTM		4		6	6			
Modul 2 Prototyping for HCI (PFH)								
Applied Prototyping Skills for HCI[2]		4	ILV	6	6			
Subtotal for module PFH		4		6	6			
Modul 3 Human Factors & Experience Engineering (HFE)								
Human Factors & Design Principles[1]		2	VO	2	2			
Experience Engineering Methods[1]		2	UV	4	4			
Subtotal for module HFE		4		6	6			
Modul 4 Interaction Design & Digital Innovation (IDD)								
Interaction Design[1]		2	UV	3	3			
Design Thinking for Digital Innovation[2]		2	ILV	3	3			
Subtotal for module IDD		4		6	6			
Modul 5 Ethics, Diversity & Society (EDS)								
Ethics & Sustainability[2]		1	ILV	1,5	1,5			
Diversity & Intercultural Aspects[2]		1	VO	1,5	1,5			
Societal & Legal Aspects in HCI[2]		2	VO	3	3			
Subtotal for module EDS		4		6	6			
Modul 6 Contextual HCI (CHC)								
Contextual Analysis & Context Capturing[1]		2	UV	3		3		
Contextual Interaction Design[1]		2	UV	3		3		
Subtotal for module CHC		4		6		6		
Modul 7 Interaction Technologies (INT)								
Interaction Approaches & Technologies[2]		4	LB	6		6		
Subtotal for module INT		4		6		6		
Modul 8 HCI & Research (HCR)								
Research Trends in HCI[3]		2	SE	3		3		
Lecture Series: HCI Related Disciplines[3]		2	VO	3		3		
HCI Research Project[3]		2	PT	6		6		
Subtotal for module HCR		4		12		12		
Modul 9 Advanced Contextual HCI (ACH)								
Advanced Contextual Interfaces[3]		2	UV	3			3	
Complex Interactive Systems[2]		2	ILV	3			3	
Subtotal for module ACH		4		6			6	
Modul 10 HCI Innovations & Future Technologies (HIF)								
Design of Innovative Interactions[1]		2	UV	3			3	
Impacts of Future Technologies[3]		2	SE	3			3	
Subtotal for module HIF		4		6			6	
Modul 11 HCI & Industries (HCI)								
User Experience in Practice[2]		2	ILV	3			3	
Experience Leadership & Innovation Management[1]		2	SE	3			3	
HCI Industry Project[3]		2	PT	6			6	
Subtotal for module HCI		6		12			12	

Total for compulsory modules			78	30	24	24	
(2) Elective courses			12		6	6	
(3) Master's seminar[3]		SE	2				2
(4) Master's thesis[3]		IT	25				25
(5) Master's exam[3]		IT	3				3
Sum total			**120**	**30**	**30**	**30**	**30**

[1] Courses held by PLUS
[2] Courses held by SUAS
[3] Joint courses held by PLUS and SUAS

§ 6 Elective courses

(1) In the master's programme in Human-Computer Interaction, students have to complete elective courses totalling 12 ECTS points. These elective courses are designed to promote the acquisition of additional professional skills and strengthen individual areas of focus within a student's course of study. They can be completed at any accredited postsecondary institution.

(2) Recommended elective courses cover the range of the following subject areas (but are not limited to): gender studies, data science, geo-informatics, computer science, statistics, philosophy of science. Further recommendations for non-German speaking students include taking English-taught courses at PLUS and SUAS that complement the student's individual needs and interests.

§ 7 Master's thesis

(1) The master's thesis, which must be written in English, serves to demonstrate that students have acquired the ability to perform independent academic research in the area of Human-Computer Interaction according to current academic research methods and standards.

(2) The topic of the master's thesis should be chosen in such a way that it is reasonable and appropriate for completion of the thesis within six months (cf. UG2002 §81 para. 2).

(3) The topic of the master's thesis must be taken from a module in the master's curriculum. The student may suggest a topic or choose from a number of topics provided by one of the available thesis advisors.

(4) It is to be noted that both the student's work on the topic and advisor's work with the student are governed by Austrian copyright law, Federal Law Gazette No. 111/1936 (cf. UG2002 §80 para. 2).

