

**UNIVERSITY “UKSHIN HOTI” - PRIZREN
FACULTY OF COMPUTER SCIENCE**



HANDBOOK

For the departments:

Software Design

Information Technologies and Telecommunication

Software Design

The program purpose

Careers in Software Design include technological challenges such as specification, design and detailed concepts along with the implementation of software packages. Social skills and working in international teams are basic requirements. Practical applications include new technologies in mobile computing, as well as intranet and workflow systems.

This bachelor level program offers techniques that enhance software development and use. Therefore, the program provides knowledge that supports each stage of Software Engineering. The teaching and learning methods used in the courses are mainly adapted according to the needs of the students in the region.

Learning objectives

Within the studies, students are offered basic and practical knowledge in software systems development, web applications, game development, modeling and database management.

In the first year, students learn basic principles from the fields of programming and algorithms, web programming, computer networks, operating systems, elementary and discrete mathematics.

During the second year, students have the opportunity to develop their programming skills. There are explained the concepts of the OOP programming paradigm, engineering approaches to designing and developing software systems, modeling and creating a database, advanced web design and development, project management, and research methods.

In the third year, students focus on advanced programming concepts in desktop and mobile software development, game development, artificial intelligence, distributed systems, security, and computer network design.

Graduates of this program will be equipped with the knowledge and capabilities for employment in the software development sector, which requires a combination of professional knowledge and interdisciplinary qualifications.

Graduates are not limited to single field specializations in software development, but they work in all areas of application and systems development, for example, standalone application development, hardware-oriented software systems, and client-server distributed systems.

Software designers are well-informed at all stages of software development. They can work as a system analyst, in system modeling and implementation, as a quality manager, as a software engineer, and as a project manager.

The curriculum

Bachelor in Computer Science: Software Design

The curriculum – Academic year 2019/2020

First year - First and second semesters

No.	Course	Code	Status	ECTS	Hours
1.	Introduction to Informatics	19-03B06S-1O01	M	6	60
2.	Mathematics I	19-03B06S-1O02	M	6	60
3.	Introduction to Programming	19-03B06S-1O03	M	6	60
4.	Introduction to Networking	19-03B06S-1O04	M	6	60
5.	IT and Entrepreneurship	19-03B06S-1Z01	E	6	60
6.	English for Computer Science I	19-03B06S-1Z02	E	6	60
7.	New Media and Multimedia	19-03B06S-1Z03	E	6	60
8.	Algorithms and Data Structures	19-03B06S-2O01	M	6	60
9.	Introduction to Web Languages and Technologies	19-03B06S-2O02	M	6	60
10.	Discrete Mathematics	19-03B06S-2O03	M	6	60
11.	Operating Systems	19-03B06S-2O04	M	6	60
12.	Internet Protocols	19-03B06S-2Z01	E	6	60
13.	English for Computer Science II	19-03B06S-2Z02	E	6	60
14.	Human-Computer Interaction	19-03B06S-2Z03	E	6	60
	ECTS Total			60	

It includes 8 mandatory courses and 2 of 6 elective courses.

Second year - Third and fourth semesters

No.	Course	Code	Status	ECTS	Hours
1.	Software Engineering and Project Management	19-03B06S-3O01	M	6	60
2.	Database Systems	19-03B06S-3O02	M	6	60
3.	Object Oriented Programming	19-03B06S-3O03	M	6	60
4.	Web Design	19-03B06S-3O04	M	6	60
5.	Machine Learning	19-03B06S-3Z01	E	6	60
6.	English for Computer Science III	19-03B06S-3Z02	E	6	60
7.	3D Modeling and Animation	19-03B06S-3Z03	E	6	60
8.	Computer Graphics and Image Processing	19-03B06S-4O01	M	6	60
9.	Cloud Computing	19-03B06S-4O02	M	6	60
10.	Advanced Web Development	19-03B06S-4O03	M	6	60
11.	Research Methods	19-03B06S-4O04	M	6	60
12.	Information Systems Design	19-03B06S-4Z01	E	6	60

13.	Electronic Business	19-03B06S-4Z02	E	6	60
14.	Online Marketing	19-03B06S-4Z03	E	6	60
	Total ECTS			60	

It includes 8 mandatory courses and 2 of 6 elective courses.

