

FACULTY OF COMPUTER SCIENCE

University "Ukshin Hoti" Prizren
Str. Shkronjat 1, 20000 Prizren
Republic of Kosovo

FACULTY OF COMPUTER SCIENCE

STRATEGIC PLAN 2024-2027



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Strategic Plan 2024-2027

We develop the future

December 2023



ABBREVIATIONS

UUHP	University” Ukshin Hoti” Prizren
FCS	Faculty of Computer Science
SPEK	Strategic Plan of Education in Kosovo
UA	University Association
MoU	Memorandum of Understanding
EU	European union
OIC	Office for International Cooperation
OQD	Office for Quality Development
CAC	Career and Alumni Center
IAB	Industrial Advisory Board
IT	Information technology
USAID	US Assistance for International Development
MEST	Ministry of Education, Science and Technology
CQC	State Quality Council
SP	Student Parliament
AU	Academic Units

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STATEMENT FROM THE DEAN

Dear academic staff, students, and administrative staff,

I am privileged and proud to welcome you to the launch of this Strategic Plan for our Faculty of Computer Science. This plan is a guide to the heart of our vision and mission, charting the path we will follow together to achieve success and contribute to the advancement of knowledge in the field of computer science.

Our vision is an outstanding faculty, leading in innovation and knowledge, specializing in computer science.

We are driven by a clear mission: to provide a rich learning environment, encourage research and innovation, and prepare a new generation of agile and prepared professionals for future technological challenges.

In this journey, we will focus on the quality of teaching, the empowerment of academic staff, and the use of the latest technology. Collaboration with industry and connections with the computer science community will be at the core of our development. We will foster research and innovation at every level, supporting projects and initiatives that have an impact on our academic environment and beyond.

Through this plan, we aim to create a faculty where the passion and commitment to knowledge and technology development is shared by everyone, and where each member is part of a great balance, which we call community. In cooperation and coordination, we will create opportunities and spaces for continuous growth and joint success.

Let us be guided by this vision and mission, committing our forces and resources to excellence in the service of knowledge and society. Together, we will write a new chapter of success and advancement in the world of computer science.

Thank you for your coordination and support in this joint journey.

God bless you!

Prof. Assoc. Dr. Ziriye Hasani
Ac. Dean, Faculty of Computer Science

DRAFTING THE STRATEGIC PLAN

This strategic plan is based on the decision of the Faculty Council, ref. 474/23 dated 14.12.2023.

The Strategic Plan 2024-2027 was drafted after consultations intensive and comprehensive internal and external actors external to UUHP. All UUHP development activities will be supported and guided by this strategic plan.

Members of the commission for drafting the strategic plan

Prof. Asoc. Dr. Arsim Susuri, kryetar
Prof. Asoc. Dr. Samedin Krrabaj, anëtar
Prof. Asoc. Dr. Naim Baftiu, anëtar
Prof. Asoc. Dr. Ziriye Hasani, anëtare
Prof. Asoc. Dr. Ercan Canhasi, anëtar
Prof. Asoc. Dr. Malush Mjaku, anëtar
Ass. Arbër Beshiri, anëtar
Ass. Arta Misini, anëtare
Ass. Betim Maloku, anëtar
Ass. Endrit Fetahi, anëtar
Albana Hoti, anëtar (përfaqësues i studentëve)



HISTORY OF THE FACULTY OF COMPUTER SCIENCE

The Faculty of Computer Science (FCS) was founded in 2010.

FCS organizes study programs at two levels (Bachelor and Master) and in three study languages (Albanian, Turkish, and Bosnian). At the same time, within the medium-term plans to open the doctoral study program.

Bachelor-level study programs:

- Information Technology and Telecommunication
- Software Design
- Information Technology and Telecommunications (Bosnian)
- Information Technology and Telecommunication (Turkish)

The study program at the Master level:

- Computer Science and Communication Technology

Scientific research of the academic staff:

The academic staff of the AFC is mostly young and new doctors are added to it every academic year. Academic staff have created research groups based on the approximate areas of research. Joint research is also carried out with bachelor and master-level students and a significant number of professor-student scientific publications have been made.

The faculty within the PhDITKES project has created a research laboratory equipped with the latest technology in the fields of robotics, IoT, supercomputers, etc., in which academic staff and students conduct research.

The Industrial Advisory Board (BKI) serves the Faculty of Computer Sciences for communication and interaction with the regional business community, consultation regarding existing programs and

the opening of new programs, and organization of extracurricular activities such as guest lecturers, workshops, study visits, etc.

The infrastructure of the Faculty of Computer Sciences is within a four-story building, jointly used with the Faculty of Law. The facility is located on the campus of "Ukshin Hoti" University. The building is new and of high quality. All staff are located in the same building complex with short distances between offices. Students of both levels are housed together with their learning groups in the same facility.

The faculty has an organization on floors. The first two floors belong to the Faculty of Law, while the top two floors belong to the Faculty of Computer Sciences.

In 2023, the faculty started the paid practical work program for students at ITP-Prizren through a joint project between the Faculty and GIZ-Germany.

From 2022, the faculty is part of the Digital Innovation Hub within ITP-Prizren and co-organizer of the Technology and Innovation Festival at ITP from 2022 and continues.

From 2024, the faculty also finance the training of students who become part of the paid practical work program.

The faculty is part of the Center for Excellence in Teaching (CET) where the academic staff contributes to the advancement of training in teaching methodology.

The faculty has made part of the academic staff distinguished students who graduated at the master's level.

The faculty offers more than 10 subjects in the TIT bachelor program also in English to enable the exchange of students from European countries in AFC through ERASMUS projects.



1. THE FOUNDATIONS OF THE STRATEGIC PLAN

Our goal will be to form high-profile research groups and motivate individual researchers to benefit from funds, such as individual grants at all levels: start-ups, advanced, consolidating, and centers of excellence from various foundations.

In the next period, we will continue to strengthen and support the development of our core research areas.

1.1. Mission

To conduct scientific research of the highest international level to social and industrial development, as well as to educate distinguished students who will be leaders of the next generation.

