Standard 1. Structure of the study program

According to the classification of the National Council for Higher Education, as published in the Official Gazette of RS No. 30/07, the program of undergraduate studies **Information Technology** falls under the category of **technical and technological sciences,** specifically the field of **ELECTRICAL AND COMPUTER ENGINEERING.**

The program of undergraduate academic studies in Information Technology has all the elements prescribed by the Law on Higher Education and the fulfills the requirements of the Standard for Accreditation of the Study Program.

The structure of the study program in **Information Technology** is characterized by the follwoing:

– The openness of the program's architecture (the study program is not strictly hierarchically structured, and it is possible to improve it based on the principles of competitive engineering)
– Flexibility (the possibility of easily incorporating contemporary knowledge and paradigms from the dynamic information-computer domain)
– Transferability (respecting the concept of ECTS evaluation of academic subjects)
– Recognizability and alignment (the subjects within this study program are harmonized with the curriculums of educational programs in both the Republic of Serbia and the EU, ensuring consistency in both the naming and content of the subjects)
- Elective options: Students have the opportunity to select specialized competencies based on their individual interests and preferences.
  Teaching programs of the subjects are divided into several categories:

– Subjects that enhance language skills: English Language 1 and English Language 2
– Subjects providing fundamental knowledge: Fundamentals of Computer Engineering, Fundamentals of Electrical Engineering and Electronics, Digital Electronics and Digital Signal Processing
– Subjects providing fundamental mathematical knowledge: Mathematics 1, Mathematics 2, Discreet Mathematics and Numerical Mathematics
– Subjects tailored for mastering web technologies: Introduction to Web, Web Applications Development and Web Design
– Subjects for acquiring competencies in the field of databases: Data Structures and Algorithms, Databases, Information Systems Design, Business Information Systems.
– Subjects for acquiring competencies in the field of programming: Fundamentals of Programming, Object Oriented Programming, Parallel Programming, Software Engineering, Internet Application Programming, Operations Research and Software Development
– Subjects for acquiring competencies and skills in the field of computer hardware: Architecture and Organization of Computer Systems and Computer Networks.
– Subjects focused on the development of skills in the field of multimedia computing: 3D Modelling and Animation, Video Production, Multimedia, Fundamentals of Design Practicum
  - Subjects for acquiring competencies and skills in the field of communication technology : Telecommunication Systems and Networks, Computer Systems Security and Protection, Information theory and Coding, Biomedical Signal Processing and Global Information Systems.

Goals of the study program

The goal of the Information Technology study program is to prepare students for identifiable and

well-defined roles in the fields of electrical engineering and computing. The aim is to cultivate highly skilled professionals capable of directly contributing to practical endeavors within the fields of economy, business sectors, and various institutions within the information technology.

In this study program, the integration of knowledge from various disciplines is aimed at equipping students with the projected competencies they are expected to master.

Types of study and learning outcome

The learning outcome of the undergraduate academic studies is the acquisition of knowledge that empowers students to utilize professional literature effectively, apply their acquired knowledge to solve practical problems, and, if they opt for that, pursue further studies in the field.

Academic title

The academic title conferred upon completion of this study program is **Bachelor of Engineering in Information Technology and Systems**.

Admission requirements

Candidates are admitted based on a call for enrollment announced and conducted by the faculty. To apply for admission to the first year of study, candidates must have completed a four-year high school education and successfully pass the entrance exam in mathematics, as stipulated in the Regulations on Enrollment of Faculty Students.

The final ranking list for admission to the first year of study is formed considering both high school performance results and the results of the entrance exam. Candidates are then ranked accordingly, determining the order of enrollment based on this final ranking list.

The number of students enrolled at the faculty is proposed by the faculty.

Teaching methods and duration of studies

Teaching process is conducted continuously over the course of 8 semesters, following the established curriculum. The academic year is divided into two semesters, each spanning 15 weeks. The grading method for each subject adheres to the guidelines outlined in the Rulebook on Exams and Exam Grading.

The point value of each subject is expressed in ECTS credits

The point value of each subject is expressed in accordance with the European Credit Transfer and Accumulation System (ECTS).

Point value of the final paper at undergraduate academic studies

The point value of the final paper at undergraduate academic studies is expressed in ECTS credits.