Third year – Fifth and sixth semesters

No.	Course	Code	Status	ECTS	Hours
1.	Artificial Intelligence	19-03B06S-5O01	M	6	60
2.	Advanced Databases	19-03B06S-5O02	M	6	60
3.	Game Development	19-03B06S-5O03	M	6	60
4.	Network Programming	19-03B06S-5O04	M	6	60
5.	Meetings and Negotiations	19-03B06S-5Z01	E	6	60
6.	Software Quality Assurance	19-03B06S-5Z02	E	6	60
7.	Internet of Things	19-03B06S-5Z03	E	6	60
8.	Mobile Computing	19-03B06S-6O01	M	6	60
9.	IT Security	19-03B06S-6O02	M	6	60
10.	Distributed Systems	19-03B06S-6O03	M	6	60
11.	Thesis	19-03B06S-6O04	M	12	60
	ECTS Total			60	

It includes 7 mandatory courses, thesis and 1 of 3 elective courses.

Note: Since in the Faculty of Computer Science in the academic year 2021/2022, the teaching is being developed also based on the curriculum of the academic year 2015/2016, in the following is included the list of courses of this curriculum.

The curriculum – Academic year 2015/2016

First year – First and second semesters

No.	Course	Code	Status	ECTS	Hours
1.	Introduction to Informatics	15-03B06S-1O01	M	6	60
2.	Mathematics I	15-03B06S-1O02	M	6	60
3.	Introduction to Programming	15-03B06S-1O03	M	6	60
4.	New Media and Multimedia	15-03B06S-1O04	M	6	60
5.	Introduction to Networking	15-03B06S-1Z06	E	6	60
6.	English for Computer Science I	15-03B06S-1Z07	E	6	60
7.	IT and Entrepreneurship	15-03B06S-1Z05	E	6	60
8.	Algorithms and Data Structures	15-03B06S-2O01	M	6	60
9.	Introduction to Web Languages and Technologies	15-03B06S-2O02	M	6	60
10.	Discrete Mathematics	15-03B06S-2O03	M	6	60
11.	Operating Systems and Systems Management	15-03B06S-2O04	M	6	60

12.	Internet Protocols	15-03B06S-2Z05	E	6	60
13.	English for Computer Science II	15-03B06S-2Z06	E	6	60
14.	Human-Computer Interaction	15-03B06S-2Z07	E	6	60
	ECTS Total			60	

It includes 8 mandatory courses and 2 of 6 elective courses.

Second year – Third and fourth semesters

No.	Course	Code	Status	ECTS	Hours
1.	Software Engineering and Project Management	15-03B06S-3O01	M	6	60
2.	Database Systems	15-03B06S-3O02	M	6	60
3.	Object-Oriented Programming	15-03B06S-3O03	M	6	60
4.	Web Design	15-03B06S-3O04	M	6	60
5.	Machine Learning	15-03B06S-3Z05	E	6	60
6.	English for Computer Science III	15-03B06S-3Z06	E	6	60
7.	3D Modeling and Animation	15-03B06S-3Z07	E	6	60
8.	Computer Graphics and Image Processing	15-03B06S-4O01	M	6	60
9.	Advanced Databases	15-03B06S-4O02	M	6	60
10.	Advanced Web Development	15-03B06S-4O03	M	6	60
11.	Research Methods	15-03B06S-4O04	M	6	60
12.	Information Systems Design	15-03B06S-4Z05	E	6	60
13.	E-Business	15-03B06S-4Z06	E	6	60
14.	Online Marketing	15-03B06S-4Z07	E	6	60
	ECTS Total			60	

It includes 8 mandatory courses and 2 of 6 elective courses.

Third year - Fifth and sixth semesters

No.	Course	Code	Status	ECTS	Hours
1.	Artificial Intelligence	15-03B06S-5O01	M	6	60
2.	Game Development	15-03B06S-5O02	M	6	60
3.	Cloud Computing	15-03B06S-5O03	M	6	60
4.	Project	15-03B06S-5O04	M	6	60
5.	Meetings and Negotiations	15-03B06S-5Z05	E	6	60
6.	Software Quality Assurance	15-03B06S-5Z06	E	6	60
7.	Operational Research	15-03B06S-5Z07	E	6	60
8.	Mobile Computing	15-03B06S-6O01	M	6	60
9.	IT Security	15-03B06S-6O02	M	6	60
10.	Distributed Systems	15-03B06S-6O03	M	6	60
11.	Thesis	15-03B06S-6O04	M	12	60

	ECTS Total		60	
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It includes 7 mandatory courses, thesis and 1 of 3 elective courses.

Information Technologies and Telecommunication

The program purpose

Information Technologies and Telecommunication are increasingly intertwined in practice. New applications are constantly emerging in secure data processing and communication interfaces: from solutions, for railway and road system operators, up to electronic money transfer security to internal support for patients and the elderly.

Enterprises and authorities are taking advantage of communication networks as well as dynamic websites, as they are needed for interactive web applications, portal systems and e-commerce.

The study program offers students new perspectives, as well as technical expertise with economic elements and the ability to work in a team, elements which are required not only in education but also in professional fields.