1.2. Vision

The study of Computer Science is recognized as one of the fields of European leaders in the natural sciences. Increasing the number of academic staff is one of the goals consistently key, as well as commitment to equality of gender among academic staff. Selecting the best from our (Master level) graduates and their inclusion in the staff academic of the FCS.

In the long-term plan to enable the teaching of at least 6 subjects in the English language to enable student exchange through the ERASMUS program.

We will also focus on creating a unique department that will be distinguished from other Universities located in Kosovo with the programs it will offer.

1.3. Values

The values of the Faculty of Computer Science are reflected in the provision of knowledge on basic and advanced science and technological challenges in the field of computer science and its application in industrial IT. Knowing that engineers in modern times must be able to solve much more complex problems, to design and implement software packages, to design and implement network solutions, or to improve information technologies, study programs cover techniques that will affect productivity growth in software development and information technology.

1.4. Executive Summary

Our aim will be the formation of high-profile research groups and the motivation of individual researchers, to benefit from funds, such as individual grants at all levels: initial, advanced, consolidating, and centers of excellence from various foundations.

In the coming period, we will continue to strengthen and support the development of our main research areas. In addition, we have also identified two "key areas", which combine high-level research competencies in several research groups, the development of which will be a priority in the coming period: side effects will be used to identify areas of new research areas such as IoT which we intend to study in the future. The main areas are "Big Data and Data Analytics" and "IoT and Cybersecurity".

We propose to create an interdisciplinary course in the Faculty of Computer Science on Data Analysis and Big Data, led by the relevant Department of Computer Science, and to combine research and educational work. Also, based on the development trends of IT and industrial technology as well as the interest of young students, we propose the opening of the professional

Software Design (BA) department. This initiative will be conditioned by the allocation of additional resources.

1.5. General goals

- 1.5.1. Development of side research and educational activities within "Big Data and Data Analysis" and "IOT and Cyber Security".
- 1.5.2. Interdisciplinary Topic on "Big Data and Data Analytics" at ST.
- 1.5.3. Strengthening and supporting the development of our core research areas.
- 1.5.4. Review and improve computer science and IT programs and increase the percentage of computer science and IT scientists who graduate within three years.
- 1.5.5. Opening the professional Software Design (BA) and Software Engineering BSc.
- 1.5.6. Attracting the best students.
- 1.5.7. Strengthening cooperation with industry and public institutions

1.6. Stakeholders

Stakeholders of the Faculty of Computer Science:

Internal: academic staff; administrative and technical staff; the management of the academic unit.

External: students; alumni (graduate students); civil societies (NGO); industry/business community; scientific community; local, national and international government institutions; various agencies etc.

1.7. Organization of workspace

The building is located on the campus of the University "Ukshin Hoti". The building is new and of high quality. All staff are located in the same building complex with short distances between offices. Students of both levels are placed alongside their teaching groups in the same facility. The faculty has an organization on the floors. The first two floors belong to the Faculty of Law, while the two upper floors are the Faculty of Sciences Computer. The Dean and the Vice Dean of the Faculty have meetings weekly to work with the Rector of the University and the Secretary. Strategic issues are discussed in meetings with the Teaching Council Faculty of Science and with committee leaders for studies. Finally, there are monthly meetings with the academic staff twice a month.

In addition, within the faculty, there are commissions for:

- Bachelor and Master Studies
- Drafting regulations
- Quality
- Offices
- Laboratories
- Seminars
- Library - within UUHP

Each committee is responsible for day-to-day decisions within their specific competencies. Faculty development policies are discussed with the directors of other Faculties of the University, who meet with the commission 1-2 times a year to discuss the strategy, action plans, and committee resources.



1.8. Departments and research groups

Departments and research groups are not currently formed. Depending on the financial resources, it is anticipated that departments for existing departments to be formed soon. A research group consisting of 2- 4 permanent members of faculty and several Master level students will be formed to strengthen and support the development of our research areas. In recent years we have started closer cooperation between different institutions of research - both public and private about the goals / scientific research methods. As a result, we won the project (BESTSDI - Western Balkans Academic Education Evolution and Professional's Sustainable Training for Spatial Data Infrastructures) and we are in coordination with Universum College to compete in the project "STIR -Institutional Capacity Building in Innovative Science and Technology for the Robot Internet". As a result of this work, projects in existing directions are targeted research topics and application areas that have nature interdisciplinary and multidisciplinary such as:

Algorithms and Data Structure: Algorithms and Data Structure (in classical computer models as well newer models that take into account the hierarchical memory of modern machines), algorithmic engineering.

Continuous data systematization: Database and data management, including processing and efficient indexing of

questionnaires, collection, detection of external, similarity classification, and search.

Cryptography and Security: Public key cryptography, cryptographic protocols, quantum cryptography, secure and diverse computing.

Mathematical Computer Science: Theory of Complexity computer, combinatorial optimization, algebraic algorithms, theory of algorithmic games, and design of mechanisms.

Logic and Semantics: Models and logic for programming languages and type theories, modular reasoning for simultaneous programs, higher order, imperative programs, and language-based security.

Programming Languages: Language design and analysis and tools, functional languages and formal semantics, languages of object-oriented.

Computers and Interaction Everywhere: Computing Everywhere and mobile, positioning and context awareness, Technologies with user interface, interaction design for computer science everywhere (including basic research theoretical, design methods, and evolving Technologies interaction). The group manages several strategic research projects with industrial participation.

Computer-mediated activity: New techniques of interaction, methods, and theories for mediated activities computer work and daily life, the mechanisms that support human development and the acquisition of Information Technology.

Use, Design, and Innovation: Design Methods for systems covering workplaces, public spaces, and private homes. Most research is conducted through large projects, where users, companies, and researchers collaborate on the analysis, design, construction, and evaluation of prototypes and usage processes.

