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Faculty of Arts and Social Sciences

## Programme Study Plan

Reg. no: HS 2021/948

### Master programme in Information Systems

<b>Programme Code:</b>	SAINF
<b>Programme Title:</b>	Master programme in Information Systems Masterprogram i informatik
<b>Credits:</b>	60/120
<b>Programme Approval:</b>	The programme syllabus was approved by the Faculty Board of Arts and Social Science on 2021-12-15, and applies as of the autumn semester of 2022
<b>Language of Instruction:</b>	English
<b>Degree level:</b>	Master
<b>Degree Type:</b>	General
<b>Qualification requirements</b>	Upper-secondary school English 6/B or equivalent, bachelor's degree of 180 ECTS credits of which at least 90 in Information Systems or Computer Science.

#### Introduction

The master programme in Information Systems is a two-year programme at master level with a major in Information Systems. Students may also decide to conclude their studies after one year with a 60-credit master's degree.

The programme offers students the opportunity to broaden their knowledge base in Information Systems and develop the skills required to analyse and develop information system architecture crossing organisational and technical systems boundaries while taking an inclusive approach. The programme prepares students for advanced work duties in organisations in need of solving complex information systems development problems. The programme also provides a solid foundation for anyone who wants to conduct research in the field of information systems.

The programme welcomes international students. All instruction and communication is in English.

## **Programme Outcomes**

### *Knowledge and understanding*

For a Degree of Master of Science (60 credits) students shall

- demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

For a Degree of Master of Science (120 credits) students shall

- demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

### *Competence and skills*

For a Degree of Master of Science (60 credits) students shall

- demonstrate the ability to integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information,
- demonstrate the ability to identify and formulate issues independently as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames,
- demonstrate the ability in speech and writing to report clearly and discuss their conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrate the skills required for participation in research and development work or employment in some other qualified capacity.

For a Degree of Master of Science (120 credits) students shall

- demonstrate the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information,
- demonstrate the ability to identify and formulate issues critically, independently and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work,
- demonstrate the ability in speech and writing both nationally and internationally to report clearly and discuss their conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrate the skills required for participation in research and development work or independent employment in some other qualified capacity.

### *Judgement and approach*

For a Degree of Master of Science (both 60 and 120 credits) students shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work,
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for their ongoing learning.

### *Independent degree project*

To be awarded a 60-credit master's degree, students shall complete an independent project of at least 15 ECTS credits in the field of Information Systems. To be awarded a 120-credit master's degree, students shall complete an independent project of at least 30 ECTS credits in the field of Information Systems.

### **Programme Structure**

The programme comprises advanced studies in Information Systems, and emphasises a combination of theoretical reflection, problem solving and design work.

The overall structure of the programme can be described as follows:

- Semester 1 – coursework on current issues in the research area of Information Systems as well as relations between research questions, approaches and results  
For the 60-credit master's degree
- Semester 2 – elective courses (at least 15 ECTS cr.) and a degree project in the field of Information Systems (15 ECTS cr.)  
For the 120-credit master's degree
- Semesters 2 and 3 – elective courses (at least 15 ECTS cr.) and optional courses in Information Systems
- Semester 4 – degree project in the field of Information Systems (30 ECTS cr.)

Detailed learning outcomes are specified in the respective course syllabus. Depending on the course, instruction can take the form of lectures, exercises, case studies, seminars, project work, and oral and written presentations.

### **Programme Curriculum**

The courses comprising the programme are listed below. Please note that the course titles may differ from those listed here.

For the 60-credit master's degree

#### *Semester 1*

- Current research on Information Systems (7.5 ECTS cr.)
- Scientific theory and methodology (7.5 ECTS cr.)
- Research perspectives on AR and VR (augmented and virtual reality) (7.5 ECTS cr.)
- Planning and communicating an Information Systems research project (7.5 ECTS cr.)

#### *Semester 2*

Either

- Co-design and User-centred Systems Development (15 ECTS cr.)
- Advances in Information Systems modelling (15 ECTS cr.)

or

- Electronic Business and Enterprise Systems (15 ECTS cr.)

and

- Information Systems – One-year master's thesis (15 ECTS cr.)

For the 120-credit master's degree

#### *Semester 1*

- Current research on Information Systems (7.5 ECTS cr.)
- Scientific theory and methodology (7.5 ECTS cr.)
- Research perspectives on AR and VR (augmented and virtual reality) (7.5 ECTS cr.)
- Planning and communicating an Information Systems research project (7.5 ECTS cr.)