During the study, students will be supported with all the necessary information and knowledge from theory and practice. At this level of study, students will be able to apply the knowledge gained through three years of study, in order to develop, apply and direct towards the master study, within the country or abroad.

Learning objectives

Students will gain basic and intermediate level knowledge of telecommunication and information technologies; thus, the distinctive features of these technologies, the technical bases of these technologies and their use. They will gain basic and intermediate level knowledge of local and wide area network technologies, wired and wireless networking, how they work, what their functions are and how networks are created. Students will be able to understand the information that is transported on the network and the importance of its accuracy and security.

Through the basic knowledge gained from the studies, they will be able to apply the concepts, principles and theories of relational databases for the design and creation of information systems. They will be able to apply the concepts and principles of the operating system and equipment (microprocessors) in problem solving in the context of computer systems; will be able to explain the theory and principles of information and telecommunication technologies; will be competent in professional practices related to information and telecommunication technologies.

In the first year of study, students will gain basic knowledge about mathematics, programming, design and application of logic circuits, basics of computer networks and information transfer technologies, knowledge from the application of IT in entrepreneurship, English for needs to supplement their knowledge related to the respective program. They will also learn about algorithms and data structures, discrete mathematics, sensors and their

application, basics of computer and operating system architecture, web technologies and languages, and elements of e-business.

In the second year of study, students will gain knowledge about methods of transmitting information and data, object-oriented programming, stages of software development and engineering, electronic elements needed to create computer and mobile devices, and systems design. Students will also focus on networking technologies, microcontrollers, authentication mechanisms, and cryptography methods and encryption protocols. They will be able to create interactive devices for interacting with computers and displaying data through interfaces developed primarily for the web.

In the third year of study, students will develop their skills in databases and their application, computer networking methods, computer networking technologies and Internet security tools, techniques on how to manage quality and information in information technologies. Basic concepts for the development of dynamic web applications, concepts of mobile telecommunications and cloud computing, will also be areas from which students will gain knowledge during the third year of bachelor studies.

Graduates in the "Information Technologies and Telecommunications" program are expected to be employed in the telecommunications and software development sector, which require a combination of specialized and interdisciplinary knowledge.

The curriculum

Bachelor in Computer Science: Information Technologies and Telecommunication

The curriculum – Academic year 2019/2020

First year – First and second semesters

No.	Course	Code	Status	ECTS	Hours
1.	Mathematics I	19-03B07S-1O01	M	6	60
2.	Programming	19-03B07S-1O02	M	6	60
3.	Digital Technology	19-03B07S-1O03	M	6	60
4.	Introduction to Networking	19-03B07S-1O04	M	6	60
5.	Fundamentals of Information Communication (Transmitting)	19-03B07S-1Z01	E	6	60
6.	IT and entrepreneurship	19-03B07S-1Z02	E	6	60
7.	English for Computer Science I	19-03B06S-1Z03	E	6	60
8.	Algorithms and Data Structures	19-03B07S-2O01	M	6	60
9.	Discrete Mathematics	19-03B07S-2O02	M	6	60
10.	Sensors and Interfaces	19-03B07S-2O03	M	6	60
11.	Computer Architecture and Operating Systems	19-03B07S-2O04	M	6	60
12.	English for Computer Science II	19-03B07S-2Z01	E	6	60
13.	Introduction to Web Languages and Technologies	19-03B07S-2Z02	E	6	60
14.	Electronic Business	19-03B07S-2Z03	E	6	60

	ECTS Total			60	
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It includes 8 mandatory courses and 2 of 6 elective courses

Second year – Third and fourth semesters

No.	Course	Code	Status	ECTS	Hours
1.	Transmission Methods	19-03B07S-3O01	M	6	60
2.	Object-Oriented Analysis and Design	19-03B07S-3O02	M	6	60
3.	Software Engineering	19-03B07S-3O03	M	6	60
4.	Electronic Devices	19-03B07S-3O04	M	6	60
5.	English for Computer Science III	19-03B07S-3Z01	E	6	60
6.	Operating Systems	19-03B07S-3Z02	E	6	60
7.	Requirements in System Design	19-03B07S-3Z03	E	6	60
8.	TCP / IP Technology	19-03B07S-4O01	M	6	60
9.	Microcontrollers	19-03B07S-4O02	M	6	60
10.	Authentication and Cryptography	19-03B07S-4O03	M	6	60
11.	Research Methods	19-03B07S-4O01	M	6	60
12.	English for Computer Science IV	19-03B07S-4Z01	E	6	60
13.	Human-Computer Interaction	19-03B07S-4Z02	E	6	60
14.	Web Design	19-03B07S-4Z03	E	6	60
	ECTS Total			60	

It includes 8 mandatory courses and 2 of 6 elective courses.