1.9. Full-time academic staff

As the graph below shows, the number of academic staff of the Faculty of Computer Science has not been stable during the first 7 years since its foundation. During the last seven years in the faculty, the number of full-time staff has increased consistently. In the last year, the faculty has 10 full-time academic staff. Whereas the number of part-time staff is very high. Today, the number of part-time staff in all three Bachelor programs and in the Master program, in all three study languages is a total of 30 teachers.

Due to the change in study programs and full-time staff employment policies, this number is decreasing.

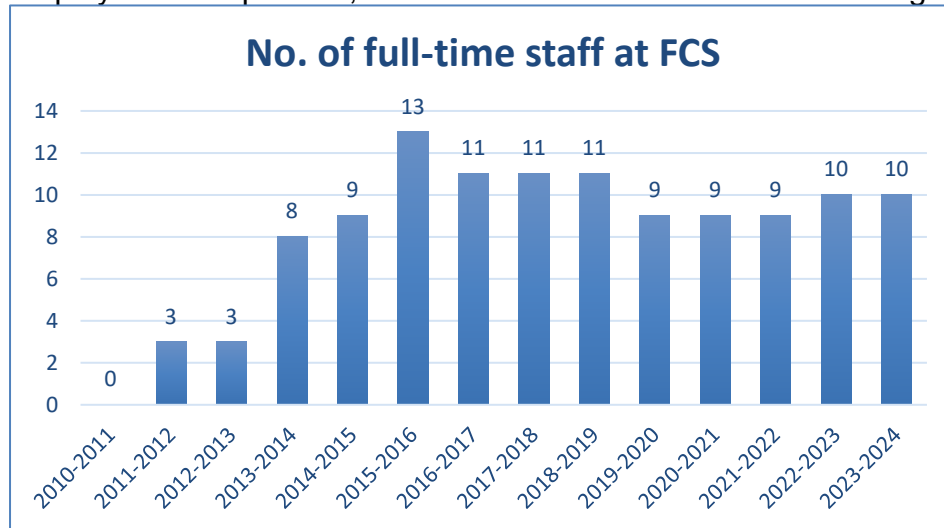


Figure 1. Number of full-time staff (2010 - 2023).

It should be noted that the faculty has engaged several substantial part-time academic staff, while there are professors who have gained the status of professor at the faculty and have been transferred to other Universities in Kosovo. Over the coming years, it is believed that this trend will change and the faculty will be staffed with full-time academic staff.

The graph below describes the relationship between the full-time academic staff and the number of students admitted in October of every year from its foundation. Detailed data on the number of students admitted to studies at this Faculty from 2010 to 2023 can be seen in the graph below, where the total number of students enrolled is 4,494 new students for the period 2010 to 2023.

Since 2016 when we introduced the new study program for studies and the development of IT products, we have managed to make a steady decrease in the number of students admitted in both SD and TIT directions of the Faculty of Computer Science. The conclusion is clear: the number of students received in the period 2010 - 2015, has increased (more than doubled) but we have not had an increase in the number of regular staff Faculty (even though in 2015, we started with the program new study which is in progress).

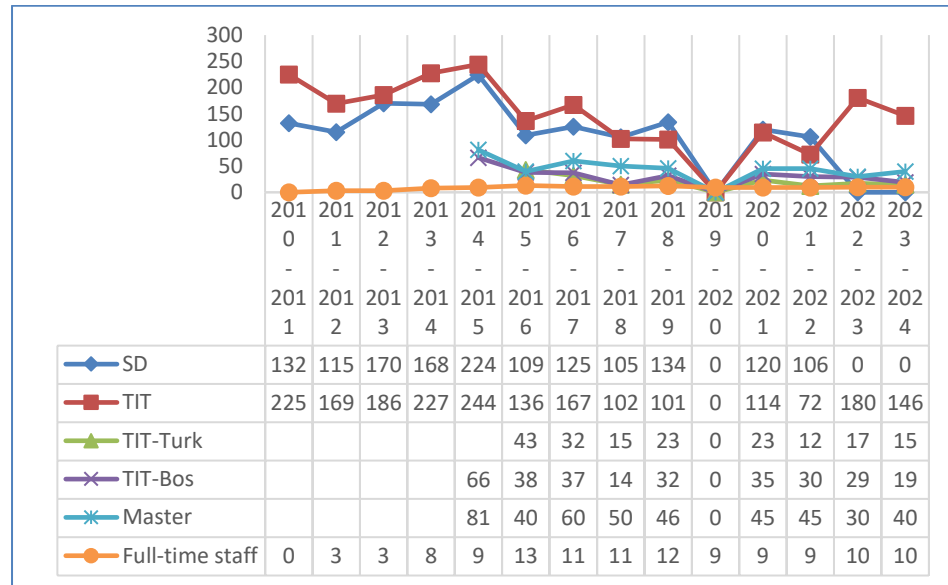


Figure 2. Number of full-time academic staff in proportion to number of students (2010-2023).

The full-time non-academic staff consists of the IT Officer, Chief of Administration, Faculty Secretary, and Students' Assistant.

The administrative services at the faculty are at a high level, which helps academic staff focus on the main work.

Staff Summary

Professor	0
Associate Professor	6
Assistant Professor	0
Assistant	4
Dr.Sc.	7
PhD student	3
Administrative Staff	9
Total	19

1.10. Level

The Faculty of Computer Science recognizes and evaluates the variety of different ways of engaging through which the staff of the faculty contributes to the realization of the goals of the faculty. The faculty is characterized by a responsibility and joint solidarity in solving certain tasks. The management is good at delegating - a lot of decisions are delegated to committees.

To raise the level of work, the faculty will benefit from staff engagement by a group of academic staff coming from the Public Universities of Kosovo and different countries of the region.

We hope all staff will contribute in a way equal to faculty shaping.

The faculty will continue to work systematically on improving the work environment based on assessments mandatory for academic staff.

The faculty will continue its efforts for the training and advancement of the academic staff through training for the teaching methodology within the QPM. We have regular monthly meetings that provide and develop a sense of equality in a faculty with interests of common. Annual seminars for permanent staff academic and non-academic, over the years, will contribute to developing a common sense of work among employees; it should become a tradition.