The teacher mentors the student and assists in the preparation of the *final paper*. The selection of topics for the *final paper* is defined by the regulations governing the final paper.

Prerequisites for enrollment of certain subjects or groups of subjects

The prerequisites for taking exams vary by subject and can be generalized:

* previously attained a minimum number of points from pre-examination requirements,
* completed a specific pre-exam activity,
* previously passed a specific exam

Conditions for transfer from other study programs

A student can transfer to this study program from other study programs within the same or related fields if they have passed exams equivalent to those in this study program and have achieved the required number of ECTS points for enrollment in the corresponding year.

Other important considerations for the implementation of the study program:

Upon successful completion of the **Information Technology** study program, students accumulate a total of 240 ESPB points. This comprehensive program comprises 26 compulsory subjects along with 9 elective courses, all of which are conducted over one semester each. Lectures are delivered in the Serbian language, ensuring a rich and immersive learning experience for students.

Lectures are conducted according to the Teaching plan and programs.

The curriculum defines the subjects based on scientific and professional fields, organizing them by years of study and semesters. It meticulously outlines the weekly and annual/semester number of teaching hours, as well as the overall duration of studies.

The study program is realized through lectures, practical exercises and other forms of teaching.

The study program encompasses both mandatory and elective areas of student education, incorporating academic-general education (AG), theoretical-methodological (TM), scientific-professional (SP), and professional-applicative (PA) subjects. These components are essential for the holistic education of electrical and computer engineering engineers.

Examinations and student evaluations are conducted according to the procedures outlined in the faculty's documents, like general acts.

A student who has not successfully mastered a compulsory subject by the beginning of the next academic year is required to re-enroll and pass the same subject during the subsequent academic year. Conversely, if a student has not successfully mastered an elective subject, they have the option to either retake the same elective subject or select an alternative elective subject.

Standard 2. The purpose of the study program

The primary purpose of the Information Technology study program is to equip students with the necessary knowledge and skills to excel in the profession of electrical engineering and computing engineers. This aim is aligned with the evolving demands of contemporary society and the personal aspirations of individuals. The study program is meticulously crafted to foster the acquisition of competencies that hold immense social relevance and utility. Through its foundational academic curriculum, the Information Technology study program aims to elevate the overall IT capacity of society, thus contributing significantly to its advancement and progress. In addition, this study program provides IT professionals equipped with practical and applied knowledge in the field of Information Technology.

The purpose of the study program is to educate specialists capable of meeting the demands of positions that necessitate expertise across diverse fields of computing, coupled with proficiency in specific domains of communication sciences. This entails use and application of modern information technologies to address contemporary challenges and opportunities effectively. Considering the integration of information technologies across virtually all areas of society, professionals with expertise in this field possess competencies that are inherently socially justified, indispensable, and highly beneficial.

> **With this study program, the following clear and recognizable purposes should be highlighted:**
> - education of experts capable of performing tasks that require knowledge of information technology across various sectors including industry, economy, state administration, services, education, and more);

- stimulating the growth of the software industry within both local and global contexts by educating qualified personnel equipped with the requisite skills and knowledge.
- promoting the overall advancement of society through the encouragement of Information Technology (IT) development at every level;
- preparing students for further education in information technologies, whether they pursue careers as experts in the software industry and economy or as researchers in the field of information technologies.

Graduates of the Information Technology study program possess a comprehensive array of knowledge, skills, and competences that make them highly sought-after in the labor market. Additionally, they are equipped with the capability to pursue further education at the master's academic level, either within the same program or in related fields.

The study program provides a wide range of topics aimed at fostering the acquisition of contemporary knowledge and skills, thereby unlocking diverse employment opportunities for students. It serves as a stepping stone for the development of a prosperous professional or research career in the dynamic fields of electrical and computer engineering.

Internship, complementing theoretical knowledge, serves as a vital platform for students to validate their acquired knowledge, enhance their professional confidence, deepen their comprehension of the taught material, and foster the development of creativity and a strong sense of responsibility.

The faculty has defined fundamental tasks and goals aimed at nurturing highly competent professionals. The objectives of the Information Technology study program align with the goals set forth by the faculty.

Through the implementation of this study program, graduate engineers are cultivated with competencies that align with both European and global standards and frameworks.

