

Study program Overview: Computer and Software Engineering – BSc

Name of Institution:	University of Prishtina “Hasan Prishtina”
Faculty / Department:	Faculty of Electrical and Computer Engineering
Main Campus and / or Branch:	Main campus
Title of Study Program:	Computer and Software Engineering - BSc
NQF level of qualification:	Level VI
Academic degree or denomination of academic degree in diploma:	Bachelor of Science in Computer and Software Engineering
ECTS:	180
Study program profile (specializations):	Computer and Software Engineering
Minimum duration of studies:	3 years
Number of places to study:	150

Syllabus: Level 1 study cycle in **Computer and Software Engineering** study program

Year of Study: I			
Semester: I (joint semester at FECE)			
Nr.	M/E	Lënda	ECTS
1	M	Linear Algebra with Calculus 1	7
2	M	Physics 1	6
3	M	Fundamentals of electrical engineering 1	7
4	M	Fundamentals of programming	5
5	E	Technical English	5
5	E	Communication skills	5
5	E	German Language	5
5	E	Practical Mathematics	5
Total			30
Semester: II (joint semester at FECE)			
Nr.	M/E	Lënda	ECTS
1	M	Calculus 2	7
2	M	Physics 2	6
3	M	Fundamentals of electrical engineering 2	7
4	M	Algorithms and Data Structures	5
5	M	Digital logic circuits	5
Total			30

Year of Study: II			
Semester: III			
Nr.	M/E	Lënda	ECTS
1	M	Discrete Mathematics and Probability	5
2	M	Databases	5
3	M	Object Oriented Programming	5
4	M	Computer Architecture	5
5	M	Electronics	5
6	M	Web Programming I	5
Total			30
Semester: IV			
Nr.	M/E	Lënda	ECTS
1	M	Operating Systems	5
2	M	Software Engineering	5
3	M	Data Security	5
4	M	Human Computer Interaction	5
5	M	Web Programming II	5
6	E	Legal, Ethical and Social Issues in ICT	5
6	E	Budget and cost analysis	5
Total			30

Year of Study: III			
Semester: V			
Nr.	M/E	Lënda	ECTS
1	M	Microprocessors and Microcontrollers	5
2	M	Design and Analysis of Algorithms	5
3	M	Computer Networks	5
4	M	Mobile devices programming	5
5	E	Data Engineering	5
5	E	Computer Security	5
5	E	Software Testing	5
5	E	Concurrent Computing	5
6	E	Entrepreneurship and innovation	5
6	E	IT project management	5
Total			30
Semester: VI			
Nr.	M/E	Lënda	ECTS
1	M	Distributed systems	5
2	E	Data Mining	5
2	E	Internet Security	5
3/4	E	Big data	5
3/4	E	Extraction of information	5
3/4	E	Visual computing	5
3/4	E	Cloud computing	5
3/4	E	Parallel computing	5
3/4	E	Data communication	5
3/4	E	Biomedical Engineering	5
3/4	E	Biometrics & Forensics	5
5	M	Professional practice	5
6	M	Diploma Thesis	5
Total			30

Comparability of the Computer and Software Engineering with those offered from other universities:

Our study program is based on IEEE and ACM recommendations for the Computer Engineering study program, see link:

<https://ieeecs-media.computer.org/assets/pdf/ce2016-final-report.pdf>

Whereas, from the universities of the region we have taken as an example:

1. University of Zagreb
- https://www.fer.unizg.hr/en/study_programs/undergraduate_study/computing, similarity 70-80%
2. Technical University of Vienna
- <https://tiss.tuwien.ac.at/curriculum/public/curriculum.xhtml?dswid=7221&dsrid=430&key=46100>, similarity 70-80%

Mission, objectives, and administration

The study program of Bachelor of Science in Computer and Software Engineering is comparable and compatible with the programs of regional, European and American universities, and it comes as a result of a development process with the support of numerous programs of these universities.