Traditionally, many students especially at the Master's level, are employed where they spend many hours a week. Thus, many students come to college only when they have lectures. The faculty strives to ensure that all lectures for students take place in halls with IT equipment.

Moreover, the halls where students have to constantly develop lessons need to be maintained for students to look attractive to become a daily part of faculties.

Students are often encouraged to exert influence on committees relevant to the faculty and their participation is very welcome.

Eventually, we agree that we are trying to create an environment for creating an entrepreneurial mindset in the faculty through a physical space and the easiest possible program of mentoring for students and graduates wishing to studies begin after graduation.

1.11. Summary Statistics (Quick Facts)

Graphic presentation (with diagrams) of key related statistics/issues of special interest to the FCS:

- Number of students enrolled in the FCS from 2010 to the academic year 2023-2024.

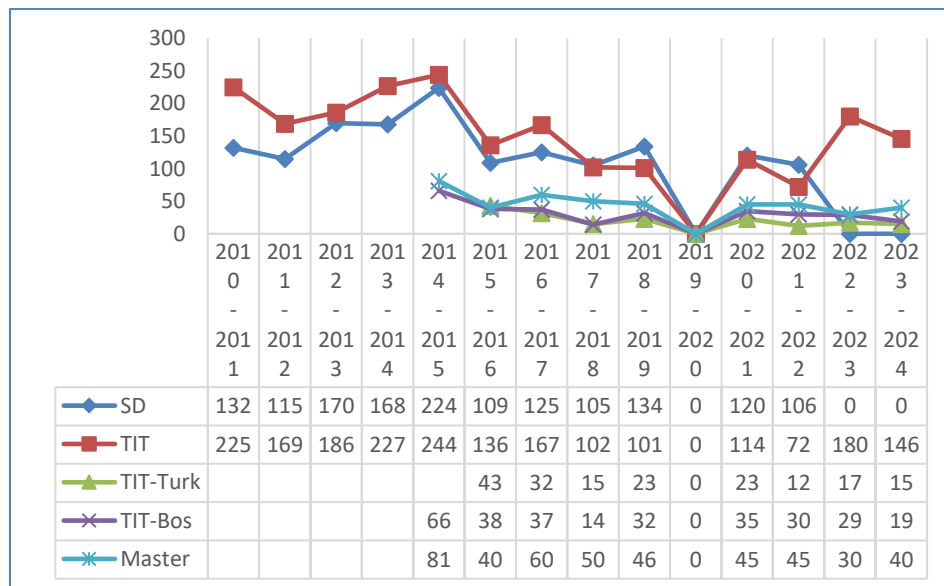


Figure 3. Number of students enrolled in the FCS from 2010 to the academic year 2023-2024.

- Statistics regarding the number of students (in Bachelor and Master) for the period 2018 - 2023 and categorization of their demographics (by gender).

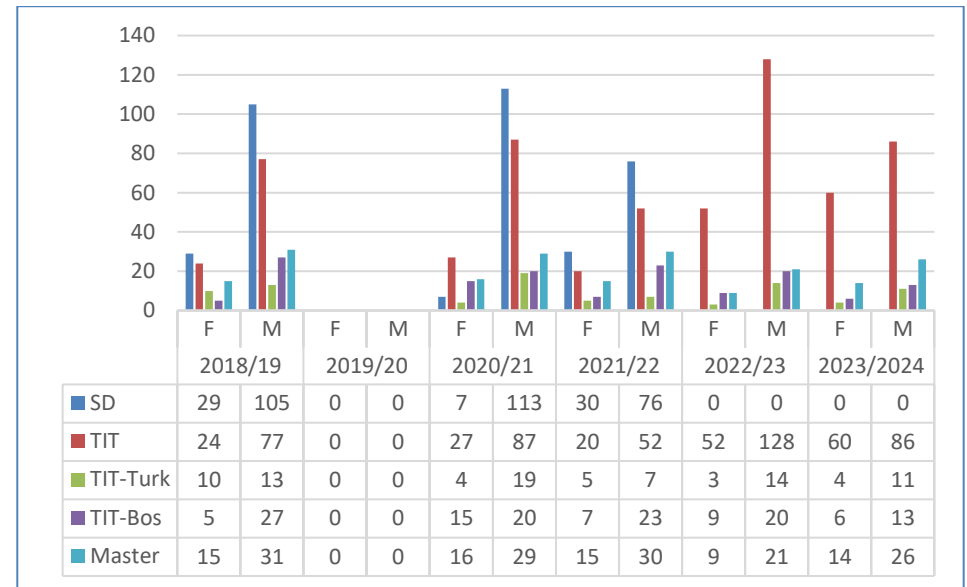


Figure 4. Number of students in the FCS from 2018 to the academic year 2023-2024 (by gender).

- Statistics regarding the number of active students (in Bachelor and Master) for the period 2018 - 2023 and categorization of their demographics (by gender).

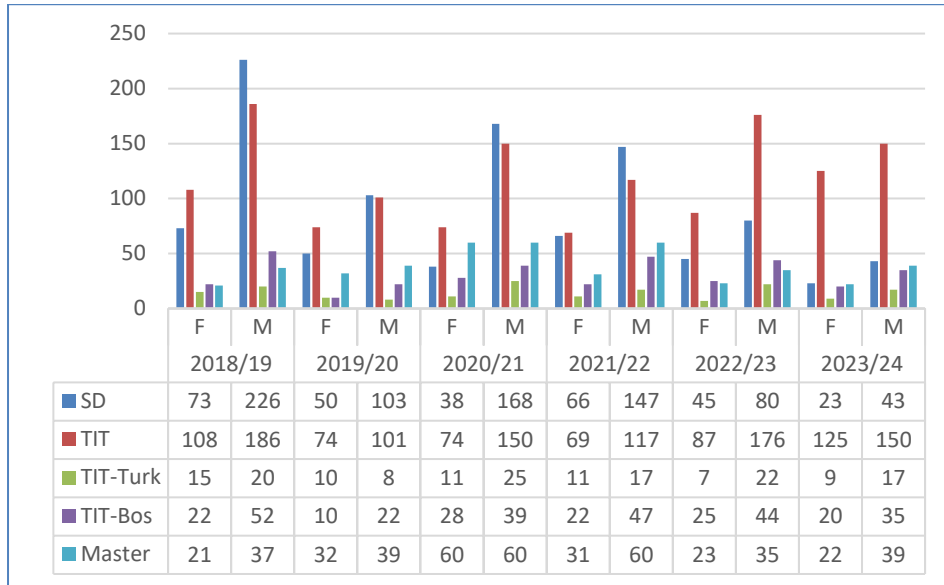


Figure 5. Number of active students in the FCS from 2018 to the academic year 2023-2024 (by gender).

