Faculty of Economic Sciences, Communication, and IT

Programme Study Plan

Study Programme in IT Design

Programme Code	SGITD
Programme Title	Study Programme in IT Design
Specialisations	Enterprise Systems and Economy (AFEK) Software Design (PRVD) Information Systems Design (SYSD)
ECTS Credits	180
Approval	The present programme study plan was approved by the Faculty Board of Economic Sciences, Communication, and IT on 23 March 2012 and is valid for students accepted to the programme the autumn semester of 2012 and later. It replaces the previous version which was approved on 29 April 2010.
Language of Instruction	Swedish
Degree Level	Bachelor
Degree Type	General
Prerequisites	General admission requirements, plus either - field-specific eligibility A4 (Mathematics 3b or 3c, Social Science 1b alt 1al + 1a2), or - field-specific eligibility 4 (English B, Mathematics C and Social Science A).

General Information
The programme provides a broad base in the IT field combined with the opportunity for students to specialise in one of the following areas: enterprise systems and economy, software design or information systems design.

Aims – Enterprise Systems and Economy
For a Bachelor's Degree, students should be able to:

Knowledge and understanding

- demonstrate knowledge of the structure and function of an enterprise system,
- demonstrate knowledge of enterprise and systems development,
- demonstrate knowledge of procurement specification,
- demonstrate knowledge of software development,
- demonstrate knowledge of business administration, and
- demonstrate knowledge of electronic business and service development.

Skills and abilities

- give an account of the complexity of procuring and implementing enterprise systems, and
- perform a professional procurement of enterprise systems with specification requirement suited to the operative needs of an organisation

Judgement and approach

- demonstrate ability to make assessments in the field of enterprise systems and economy with consideration given to relevant scientific, social and ethical aspects,
- demonstrate understanding of the role of knowledge in society and of our responsibility for its use, and
- demonstrate ability to identify their own need of further knowledge and continual upgrading.

Aims – Software Design
For a Bachelor's Degree, students should be able to:

Knowledge and understanding

- demonstrate knowledge of computer systems and operative systems,
- demonstrate knowledge programming,
- demonstrate knowledge of the Internet and computer communication,
- demonstrate knowledge of computer security and integrity,
- demonstrate knowledge of databases, and
- demonstrate knowledge of the internal and external relations of an organisation in which an IT-system operates.

Skills and abilities

- employ different programming languages and different programming paradigms,
- give an account of and apply common data structures and algorithms,
- apply knowledge of the Internet and computer communication,
- employ technical systems built on mathematical models,
- apply the principles of software engineering in production,
- demonstrate ability to give an account of and discuss information, problems and solutions in software design with different groups of people orally and in writing, and
- demonstrate the skills required to work independently in the software design area.

Judgement and approach

- demonstrate ability to make assessments in the field of software design with consideration given to relevant scientific, social and ethical aspects,
- demonstrate understanding of the role of knowledge in society and of our responsibility for its use, and
- demonstrate ability to identify their own need of further knowledge and continual upgrading.

Aims – Information Systems Design
For a Bachelor's Degree, students should be able to:

Knowledge and understanding

- demonstrate knowledge of the structure and function of an information system,
- demonstrate knowledge of enterprise and systems development,
- demonstrate knowledge of modelling,
- demonstrate knowledge of software development and database design,
- demonstrate knowledge of interaction design,
- demonstrate knowledge of implementation tools, and
- demonstrate knowledge of methods and models for conducting an IT-project.

Skills and abilities

- work with systems design from a user and client-oriented perspective,
- work with systems design with an understanding of the need to integrate knowledge and assess alternative solutions with regard to technology, organisation and people,
- demonstrate ability to give an account of and discuss information, problems and solutions in information systems design with different groups of people orally and in writing, and
- demonstrate the skills required to work independently in the software design area.

Judgement and approach

- demonstrate ability to make assessments in the field of information systems design with consideration given to relevant scientific, social and ethical aspects,
- demonstrate understanding of the role of knowledge in society and of our responsibility for its use, and
- demonstrate ability to identify their own need of further knowledge and continual upgrading.