§ 8 Internship

It is recommended that, as part of the elective requirement, students complete a praxis- oriented internship comprising 4 weeks, which is comparable to full-time employment (this corresponds to 6 ECTS points). The internship must have a reasonable connection to the degree programme and must be approved by the responsible body before the internship is scheduled to begin.

The following qualifications can be gained within the praxis-oriented internship:

- Application of the acquired competences in the professional context
- Translating scientific concepts to application scenarios
- Acquisition of additional skills (e.g. teamwork, communication competence, planning competence) in a professional context

§ 9 Study Abroad

Students in the master's programme in Human-Computer Interaction are recommended to spend a semester of study abroad. This semester abroad should ideally be scheduled in the fourth semester of study. Course transfers for the courses completed at the university abroad will be granted by the responsible body (following the corresponding recommendations of the HCI board whenever possible). Documents needed for the assessment of transfer courses are to be provided by the student.

Steps will be taken to ensure that the semester abroad can be completed without causing a delay in a student's course of study when the following conditions are met:

- at least 30 ECTS credits are earned in each semester of study abroad.
- the content of the courses completed during the period of study abroad is not identical to courses already completed at PLUS or SUAS.
- confirmation by formal notification before beginning the study abroad period of which courses and/or exams planned to be taken abroad are transferable to PLUS and SUAS.

In addition to HCI-specific knowledge and skills, students stand to gain the following qualifications by studying abroad:

- acquisition and consolidation of field-specific knowledge in a foreign language
- acquisition and consolidation of general foreign-language skills (comprehension, conversation, etc.)
- acquisition and consolidation of organisational skills gained by independently navigating the bureaucracy and organisational structure of a university abroad as well as daily challenges of student life abroad
- becoming acquainted with international student exchange programmes and broadening one's perspectives in one's own field of study
- acquisition and consolidation of intercultural communication skills

Students with disabilities and/or chronic illnesses will be assisted in their search for a study abroad opportunity and in planning for their semester abroad by the office of the rectorate for Disability & Diversity.

§ 10 Allocation of places in courses with a limited number of participants

(1) The maximum number of participants in the master's programme in Human-Computer Interaction for the following course types is limited as follows:

Lectures (VO)	no limit
Exercise combined with lectures (UV)	15
Seminars (SE)	15
Integrated courses (ILV)	15
Laboratory (LB)	15
Projects (PT)	15

(2) In instances in which courses with a restricted number of participants are oversubscribed, priority of enrolment will be given to students for whom the course is part of the curriculum. Because of the limited number of students admitted to the programme, the participation in the courses provided for the joint degree master's programme is guaranteed.

(3) Students in the master's programme in Human-Computer Interaction will be given places in courses based on the following criteria in the order listed below:

- a student was on the waiting list in the course in the previous academic year
- study advance (sum of completed ECTS credits in the programme of study)
- a student has completed a greater number of courses and/or exams
- a student has completed a greater number of semesters in the programme of study
- average grading score weighted according to ECTS credits
- random selection

Available places will be allocated to students from other programmes using the same criteria in the same order.

(4) For students participating in international exchange programmes, additional places constituting at least ten percent of the maximum number of participants in each course will be made available. These places will be allocated randomly.

§ 11 Admission requirements for exams

For courses which are held at PLUS, the examination regulations of the University Salzburg are applied. For courses which are held at SUAS, the examination regulations of the Salzburg University of Applied Sciences are applied.

§ 12 Examination regulations

(1) The modules of this curriculum are assessed via individual course examinations.

(2) For all the individual course examinations, the examination regulations of the institution hosting the exam are applied.

(3) For joint courses the examination regulations of the Paris-Lodron-University Salzburg apply.

§ 13 Master's examination before examining committee

(1) The master's programme in Human-Computer Interaction concludes with a master's examination worth 3 ECTS credits before an examining committee.

(2) Students must have successfully completed all of the required courses and the master's thesis in order to be eligible to take the master's examination.

(3) The master's examination is conducted by a commission, consisting of four persons: the supervisor; one examiner each from PLUS and SUAS who are selected by the student from an announced pool of lecturers; a chairperson, who should neither be the supervisor nor one of the examiners.

(4) The master's examination consists of an oral examination including the following components: (1) presentation of the master's thesis including a defensio of the master's thesis (2) examination interview on cross-references of the topic of the master's thesis to relevant subjects of the curriculum as well as (3) an examination interview on other contents relevant to

the curriculum. The student has the opportunity to agree to a framework of these contents with the examiners in advance.