- Statistics regarding the number of graduate students (in Bachelor and Master) for the period 2018 - 2023 and categorization of their demographics (by gender).

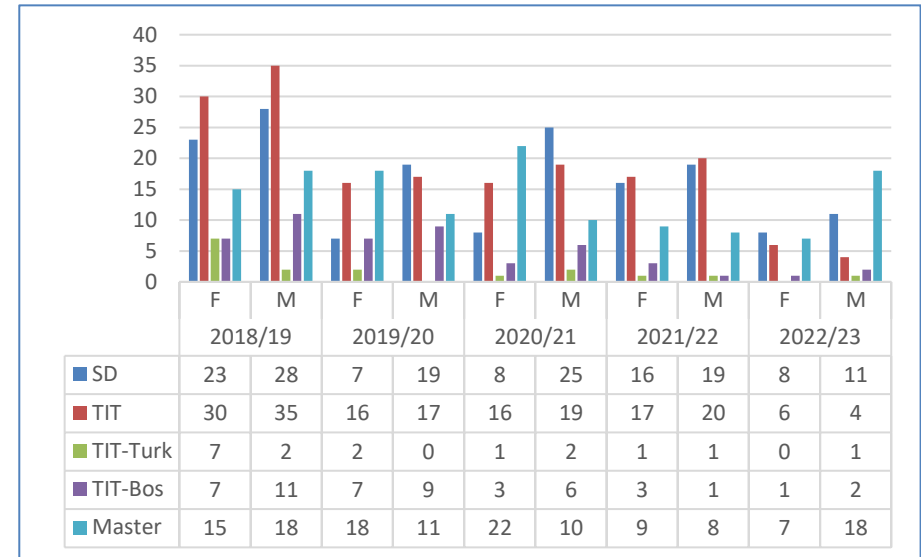


Figure 6. Number of graduated students in the FCS from 2018 to the academic year 2023-2024 (by gender).

- Statistics related to full-time academic staff (Number of staff academic with the academic vocation Prof. Dr. / Assoc. Prof. Dr. / Ass. Prof. Dr. / Ass., and administrative staff.

Professor	0
Associate Professor	6
Assistant Professor	0
Assistant	4
Administrative Staff	2
Total	12

- Statistics related to the scientific research work of full-time academic staff.

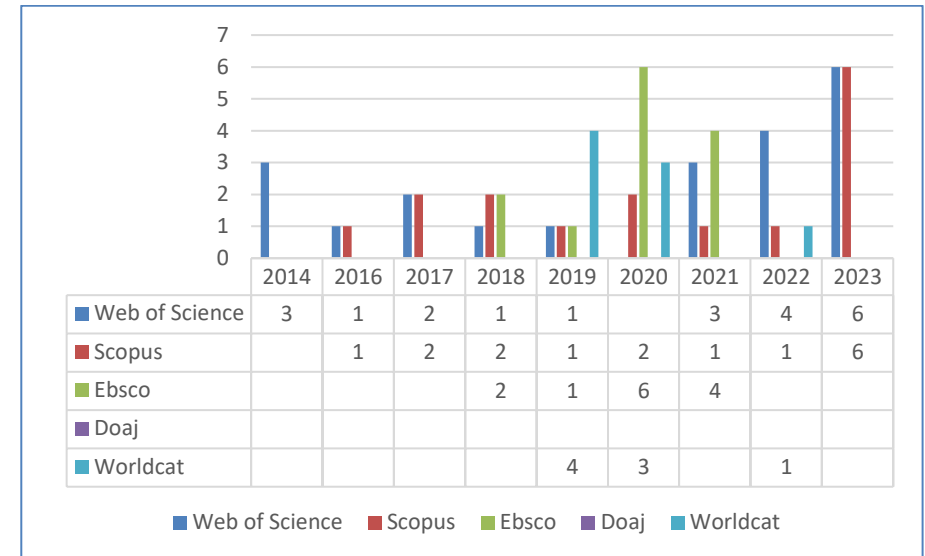


Figure 7. Number of research-scientific works by platforms (2014-2023).

2. STRATEGIC PLANNING PROCESS

The Strategic Goals of the Faculty of Computer Science (FCS) are designed to be in line with the University "Ukshin Hoti" - Prizren (UUHP) strategy.

They include:

- Development, improvement, and updating of programs current at both levels (Bachelor and Master) so that they are closely related to the needs of the labor market not only in the region of Prizren but also beyond;
- Academic, research, and research advancements providing scholarships for FCS students;
- Increase teaching, research, and service within the FCS, retaining and hiring staff selected.
- Opening new programs, to connect closer to educational profiles in the Prizren region.
- Opening bachelor programs: Software design BA Professional and Software Engineering BSc.
- Opening of Doctoral studies, as a conclusion of successful participation of the FCS in the project DI-PHDICTKES.

2.1. Positioning analysis

SWOT analysis of the FCS identifies strengths, weaknesses, opportunities, and risks of the faculty:

Strengths (external):

- Very good reputation at the national level.
- Well-developed network with international contacts.
- Some interdisciplinary projects.
- Close contact and cooperation with enterprises that deal with IT development.
- Regular and engaged academic staff is qualified.
- Competent and efficient administrative staff.
- The unique age profile for academic staff.
- Many students at the Bachelor's level and Master's level.