Programme Structure

In the first year, students study the basic courses in information systems, computer science, and business administration necessary for further studies in the IT field and for professional work.

In the second and third year, students study continuation and application courses in the form of programme electives or general electives. Programme electives are courses chosen from a recommended selection, e.g. "courses in Business Administration". General electives can be freely chosen from any academic area at Karlstad University or elsewhere.

A degree project, preferably in conjunction with a corporation of public agency, concludes the education.

Programme Curriculum

The education comprises 180 ECTS cr. including 90 ECTS cr. in the main field of. Students who have earned a Bachelor's degree can add one or two years to qualify for a Master's degree of 60 ECTS cr. or of 120 ECTS cr.

The main field of study for the Enterprise Systems and Economy specialisation is Information Systems. The Bachelor's degree gives eligibility for Master level studies in Information Studies at Karlstad University. Provided the Bachelor's degree includes the following courses, students are eligible for Master level studies in Business Administration at Karlstad University:

FEGA19 External Accounting 7.5 ECTS cr
FEGA20 Financial Control 7.5 ECTS cr
FEGA28 Organisation and Ethics 7.5 ECTS cr
FEGB22 Marketing and Business Development 7.5 ECTS r
FEGB20 Production Economy 7.5 ECTS cr
FEGB23 Investment and Financining 7.5 ECTS cr
ISGB05 Enterprise Systems 1, 7.5 ECTS cr
ISGB06 Enterprise Systems II, 7.5 ECTS cr
ISGC09 Information Systems: Degree project 15 ECTS cr

The main field of study for the Software Design specialisation is Computer Science. A Bachelor's degree gives eligibility for Master level studies in Computer Science.

The main field of study for the Information Systems Design specialisation is Information Systems. A Bachelor's degree gives eligibility for Master level studies in Information Systems.

Mandatory courses for all programme students
ISGA90 Introduction to IT design, 7.5 ECTS cr.
ISGA02 Enterprise and IT, 7.5 ECTS cr.
ISGA03 Acquisition of IT Systems, 7.5 ECTS cr.
DVGA08 Basic Programming, 7.5 ECTS cr.
DVGA09 Software Development Methods, 7.5 ECTS cr.

Enterprise Systems and Economy

Mandatory content
Information Systems, 60 ECTS cr: elective courses in database design, object-oriented modelling, enterprise systems, development of applications for mobile e-services.
Business Administration, 45 ECTS cr: elective courses in external accounting, financial control, organisation, marketing and business development, production economy, investment and financing.
Project Management 7.5 ECTS cr
Degree Project 15 ECTS cr

General electives
Optional courses totalling 15 ECTS cr

Software Design

Mandatory content
Computer Science 60 ECTS cr: elective courses in graphical user interface, operative systems, data structures and algorithms, computer communication, database technology, programming language, software engineering and degree project in computer science.
Mathematics 30 ECTS cr: elective courses in algebra, discrete mathematics and mathematical statistics.
Business Administration, 7.5 ECTS cr
Degree Project 15 ECTS cr

General electives
Optional courses totalling 30 ECTS cr

Information Systems Design

Mandatory content
Computer Science, 60 ECTS cr.: elective courses in database design, object-oriented modelling, programme development, web development, design patterns, development of applications for mobile e-services, interaction design, systems analysis and design and systems integration.
Computer Science 7.5 ECTS cr
Business Administration 7.5 ECTS cr
Mathematics 7.5 ERCTS cr
Project Management 7.5 ECTS cr
Degree project 15 ECTS cr

General electives
Optional courses totalling 30 ECTS cr

Degree Title

Enterprise Systems and Economy
Degree of Bachelor of Science
Major: Information Systems

Software Design
Degree of Bachelor of Science
Major: Computer Science

Information Systems Design
Degree of Bachelor of Science
Major: Information Systems

Credit Transfer
According to the Higher Education Ordinance (Ch. 6, § 12-14), students may transfer credits from previously completed university courses subject to approval. Transfer of credits for a full course, or other credits, is subject to approval by the Office for Student Services. Transfer of credits from a course module is subject to approval by the course examiner.

Additional Information
The local regulations for undergraduate studies at Karlstad University stipulate the obligations and rights of students and staff.