§ 14 Effective date

The curriculum comes into force on 1 October 2019.

Annex I: Module descriptions:

Module description	**HCI Theory & Methodology**
Module code	HTM
Total workload	6 ECTS
Learning Outcomes	Students will be able to name, explain and discuss theories and paradigms of HCI. Students will be able to characterize and differentiate HCI research methodologies and their respective epistemologies, aims, methods and applications. They will be able to compare, select and apply appropriate methodology to a given HCI problem.
Module content	HCI Theory & Paradigms This course provides a comprehensive overview of theories and paradigms of HCI. Starting with a historical overview of HCI research, this course focuses on depicting and discussing modern HCI theories (i.e. situated action) as well as contemporary trends and paradigms, such as values in HCI, the role of design, or embodiment. Foundations of HCI Methodologies This course starts with an introduction to different HCI research and design-oriented methodologies such as user-centred design, human-centred design, research through design, research by design, research for design, experience-centred design, participatory design, critical design, or reflection in action. The course focuses on the differences of these methodologies regarding their purpose (e.g. design, knowledge generation, industry). The course covers different forms of research questions in HCI and how these questions can be answered by HCI methodologies. This also includes a critical reflection of the acquired knowledge.
Courses	HCI Theory & Paradigms (2 SHrs, VO, 2 ECTS) Foundations of HCI Methodologies (2 SHrs, UV, 4 ECTS)
Type of exam	Individual course assessment

Module description	**Prototyping for HCI**
Module code	PFH
Total workload	6 ECTS
Learning Outcomes	Students will be able to demonstrate prototyping skills in HCI challenges by implementing user interface prototypes with different levels of fidelity.
Module content	Applied Prototyping Skills for HCI This course covers different prototyping approaches in HCI. This includes the implementation of low-fidelity to high-fidelity interface prototypes for a given HCI problem. It considers factors of input, output, application interface, and related infrastructure as well as the typical tools used to implement them. The course includes screen-based prototyping as well as physical computing. The course also provides the basics of electronics and how to connect hardware with software including rapid prototyping skills.
Courses	Applied Prototyping Skills for HCI (4 SHrs, ILV, 6 ECTS)
Type of exam	Individual course assessment

Module description	**Human Factors & Experience Engineering**
Module code	HFE
Total workload	6 ECTS
Learning Outcomes	Students will be able to name, explain, discuss and illustrate human factors and design principles. Students will be able to name and explain experience engineering methods and apply them to HCI use cases.
Module content	Human Factors & Design Principles This course covers basics and new approaches in human factors, software and hardware ergonomics, understanding different aspect of the human and design principles triggered by this. The course emphasizes individual human factors (e.g., perception, cognition, motor control, anthropometry) as well as the organizational arrangements that can amplify or correct human factors' problems or lead to human error. It includes HCI related models such as Fitts' law. Experience Engineering Methods This course provides a systematic introduction to usability and experience engineering methods and processes. It starts with an introduction to overall approaches in the context of an engineering process and how they are applied to HCI problems. The course will focus on the basics of requirements engineering and analysis activities (e.g., contextual inquiry, task analysis, ethnography, observation), conceptual design as well as analytical and empirical evaluation methods and measurements (e.g., heuristic evaluation, A/B testing, usability studies, physiological measurements).
Courses	Human Factors & Design Principles (2 SHrs, VO, 2 ECTS) Experience Engineering Methods (2 SHrs, UV, 4 ECTS)
Type of exam	Individual course assessment

Module description	**Interaction Design & Digital Innovation**
Module code	IDD
Total workload	6 ECTS
Learning Outcomes	Students will be able to design the interaction between users and interactive systems by applying appropriate interaction design methods and processes. Students will be able to apply design thinking to small predefined HCI challenges and conceptualize possible solutions with the aim to foster digital innovation.
Module content	Interaction Design This course will start with an introduction to the basics of interaction design and the cognitive processes that underlie interaction. It then will tackle the design of the interactions between users and interactive systems and how to develop interaction designs for a given HCI problem. The combination of different interaction modalities and the application of appropriate interaction design principles and approaches are practiced on the basis of guided examples. Design Thinking for Digital Innovation This course starts with an introduction to design thinking forming the foundation of digital innovation. Based on small predefined HCI-related projects from companies, design thinking is applied and the conceptualization of possible solutions is practiced. The course will guide students to work ef-

	fectively as individuals and in small teams to design interactive systems and immersive experiences.
Courses	Interaction Design (2 SHrs, UV, 3 ECTS) Design Thinking for Digital Innovation (2 SHrs, ILV, 3 ECTS)
Type of exam	Individual course assessment