Strengths (internal):

- Mutual respect between academic staff and administrative staff.
- The high degree of delegation and involvement in groups and panels.
- Rapid and non-bureaucratic decision processes.
- No quarrels over minor problems and procedures.
- Many initiatives to ensure good social contact.

Weaknesses:

- The small number of regular academic staff
- There are no foreigners on the academic staff.
- Few women on the academic staff.
- Fewer female students at all levels.
- The high dropout rate in Bachelor.

Possibilities:

- High demand for qualified IT professionals, such as Bachelor and Master students.
- High demand for computer science competencies in interdisciplinary projects.
- Entrepreneurship through the incubator for Master/graduate students /graduates who have established or are working on founding their own company.
- Co-location with information science, IT engineering, and other organizations.
- Cooperation with various institutes.
- Holding track makes it easier to offer attractive careers to the best international researchers.
- Consolidated buildings where all staff and students are close to each other.

Risks:

- Fierce competition with other Universities and the IT industry to employ more young people talented.
- Inadequate support with IT equipment.
- Request for more teaching hours.
- An increasing measure of complacency.

3. STRATEGIC PRIORITIES

Strategic Plan 2024-2027 of the FCS has identified the following areas of strategic priority:



The following is a summary of the strategic priorities where they should be incorporated: teaching/learning and quality control; development of scientific research work; the contribution of the FCS to the community in which it operates (community service activities); Internationalization and networking of the FCS (cooperation agreements, priority ones foreign faculties from which 70% of the programs have been adapted; mobility of academic staff and students, etc.).

3.1. Quality assurance in teaching and learning

The department runs four study programs at the Bachelor level (two study programs in Albanian language: Software Design (SD) and Information Technologies and Telecommunication (ITT); one in Turkish: Information Technologies and Telecommunication and one in Bosnian language: Information Technologies and Telecommunication) and a Master level study program: Computer Science and Communication Technology, all of these programs with large number of students. This means that in the future these programs will work and the staff we have cover their software needs but also in the future will be recruiting new staff and work will be done to open new programs.

In 2017 and previous years, more than 50% of it enrolled in the Master study level were graduate students from the Bachelor study level in our faculty. The number of graduates at the Master's level in our faculty is relatively low because the level of studies is high. In our faculty since 2010, 4494 students are enrolled, of which in study program SD: 1508, in study program ITT: 2069, ITT-Turkish: 180, ITT-Bosnian: 300, and master studies: 437. So, the number of students calculated per professor is high, and this reduces the time required for a professor to engage with a student.

Goal: Increase the number of students graduating in three years survey.

Indicators: Percentage of students graduating in three years.

Mechanisms (actions): Implementation of the best techniques for the selection of students enrolling at the Bachelor level, perhaps by combining the grade point average of the school high school and individual entrance exam; The software improves study by implementing various teaching techniques, by increasing contact between students and faculty, and by improving the physical study environment (i.e., students will be able to work more efficiently in the department); Review of study programs.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									2019	2020	2021	2022	2023	2024
	2011	2012	2013	2014	2015	2016	2017	2018						
ITT	225	169	186	227	244	136	167	102	101	0	114	72	180	146
S D	132	115	170	168	224	109	125	105	134	0	120	106	0	0
IIT- Turkish						43	32	15	23	0	23	12	17	15
ITT- Bosnia n					66	38	37	14	32	0	35	30	29	19
Master					81	40	60	50	46	0	45	45	30	40

The number of students enrolled in the FCS from the 2010/2011 academic year to the 2023-24 academic year.

Purpose: Review and improve study programs in the FCS.

Indicators: Number of hours of consultation between the Professor and Students. Increasing the employment of graduates in the faculty. Extent and depth of programming experience that students receive during their studies. More written documentation of their work to make the training of students to write. A considerable number of specializations to provide progress. Ensure harmonization between specializations and master thesis. Results in the evaluation of the physical and psychological study environment.

Mechanisms (actions): Review of study programs; Consider project-oriented learning which will supervised by experienced scientific staff, bringing students closer to the staff; The department has a student union and each faculty has a student council. We will continue to cooperate with these organizations and support them as much as possible. They make a special contribution to providing a conducive environment for studying.

Purpose: Initiate an elite program for talented students

Indicators: Number of students attending the elite program - several students wishing to enroll in Ph.D.

Mechanisms (actions): Design and implementation of the elite program, using the experiences gained in other departments in UHP.

Purpose: Make sure our faculty teaching resources are spent wisely.

Indicators: The number of students for specialization should be reasonable (small enough to have sufficient resources of teaching per student and large enough to have one reasonable number of students per course). Number of courses that can be used in some

educational programs. Make sure there is a longer-term plan for staff courses in IT study lines.

Mechanisms (actions): Review of study programs. The focus of management should be on holding courses.

3.2. Development of scientific research work

Within this strategic priority, the FCS has defined these strategic objectives:

- Deepening the cooperation within the academic staff of FCS;
- Cooperation with the academic staff of relevant regional institutions and international institutions;

Potential areas of research are two "key areas", which combine research competencies from several research groups and the development of which will be a priority in the period of next. In particular, the side areas will be used for it to identify new research areas to be built on in the future. The main areas are "Big Data and Analysis of Data "and" Cyber Security and Internet of Things ".

Also, it is important to emphasize that a significant number of scientific works in the mentioned fields have already been carried out by our academic staff. These researches have been presented and discussed in several international journals and conferences, showing a high level of our commitment and contribution in these fields. We plan to continue with this momentum, aiming for our future works to be even more involved in international platforms, which offer great opportunities for knowledge sharing and international cooperation.

Big Data and Data Analysis: The digitalization of society has radically transformed work and life around the world. Computer Science and Computer Engineering have been important enablers of this transformation. Today, we experience an

exponential

increase in digital data that is projected to reach a level of 40 ZB (10^{21} B) in 2021, from 2.7 ZB in 2012; for two days we now produce just as much data on how much we have done since the beginning of civilization and until 2003!

