

Software Engineering and Information Systems



What is Software Engineering?

Building complex software systems that change and improve the world. This includes design and engineering, architecture construction, selection and/or construction of suitable tools, programming, testing and tuning.

What is Information System?

Image of a segment of the real world in the field of information. It is the entire infrastructure, organization, staff and components used to collect, analyse, store, transmit, display, disseminate and dispose of information.

The features of an information system are comprehensiveness, integration, quality and suitability.

Its success is measured by the satisfaction and acceptance of those for whom it is intended. On the other hand, the success of the information system directly affects the success of the environment for which it is intended - it can be a company, profession, business segment, society segment.

Knowledge

- Planning and managing the development of the information system.
- Modelling and optimization of complex e-business systems.
- Design of information system architecture.
- Design, implementation and management of databases.
- Design and development of software for customer needs.

Skills

Creativity, curiosity, analytical and critical thinking, communicativeness, cooperation, willingness to accept new paradigms, standards, architecture, technology and challenges, teamwork and business communication in multicultural environments

Career

It is a great misconception that computer scientists should computerize the world that exists. On the contrary, our task is to focus all our knowledge, skills, analytical and critical thinking, inventiveness and creativity on improving the existing processes and creating a new, better world.

The most common jobs offered are:

- information system designer,
- software architect,
- information system and software development manager,
- database administrator,
- business analyst.



NISaHEI and NISaeHS

National information system for application to higher education institutions – **NISaHEI**

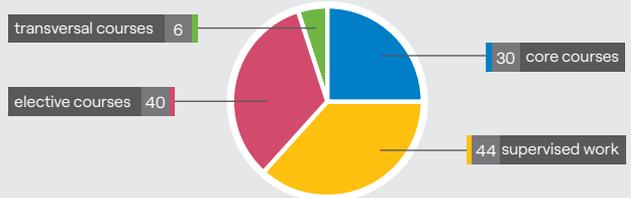
Electronic applications for taking the State Matura exams and applications for higher education institutions through NISaHEI (www.postani-student.hr) were established in 2010.

NISaHEI is a central information administrative service that facilitates the application and enrolment in higher education institutions. The system covers the process from the initial application for the State Matura exams and insight into their results, through expressing interest for study programmes and insight into the positions on the ranking lists for the applied study programmes, all the way up to exercising the right to enrol in higher education institutions.

National Information System for Applications and Enrolment in High Schools - **NISaeHS**

Since 2013, NISaeHS (www.upisi.hr) has been used for electronic applications and enrolment in the first grade of high schools at the national level. With this system, students search for education programmes according to the desired criteria, apply for education programmes, review the results for the applied programmes and, finally, based on the selection, exercise the right to enrol in a high school.

PLAN OF STUDY	SEMESTER	ECTS
Core courses		15
Advanced Algorithms and Data Structures	1	5
Seminar 1	1	3
Information Systems	2	5
Database Systems	2	5
Seminar 2	2	3
Research seminar	3	5
Project	3	3
Master Thesis	4	30
Core elective courses		15
Advanced Databases	1,3	5
Advanced Web Software Development	1,3	5
Statistical Data Analysis	1,3	5
Machine Learning 1	1,3	5
Introduction to Data Science	1,3	5
Text Analysis and Retrieval	2	5
Analysis of massive data sets	2	5
Design Patterns in Software Design	2	5
Parallel programming	2	5
Elective courses recommended for the profile	1,2,3	25
Elective courses	1,2,3	15
Transversal courses	1,2,3	6



IsoHOPS - Information system for equipment maintenance in the Croatian Transmission System Operator

It all started almost 30 years ago when one of the directors at HEP asked "Do something so that I can see how this maintenance is working on my PC!" As is usually the case, the group naively started the development, but soon had to look for a team that knew something about the development of complex information systems.



Edgar

Edgar is a comprehensive open-source automated programming assessment system.

It is the result of three years of development and usage in, for the time being, eight courses dealing with various programming languages and paradigms (C, Java, SQL, MongoDB MapReduce etc.).

FCGD

Flora Croatica

Flora Croatica, actively developed over the last 2 decades by Botanical Department of Faculty of Science and FER, is designed for dealing with all kinds of data that are commonly used in systematic botany, containing, among other data, more than 1 million species findings.