Standard 3. Goals of the study program

The goal of the **Information Technology** study program is to cultivate highly proficient experts in the field of IT, capable of effectively and reliably executing the tasks within the field of information and communication technologies. To achieve this goal, the program focuses on educating professionals with diverse competencies in the field of databases, object-oriented programming, web design, internet programming, information system design, computer networks, multimedia tools application, professional utilization of various-purpose software applications, contemporary internet technologies, electronic business, and other pertinent disciplines.

The goals of the study program are the following:
- providing students with high quality, general and professional education in the area of information and communication sciences
- cultivation of critical and self-critical thinking skills, empowering students to approach problems with analytical depth and introspection
- equipping students with the practical skills necessary for employment in roles that demand expertise in computer and communication sciences, using cutting-edge information technologies;
- enabling students for team work and working in multicultural environment;

- establishing a strong foundation of fundamental knowledge essential for students' continued academic pursuits and lifelong learning;
- raising awareness about the importance of continuous and permanent education;
- providing students with the capacity to comprehend contemporary advancements within the realm of information technologies, empowering them to effectively utilize professional literature for the ongoing enhancement of their acquired knowledge
- delivering academic education that transcends mere professional boundaries, fostering an understanding of the values inherent in modern society.

The above-mentioned goals are achieved through the following:
- acquiring foundational mathematical skills essential for defining and solving real-world problems;
- familiarizing with fundamental computer science domains, their functions, and interrelations, alongside exploring basic concepts and methodologies inherent to those domains;
- familiarizing with foundational disciplines within communication sciences, understanding their roles and interconnectedness, and exploring the fundamental concepts and methodologies that characterize these fields of study;
- developing the capacity to comprehend and articulate problems effectively, along with honing skills in system modeling aimed at resolving real-world challenges;
- fostering critical and self-critical thinking skills in approaching and resolving problems.
- developing the capacity to assimilate new models, techniques, and technologies;
- encouraging team work and communication skills.

The objectives of the study program focus on acquiring academic competencies, nurturing creative aptitudes, and attaining expertise in the fields of electrical engineering and computer engineering. These goals are aligned with contemporary demands and the needs of the job market. Furthermore, the goal of the Information Technology study program aligns with the mission and objectives of the higher education institution where the program is conducted. It consistently adheres to European and global standards, ensuring the organization of high-quality education.

Standard 4: Competencies of graduate students

The *Information Technology* study program provides students with the following abilities:
- the ability to project, organize and control production
- the ability to master methods, actions and processes of research and team work;
- the capacity for critical thinking and self-critical thinking skills and approach;
- proficiency in logical reasoning, formulating hypotheses, and deriving independent conclusions
- proficiency in problem analysis, synthesizing solutions, and predicting the behavior of chosen approaches
- capacity to apply theoretical knowledge in practical settings and to adapt and implement innovations within the profession.
- proficiency in writing and effectively presenting the outcomes of one's work;
- capability for professional growth and advancement;
- aptitude for collaborating with local communities and engaging in international endeavors;
- adhering to professional ethics.

By completing the study program, students attain the following subject-specific competencies:

- comprehensive knowledge and understanding of disciplines within computer science;
- proficiency in understanding and application of modern information technologies;
- cultivation of skills in the application of acquired knowledge.
- solving specific problems using scientific methods and procedures;
- capacity to seamlessly integrate fundamental concepts across diverse domains within computer science and aplly them effectively;
- proficiency in effectively applying acquired knowledge to solve practical problems;
- proficiency in using professional literature and contemporary information and communication technologies.
- monitoring and implementation of novelties in the profession.
- proficiency in autonomously conducting experiments and statistically analyzing the obtained results.
- proficiency in analyzing and evaluating the accuracy of acquired results, alongside the capability to formulate and draw meaningful conclusions.
- ability to write and present work results.
- capability to continue education at the master's level in academic studies.

The *Information Technology* study program equips students with the acquisition of knowledge and skills pertaining to:

- the awareness of the protection of the environment
- economical use of natural resources in accordance with the principles of sustainable development

The primary anticipated outcome of the study program is for graduates to develop a range of creative abilities, constituting a skill set that each student should understand and demonstrate proficiently.

Considering the expanding scope within this field, acquiring the latest knowledge is of paramount importance for addressing complex practical problems effectively.