It is also noted that 80% of the world's data is unstructured: This statistic comes from an IDC report entitled: Data Age 2025: A Wake-Up Call for the Information Economy. The report highlights the challenges and opportunities associated with exponential data growth and highlights the need for effective tools such as NLP to manage and analyze unstructured data.

A study published in the journal Nature titled The Exponential Growth of Scientific Publications analyzed the development of scientific literature over the past century and found that the number of publications is doubling about every 9 years. This rapid growth presents challenges for researchers in trying to stay up-to-date with the latest findings, and Natural Language Processing (NLP) can help them efficiently navigate this vast body of knowledge."

There is a growing awareness that efficient use and analysis of these data can lead to radical new values for society, industry, and businesses. For example, special publications in the journals *Nature* and *Science* have highlighted the great opportunities that Big Data offers in science, e.g., emphasizing how a paradigm shift occurs caused by the explosion in data availability in high-quality science. While in the past, researchers' individuals meticulously planned their experiments and recorded and analyzed their results, we now see one shift towards the accumulation of data sets from different mass databases and extracting these datasets to obtain new scientific results: information (data collection, organization, and transformation). Similarly, a special issue of The Economist has highlighted the great business opportunities in Big Data, and



we have already seen examples of new businesses and many successful Big Data based. However, many opportunities for Big Data are not being realized yet. For example, it is estimated that from 2.7 ZB of data in 2012 only 3% were recorded with meta-data (additional descriptions), and much less than 3% were analyzed. That so little of the available data is examined, is observed as a sub-use of existing capabilities of data analysis and a need for methods and techniques of new efficient and effective analysis.

So is computer science research and innovation it is important to take advantage of scientific opportunities and trading that extend to Big Data. Combining strong existing research in several important areas, the Department of Computer Science is very well positioned to be made a side department in terms of a large collection of data, organization, and analysis.

Objectives for Big Data and Data Analysis: Given existing fields of research about big data, we believe we are well-positioned to decide what the center would research on big data in Kosovo and that the center will have considerable visibility. This ambitious goal overall can be achieved by strengthening cooperation between groups in (and outside) the department with large activities of data. The objective will focus on basic research on methods of efficient computing for its collection, organization, and analysis of data including areas such as sensor support, database organization, machine learning, algorithms efficiency, and visual analysis - and for building an education in data science (specialization at Master level).

Within our objectives for Big Data and data analysis, another focus will be on the development and use of Natural Language Processing (NLP) technologies. This field, which is essential in the processing and understanding of human language by computer systems, will help us to address the challenges associated with the analysis of large volumes of textual data.

The additional focus would be on multidisciplinary collaboration and innovation in collaboration with industry, to efficient computer techniques are used for problem-solving and develop products and services respectively. Initial natural cooperation can be very disciplinary with biology researchers (e.g., based on existing cooperation with BiRC and Biodiversity researchers), engineering researchers (e.g., in analyzing data from cyber systems) as well as researchers from Food and Agriculture.

Innovation efforts will also be built on the experience of the participating collaborators and existing cooperation, and even more important in cooperation with the Alexandra Institute, which has the competencies of strong in applied research, development, and innovation.

Our main focus is to become a leading center in the research and development of advanced methods for the collection, processing, and analysis of large volumes of data. This includes the development of new algorithms, machine learning techniques, and visual analysis methods. We also want to increase interdisciplinary collaboration to address the complex challenges that come with Big Data, coordinating with fields such as economics, health, and social sciences. Ultimately, we aim to prepare our students with the necessary skills to be leaders in this rapidly developing field by providing them with in-depth theoretical knowledge and practical experience through projects and internships in the field.

Resources needed to achieve Big Data objectives

Although the faculty is well positioned in several research areas relevant to Big Data, it lacks staff and electronic equipment, mainly hardware suitable for this area. Additional faculty resources are needed to foster the initiative, including building interdisciplinary collaboration, designing new data science specializations, and



securing additional funding, while ensuring that strength in the individual's core areas is not compromised. In addition to the already planned design in the area of data-intensive systems, additional facilitators are needed in the comprehensive computing interaction, and algorithm areas. Thus, additional staff resources are necessary for the objective to be successful.

Cyber-Security and Internet of Things: The structure of society today is woven with the themes of complex IT systems. While these systems greatly improve the quality of life, they also come at risk. A single weakness in one Modern information technology system can lead to critical interruptions in telecommunications, banking services, utilities, transport services, and security national. Providing an IT infrastructure is a task challenging.

A common wisdom in cyber security is that "a system is insecure as its weakest link." In practice, weaker connections in large IT systems can emerge almost anywhere - from the user interfaces designed by packets to program errors in the kernels of operating systems, for subtle protocol flaws cryptographic. Moreover, a noticeable improvement throughout one of these aspects can compromise safety among others. For example, switching to a new system, protocol cryptographic theoretically stronger, in an *e-banking application* can result in a confusing user interaction that is susceptible to social engineering attacks. Similarly, an improvement in the user interface can insert programmer errors that consequently flow user information, such as passwords or data personal.

These and many other examples suggest that an approach comprehensive to cyber security requires not only in-depth expertise in key areas of computer science but also an understanding of the security concerns in all fields. The Department of Computer Science at UUHP is in a unique position to form a research area in cyber security. It has a strong presence in many areas of research needed, but there is also an

opportunity for it built on individual power toward focused effort and principles in cyber security.

Along with our focus on cyber security, another key area of interest for our faculty is the Internet of Things (IoT). While the IoT is revolutionizing the way we interact with technology, bringing smart and connected devices into every aspect of our lives, the challenges associated with this development are just as great. From securing the data collected by IoT devices to managing their complex infrastructure, the research and development needs in this area are clear. Our commitment is to create sustainable and secure solutions that take into account the rapid growth of IoT devices and their interaction with everyday life. Combining this with our focus on cyber security, we aim to develop an integrated approach that covers all aspects of security and efficiency in these two critical areas, providing a strong platform for advanced research and innovative technology solutions."