Module description	**Ethics, Diversity & Society**
Module code	EDS
Total workload	6 ECTS
Learning Outcomes	Students will be triggered to reflect their ethical viewpoint and to have a professional self-understanding. They will be able to analyse, assess, discuss and reflect on their behaviour and to integrate ethical and sustainability related considerations into their own future-oriented and responsible actions. Students will be able to manage the heterogeneity of today's users through engaging with various overlapping attributes of an individual's identity, (digital) ethics, gender aspects, and societal aspects of HCI. They are able to collaborate with people from different cultures and understand user needs (empathy). Students are able to recall and discuss societal and legal aspects in HCI such as intellectual property rights, protection of data privacy (e.g., GDPR), and technology impact assessment. Students are able to differentiate problem areas which can arise from current technical developments in the professional field of HCI and can argument their own reflected viewpoint.
Module content	<u>Ethics & Sustainability</u> The course introduces scientific codes of conduct, ethic regulations and committees. It covers basic knowledge within the scientific and vocationally-related discourse regarding ethics and sustainability in the context of information technologies. <u>Diversity & Intercultural Aspects</u> The course covers heterogeneity of today's users through engaging with various overlapping attributes of an individual's identity, gender aspects, and societal aspects of HCI by the examination and discussion of examples and case studies. <u>Societal & Legal Aspects in HCI</u> The course covers professional ethics, ethical guidelines of various professional associations and discussions of case studies. It outlines the protection of intellectual properties through patents, trademarks and registered designs as well as the HCI-related aspects of data protection, privacy and security.
Courses	Ethics & Sustainability (1 SHrs, ILV, 1,5 ECTS) Diversity & Intercultural Aspects (1 SHrs, VO, 1,5 ECTS) Societal & Legal Aspects in HCI (2 SHrs, VO, 3 ECTS)
Type of exam	Individual course assessment

Module description	**Contextual HCI**
Module code	CHC
Total workload	6 ECTS
Learning Outcomes	Students will be able to select the adequate research method and approach specific contexts in field studies appropriately. They will be able to describe the specific context appropriately. Students will be able to research, conceptualize, design and build prototypes for interaction problems in specific application areas.
Module content	Contextual Analysis & Context Capturing This course covers different context definitions and models and how to select and apply methods to gather requirements specific for different and complex application areas. In this course students will be confronted with contextual challenges in various application areas (e.g., automotive, factory, hospital, home). The preparation and execution of analyses in these different application areas is practiced as well as the interpretation of collected data and the formulation of contextual requirements. Students will also learn to draw conclusions for follow up development stages. Contextual Interaction Design This course leads the students to conceptualize, design and implement experience prototypes for interaction problems in specific application areas and evaluate these designs in experiments and user studies. The translation of complex contextual requirements into concrete designs and implementations is practiced.
Courses	Contextual Analysis & Context Capturing (2 SHrs, UV, 3 ECTS) Contextual Interaction Design (2 SHrs, UV, 3 ECTS)
Type of exam	Individual course assessment

Module description	**Interaction Technologies**
Module code	INT
Total workload	6 ECTS
Learning Outcomes	Students will be able to compare, select, utilize, adapt and implement advanced interaction technologies according to an application area.
Module content	Interaction Approaches & Technologies This course introduces the concepts and functionality of advanced interaction technologies such as multimodal interaction, movement and body sensing, virtual reality, augmented reality, tangible interaction. Building prototypical applications for a specific application area using one or more of these advanced interaction technologies is covered in detail.
Courses	Interaction Approaches & Technologies (4 SHrs, LB, 6 ECTS)
Type of exam	Individual course assessment