Third year – Fifth and sixth semesters

No.	Course	Code	Status	ECTS	Hours
1.	Database Systems	19-03B07S-5O01	M	6	60
2.	Security in IT Networks	19-03B07S-5O02	M	6	60
3.	Advanced IP and Networking Technology	19-03B07S-5O03	M	6	60
4.	Internet Security Tools	19-03B07S-5O04	M	6	60
5.	Quality Management	19-03B07S-5Z01	E	6	60
6.	Information Management	19-03B07S-5Z02	E	6	60
7.	Finite Automata and Formal Languages	19-03B07S-5Z03	E	6	60
8.	Web Engineering Dynamic Content	19-03B07S-6O01	M	6	60
9.	Mobile Telecommunication Concepts	19-03B07S-6O02	M	6	60
10.	Cloud Computing	19-03B07S-6O03	M	6	60
11.	Thesis	19-03B07S-6O04	M	12	60
	ECTS Total			60	

It includes 7 compulsory courses, thesis and 1 of 3 elective courses.

Note: Since in the Faculty of Computer Science in the academic year 2021/2022, the teaching is being developed also based on the curriculum of the academic year 2015/2016, in the following is included the list of courses of this curriculum.

The curriculum – Academic year 2015/2016

First year – First and second semesters

No.	Course	Code	Status	ECTS	Hours
1.	Mathematics I	15-03B07S-1O01	M	6	60
2.	Programming	15-03B07S-1O02	M	6	60
3.	Digital Technology	15-03B07S-1O03	M	6	60
4.	Fundamentals of Information Communication (Transmitting)	15-03B07S-1O04	M	6	60
5.	IT and Entrepreneurship	15-03B07S-1Z05	E	6	60
6.	English for Computer Science I	15-03B07S-1Z06	E	6	60
7.	Introduction to Networking	15-03B07S-1Z07	E	6	60
8.	Discrete Mathematics	15-03B07S-2O01	M	6	60
9.	Algorithms and Data Structures	15-03B07S-2O02	M	6	60
10.	Sensors and Interfaces	15-03B07S-2O03	M	6	60
11.	Computer Architecture and Operating Systems	15-03B07S-2O04	M	6	60
12.	English for Computer Science II	15-03B07S-2Z07	E	6	60
13.	Introduction to Web Languages and Technologies	15-03B07S-2Z06	E	6	60
14.	Electronic Business	15-03B07S-2Z05	E	6	60
	ECTS Total			60	

It includes 8 mandatory courses and 2 of 6 elective courses.

Second year – Third and fourth semesters

No.	Course	Code	Status	ECTS	Hours
1.	Transmission Methods	15-03B07S-3O01	M	6	60
2.	Electronic Devices	15-03B07S-3O02	M	6	60
3.	Object-oriented Analysis and Design	15-03B07S-3O03	M	6	60
4.	Software Engineering	15-03B07S-3O04	M	6	60
5.	English for Computer Science III	15-03B07S-3Z05	E	6	60
6.	Operating Systems and Systems Management	15-03B07S-3Z06	E	6	60
7.	Requirements in System Design	15-03B07S-3Z07	E	6	60
8.	TCP/IP	15-03B07S-4O01	M	6	60
9.	Microcontrollers	15-03B07S-4O02	M	6	60
10.	Authentication and Cryptography	15-03B07S-4O03	M	6	60

11.	Research Methods	15-03B07S-4O04	M	6	60
12.	Human-Computer Interaction	15-03B07S-4Z05	E	6	60
13.	English for Computer Science IV	15-03B07S-4Z06	E	6	60
14.	Web Design	15-03B07S-4Z07	E	6	60
	ECTS Total			60	

It includes 8 mandatory courses and 2 of 6 elective courses.

Third year – Fifth and sixth semesters

No.	Course	Code	Status	ECTS	Hours
1.	Database Systems	15-03B07S-5O01	M	6	60
2.	Security in IT networks	15-03B07S-5O02	M	6	60
3.	Advanced IP and Networking Technology	15-03B07S-5O03	M	6	60
4.	Internet Security Tools	15-03B07S-5O04	M	6	60
5.	Quality Management	15-03B07S-5Z05	E	6	60
6.	Information Management	15-03B07S-5Z06	E	6	60
7.	Web Engineering Dynamic Content	15-03B07S-6O01	M	6	60
8.	Mobile Telecommunication Concepts	15-03B07S-6O02	M	6	60
9.	Cloud Computing	15-03B07S-6O03	M	6	60
10.	Thesis	15-03B07S-6O04	M	12	60
	ECTS Total			60	

It includes 7 mandatory courses, thesis and 1 of 3 elective courses.