The mission of the bachelor's program in Computer and Software Engineering is to prepare students for professional careers and to enable them to do research in computer science and engineering. Namely, the bachelor program in Computer and Software Engineering aims to train students and increase their competence to work for private enterprises, government organizations, non-governmental organizations or for further study in master (MSc.) or doctorate (PhD) programs.

The program is oriented to offer modern and flexible content as well as practical placements in industry that will easily follow the demands of the local and international economy as well as the local, regional, and global labor market.

This program will provide students with a clear understanding of the structure, function, and evolution of the information technology. This program also enables students to develop relevant research skills in their field of interest.

Moreover, in all public and private higher education institutions (universities) in Kosovo, there is a lack of specialized programs in this field, whereas the world experience, including countries that have an economic and social status comparable to Kosovo shows that such areas of study are necessary for building national technological capacities. Due to this reason, our department has the required competence and acumen for the design and implementation of the curriculum.

This study program will cover a wide range of topics offering a specialized combination of knowledge in computer and software engineering, closely related to programming, computer architectures and networks, databases and structures, advanced algorithms and artificial intelligence, web, operating systems, parallel and distributed interface design, information security, etc. Students will gain a detailed overview of the latest information technologies, including their business implications, their planning, and their implementation.

The objectives of the bachelor's degree program in Computer and Software Engineering have been set in accordance with FECE's mission. The Faculty of Electrical and Computer Engineering is an academic resource unit, which based on Article 6 of the UP Statute, supports the triple mission of the University of Prishtina, providing high quality education, advancing scientific knowledge through scientific research in the specific fields and providing educational expertise to the local, national, and international community.

Program Objectives for graduates

Bachelor's program in Computer and Software Engineering is oriented to provide modern and flexible courses, as well as practical industry placement and orientation for Master of Science degree studies and further, which will easily follow the requirements of local and international economy, as well as local, regional, and global labor market.

All this is based on the mission and vision of this program within FECE-UP which stipulates that students should:

- have an advanced level of understanding of Computer and Software Engineering by studying the form and function of Computer and Software Engineering starting from the lowest level of their organization.
- get in-depth knowledge for construction and programming function, databases, computer architecture and networks, Web, Data Security, algorithms and data structures, distributed and operating systems, artificial intelligence, etc., which will be further enhanced conducting substantive research in selected areas.
- learn how to professionally systematize, analyze, and report data collected and processed in the laboratory relevant for study at different levels.
- develop professional writing skills, information retrieval, statistical data analysis, presentation of results, problem solving, and teamwork needed for employment.
- be trained in providing advice and expertise to relevant institutions and organizations.

Expected learning outcomes

Upon completion of this program the student will accumulate the following knowledge and skills:

- Critically and creatively analyze problems in Computer and Software Engineering and provide solutions to them through the use of information technology (IT) techniques,
- Undertake a research approach towards the solutions to be offered through the use of IT,
- Know the problems and basic principles of the various tools used in the IT field
- Demonstrate an advanced level of scientific knowledge in the field of Computer and Software Engineering and their chosen area of specialization,
- Demonstrate authenticity in applying the acquired knowledge and practical understanding of problem finding and solving and can act independently in planning and implementing research,
- Critically analyze scientific theories, models, concepts, and techniques from the chosen field.
- Reads critically and evaluates the results of qualitative and quantitative research in the chosen field.
- Communicates efficiently and persuasively, in oral and written form,
- Develops problem solving projects in various areas of Computer and Software Engineering,
- Analyze IT requirements considering customer needs and implement these requirements in a practical way
- Analyze, model, abstract and implement business and technical aspects in the course of IT projects
- Get acquainted with specialized topics very quickly to understand the complex technical interconnections in the business environment
- Invents methods to support the strategy in the job placement and information processing needs to optimize complex processes through the use of the latest techniques in information technology
- Analyze and design software systems as well as their interaction scenarios
- Identify, discuss, and resolve potential conflicts and potential misunderstandings between business and technology at both technical and interpersonal level and taking preventative measures
- Communicate with technical and non-technical professionals, presents technical information in a way that is also understandable to non-technical staff and contributes constructively to ensure positive collaboration within teams
- Implement an interdisciplinary approach to the design of IT systems