Module description	**HCI & Research**
Module code	HCR
Total workload	12 ECTS
Learning Outcomes	Students will be able to analyse and discuss recent HCI related scientific literature and materials with respect to novel theories, methods, designs and technologies. They will be able to critically reflect on the appropriateness of research questions, designs and methods. They will be able to

	identify, reflect and discuss research trends in HCI. Students will be able to describe predominant theories, methods and recent trends in related scientific disciplines and are able to reflect their applicability to HCI research. Students will be able to apply theoretical knowledge, as well as technological and methodological skills to master a complex research problem. They will be able to formulate well-defined research questions and conceptualize an appropriate study. They will be able to select and apply a methodological approach, perform appropriate (user-)studies, analyse their data appropriately and interpret their findings. They will be able to write a scientific research paper and submit it to a scientific HCI conference.
Module content	Research Trends in HCI This course starts with an overview of current trends in HCI. Important HCI related conferences, journals, as well as other research and HCI trends sources will be introduced. This also involves a critical reflection and a systematic assessment of the strength and weaknesses of the respective source. HCI research trends have to be reflected critically and implications will be worked out. Lecture Series: HCI Related Disciplines This course is a lecture series with contributions from different HCI-related disciplines. It covers an introduction and theories, methods and approaches from related disciplines such as cognitive science, social science, behavioural science and design research. The relationship and influence of the different disciplines on HCI is reflected on. Lectures are held by experts in the related disciplines and may include visits to dedicated research facilities. HCI Research Project The course covers the basics of scientific work and scientific writing as well as the formulation of research questions and the conceptualisation of an appropriate study. The coaching of the students takes place in several thematic steps: project management, selection and application of methodological approaches, planning and executing appropriate (user-) studies, applying data analysis and interpretation of findings, as well as documentation according to professional academic standards. The course ends up with a submitted paper of a possible solution or findings at a leading HCI conference (e.g., CHI conference in a track as a student research competition).
Courses	Research Trends in HCI (2 SHrs, SE, 3 ECTS) Lecture Series: HCI Related Disciplines (2 SHrs, VO, 3 ECTS) HCI Research Project (2 SHrs, PT, 6 ECTS)
Type of exam	Individual course assessment

Module description	**Advanced Contextual HCI**
Module code	ACH
Total workload	6 ECTS
Learning Outcomes	Students will be able to discuss various HCI streams. Based on one specific stream they will be able to solve contextual challenges and design one or more advanced contextual interfaces for a specific application area. Students will be able to identify and examine challenges in industrial settings accompanying development processes of complex interactive systems or services and their integration.

Module content	Advanced Contextual Interfaces This course intensifies the knowledge of different types of contextual interfaces based on recent streams such as autonomous systems, social computing, persuasive technologies, ubiquitous computing, wearable computing or tangible interaction. Students will be focusing on one stream and conceptualise, design and prototype one or more advanced contextual interfaces for a specific application area. Complex Interactive Systems Based on selected case studies this course will cover actual development processes and different philosophies (e.g., agile development) as well as technological and organisational system complexity in industry. This includes the confrontation with existing technical interfaces, established operational processes and stakeholders on multiple hierarchical levels. This course ends with an assignment to conceptualize and organize the integration of an interactive system or service in a predefined industrial environment.
Courses	Advanced Contextual Interfaces (2 SHrs, UV, 3 ECTS) Complex Interactive Systems (2 SHrs, ILV, 3 ECTS)
Type of exam	Individual course assessment

Module description	**HCI Innovations & Future Technologies**
Module code	HIF
Total workload	6 ECTS
Learning Outcomes	Students will be able to identify and utilize recent and upcoming technologies to envision concepts and implement prototypes of innovative systems and services. Students will be able to analyse, estimate and predict potential impacts of new technologies on society and the environment based on possible application areas.
Module content	Design of Innovative Interactions The course covers recent and upcoming technologies and their application for interactive systems and services. The students engage with recent and upcoming sensor, computing and actuator technology and how it could be utilized for innovative interactions. The course includes an assignment to design and prototype an innovative interaction concept using novel hard- and software components. The course focuses on forward looking and even speculative designs. Impacts of Future Technologies The course covers theoretical knowledge and methods to assess and classify the impact of technologies regarding individual, societal and environmental consequences. It starts with examples from the past such as letterpress, punch cards or interactive tablets to exemplify the path from innovation to market penetration and disruption. Based on case studies the analysis, estimation, prediction and comparison of individual, societal, and environmental impacts of novel technologies will be practiced. Possible topics for the master thesis will be identified and discussed.
Courses	Design of Innovative Interactions (2 SHrs, UV, 3 ECTS) Impacts of Future Technologies (2 SHrs, SE, 3 ECTS)
Type of exam	Individual course assessment