*Semesters 2–3*

Either

- Co-design and User-centred Systems Development (15 ECTS cr.)
- Advances in Information Systems modelling (15 ECTS cr.)

or

- Electronic Business and Enterprise Systems (15 ECTS cr.)

and

- Optional courses in Information Systems (45 ECTS cr.). Please note that during semesters 1–3, at least 60 credits must be taken at master's level in the field of Information Systems to fulfil the entry requirements for the course *Information Systems – Master's thesis*.

*Semester 4*

- Information Systems – Master's thesis (30 ECTS cr.)

The courses are described below.

*Current research on Information Systems*

The course focuses on current research areas in Information Systems, such as business-driven IT design, systems development and learning organisations, user involvement in systems development, standardised and cloud-based systems as well as organisational models and re-organisations. The aim of the course is to provide an overview of current Information Systems research in the areas of the use and development of information systems as well as with regard to systems development tools.

*Scientific theory and methodology*

The aim of the course is to give an overview of the foundations of the theory of science and research methods in order to provide perspectives on the role and position of science in society, as well as to give a basis for further studies of scientific knowledge formation in Information Systems. The course includes basic theory of science and various science traditions as well as basic theory of knowledge to legitimise knowledge of different Information Systems problems.

*Research perspectives on AR and VR (augmented and virtual reality)*

The course focuses on user experiences of virtual reality and augmented reality, customer experience (CX) in augmented and virtual reality, augmented reality as a user interface in the Internet of Things (IoT), multimodal input as well as gender and learning perspectives on different types of sensory representation and interactivity. The course is offered in a seminar format and research articles are read for each seminar.

*Planning and communicating an Information Systems research project*

The course hones students' methodological knowledge to lay the foundations for master-level studies and includes both theoretical and practical skills. Students apply their methodological knowledge by designing and presenting the plan of a small empirical study. The emphasis is on discussing and giving arguments for how the choice of approach (case study, action research and design science research) can address the research question and how data obtained from such research can be analysed and presented. In particular, problem solving in groups and group dynamics are treated. The course also includes the communication of research projects.

*Co-design and User-centred Systems Development*

The course aims to provide students with enhanced skills in identifying factors that have a bearing on human-machine interaction, especially in terms of putting together a specification of design requirements by user-centred systems development and user involvement in systems development. The course treats representativity in systems development processes and the meaning of an equal distribution of power and influence in a systems development context. Students also acquire familiarity with different experimental methods for iterative development and evaluation of user interfaces.

*Advances in Information Systems modelling*

The course focuses on advances in Information Systems modelling approaches. The course aims to give an overview of existing Information Systems modelling approaches and to introduce a new paradigm for Information Systems modelling. The main focus of the course is on the modelling and integration of various information systems architecture dimensions. The service-oriented paradigm is used for the modelling and integration of various diagram types.

*Electronic Business and Enterprise Systems*

The course aims to develop students' knowledge of the necessity to develop and maintain effective relationships with customers, suppliers and third-party organisations. Electronic Commerce systems and Enterprise Systems, which represent the largest information system investments a firm is likely to make, are important enablers for these relationships. A number of themes will be presented and discussed during the course.

*Information Systems – One-year master's thesis and Information Systems – Master's thesis*

Each student carries out a research project in a chosen specialisation area. The project must focus on an issue relevant to the content of the study programme, thereby encompassing the scope of the respective degree.

**Title of Qualification**

Degree of Master of Science (60 credits). Major: Information Systems  
Filosofie magisterexamen. Huvudområde: Informatik

Degree of Master of Science (120 credits). Major: Information Systems  
Filosofie masterexamen. Huvudområde: Informatik

**Transfer of credits**

According to the Higher Education Ordinance Ch. 6 Sec. 6–8 students have the right to transfer credits and have prior learning recognised upon approval.

**Additional Information**

The local regulations for first and second cycle education at Karlstad University stipulate the obligations and rights of students and staff.

Earlier versions of this programme study plan we approved on:

9 Dec. 2010, reg. no FAK1 2010/193, valid from the autumn semester of 2011

7 Jun. 2012, reg. no FAK1 2012/132, valid from the autumn semester of 2012

7 Feb. 2019, reg.no HS 2019/44, valid from the autumn semester of 2019