Module description	**HCI & Industries**
Module code	HCI
Total workload	12 ECTS
Learning Outcomes	Students will be able to apply organizational, methodological, technological and design principles to economically improve the user experience addressing given real-world industrial problems. Students will be able to apply management skills and principles to develop, establish and maintain holistic UX strategies for industrial settings. Students will be able to master an industry focused project that starts with a complex real-world problem in HCI and ends up with an economically feasible solution. They are able to manage and organize an industrial project. They are able to document and present the project according to professional standards.
Module content	User Experience in Practice The course covers methods and procedures in theory and practice as well as the application of organizational, methodological, technological and design skills to a practical problem introduced by industry stakeholders with the overarching goal to improve user experience. Students will create a concept and present it to industry stakeholders. Experience Leadership & Innovation Management Based on existing positive and negative examples, the impact of experience leadership and management is examined. The course covers essential management skills and principles to develop, establish and maintain a holistic UX strategy. It includes terms like business value of design, key performance indicators, business models, business plans, technology and cost estimations as well as business cases of user experience. Management methods and project management skills are introduced. HCI Industry Project The course starts with the presentation of a complex real-world problem by an industry stakeholder. The goal of the course is to develop an interactive solution for this problem. During the course coaching of the students is provided in several thematic steps: project management, contextual requirements analysis, contextual interaction design, evaluation studies, documentation and presentation according to professional standards (project reporting). Presentation and marketing skills are trained by presenting the interim results regularly. Students are encouraged to find industry stakeholders on their own.
Courses	User Experience in Practice (2 SHrs, ILV, 3 ECTS) Experience Leadership & Innovation Management (2 SHrs, SE, 3 ECTS) HCI Industry Project (2 SHrs, PT, 6 ECTS)
Type of exam	Individual course assessment

Annex II: Application procedure:

The application procedure consists of four phases:

Phase 1: Online application

Students have to provide the following information for their online application:

- High School diploma (Matura, Abitur, A-levels, …)
- Bachelor's diploma, diploma supplement (including course duration, description of the content and credits) and / or transcript of records including course titles, credit hours & grades
- CV (in English)
- Letter of Motivation, describing the student's motivation, objectives and expectations (approx. 1.000 words, in English)
- Copy of passport

Phase 2: Preselection

A team of experts from PLUS and SUAS will decide whether applicants will be recommended for phase 3 (interview) based on an evaluation of application documents according to the following criteria:

- Key competences for the intended master's programme
- Motivation, objectives and expectations of the studies
- Previous academic achievements or practical experience
- Exceptionality of the applicant profile

Phase 3: Interview & Preparation Courses

The admission interview is held in Salzburg with members of the staff of PLUS and SUAS. The contents of this interview refer to the submitted documents and previous knowledge as well as to motivation and personal interests. The interview is conducted in English and lasts about 25 minutes. In exceptional cases, a video interview via videoconference is possible.

During the interview, questions will be asked about the previous knowledge in order to make a decision which preparation courses (i.e. Basics of Programming, Basics of Quantitative Research Methods, Basics of Qualitative Research Methods, Basic Visual Design Skills) have to be completed. Their aim is to harmonise the differences in prior education with regard to the Bachelor's degrees admitted, within the framework of compulsory courses before the start of studies. Each course spans two semester hours and equals one ECTS credit. After the admission interview the programme committee decides which preparation courses will be mandatory.

Phase 4: Decision on the Recommendation for an Admission

Based on the application documents and the interview, the programme committee decides whether the applicant is recommended for the admission. This decision is communicated to the admission department of the University of Salzburg. The final decision on admission is made by the University of Salzburg.

Impressum
Herausgeber und Verleger:
Rektor der Paris Lodron-Universität Salzburg
O.Univ.-Prof. Dr. Heinrich Schmidinger
Redaktion: Johann Leitner
alle: Kapitelgasse 4-6, A-5020 Salzburg