Cyber Security and Internet of Things Objectives: Given existing areas of research related to Cyber-Security, we believe we are well positioned to decide what we want to be the Cyber-Security research center in Kosovo and that the center would have considerable visibility internationally. This ambitious overall goal can be achieved by strengthening cooperation between the current groups of independent in (and outside) departments with strong activities cybernetic. The objective will focus on basic research on the science of cyber security, exploring the principles, abstracts, and exchanges for building secure systems - including areas such as cryptography, programming logic and automated verification, language-based security, and human interaction with insecure systems. Here there is a natural "supply chain" running through protocols cryptography in language programming and implementation, in systems computer, and finally in the interfaces used by human users.



We need to build models that allow us to identify what information should go up and down this chain so that the resulting system is secure. Based on this, we can proceed with the design and construction of tools that will facilitate the development of secure systems at all levels. This is a great challenge that it never is previously addressed, hence both high risk and high profit. We will also consider building a level specialization Master in Cyber Security.

Additional focus would be multi-disciplinary cooperation and over-innovation in collaboration with private companies and the sector public, to address societal challenges in cyber security. Multidisciplinary research can be done with economists (privacy transactions), and engineers (combining aspects of physical and software security in connection with the collection of data, smart measurement, etc.).

Researchers researching people (ensuring the confidentiality of data aggregated) privacy policies), etc. Innovation efforts would also build the participants' experience in research and existing cooperation, and most importantly in cooperation with the Alexandra Institute, which has the competencies of strong in applied research, development, and innovation.

Beyond our focus on cybersecurity, we also see the Internet of Things (IoT) as an important and independent area of research. In our time, IoT is taking an increasingly central role in digital transformation, impacting industries as diverse as healthcare to manufacturing and transportation. This impact of IoT requires a deep and detailed approach to researching how connected devices interact, collect, and process data, and how these devices can be safely and efficiently integrated into everyday life. This focus will help us contribute to the development of innovative solutions that meet the unique challenges that IoT brings, as well as prepare for the future of connected technology.

Resources needed to achieve Cyber Security and Internet of Things Objectives: Although the faculty fits well in several research areas relevant to Cyber Security and IoT, it lacks staff and electronic equipment, mainly advanced hardware such as sensors, microcontrollers, as well as software development platforms and tools. Other faculty resources are needed to foster initiative, including building collaboration interdisciplinary, designing the specialization of new sciences of data, and securing additional funds by providing it at the same time that power in the key areas of the individual does not compromise. In addition to the already planned design in the area of systems with data intensity, additional facilitators are needed on the computer and comprehensive interaction and in areas of algorithms. Thus, additional staff resources are needed for the objective to be successful.



3.3. Contribution to the community

Within this strategic priority, the FCS has defined these strategic objectives:

- Increasing the employment rate of FCS students
- in the regional market;
- Adapting the curriculum to market demands;
- Encouraging students and faculty staff to actively participate in community contribution projects and activities;
- Creation of educational and training programs that serve to improve the knowledge and skills of the community.;

3.4. The process of internationalization and networking

Within this strategic priority, the FCS has defined these strategic objectives:

- Participation in international projects (such as LAIA, TKAEDiTE, Private Sector Partnerships to Strengthen Higher Education-USAID, ICM student and staff mobility (2023-2026) with Linnaeus University. Project for practical work with ITP 2023-2024. etc.)
- Exchange of academic staff with other, regional and international institutions;

Our department has a good tradition of cooperation and knowledge exchange with private companies and public institutions. In the last ten years, there have been a large number of projects with foreign participants (GIZ, ERASMUS, HORIZONT, etc.). So, our research has been available to Kosovar and international society.

Industry and public institutions also contribute to the study programs in the department, for example, through joint courses or projects with students, and by involving them in our study program advisory boards.

Most academic staff and students are interested in starting new companies. Most of the student projects realized during the studies have been implemented in our department. The department does not have a budget with which to create a research incubator, but we have an agreement with ITP-Prizren which has incubation programs, and from 2022 the students of the faculty will be included in these incubation programs for innovative ideas.

Also, we aim to increase the opportunities for our students for the financial support of innovative ideas by cooperating closely with private companies and public institutions to provide an environment for the development of various projects.

Purpose: Strong cooperation with ITP, industry, and public institutions.

Indicators: Number of projects with active participation by private companies or public institutions. By active participation, we mean that the company/institution sponsors a part of the project or has employees working on the project. Participation in reference groups, etc. not enough to count.

Mechanisms(actions): Support joint research applications with industry.

Purpose: Support the entrepreneurial activities of students, staff, and young graduates.

Indicators: Number of successful start-up companies by students, staff, and recent graduates from the department.

Mechanisms (actions): Use of the research laboratory where ideas can be realized and applied teaching through research with distinguished students.

3.5. Infrastructure development

Within this strategic priority, the FCS has defined these strategic objectives:

- Expansion of the current facility (to utilize complete object);
 - This will be done so that the Faculty of Law moved to the facility to be built opposite the facility of the FCS.
 - According to the predicted dynamics, this is expected to be realized by 2025.
- Construction of a data center;
 - To accomplish this, initially a working group of The FCS will draft the project where they will be listed essential components to set up a data center. Then, if there are insufficient financial means within the UUHP, potential donors will be identified for the implementation of this project. The project is planned to be completed by the end of 2025.

3.6. Financial sustainability

Within this strategic priority, the FCS has defined these strategic objectives:

- Financial benefits from the projects (both in terms of equipment laboratory as well as potential infrastructural investments);

3.7. Opening of unique study programs

Within this strategic priority, the FCS has defined these strategic objectives:

At the Bachelor level, the goal of the future is to open the study programs Software Design BA Professional and Software Engineering BSc. This objective comes as a result of the market needs in this field. So far, we have not had this program in Bachelor level studies.

Goal: To open the Software Design BA Professional and Software Engineering BSc programs at the Bachelor level.

Indicators: The number of students in study programs Software Design BA Professional and Software Engineering BSc is by the number of faculty staff. Ability to accept students with high qualifications from Kosovo and the region.

Number: Number and quality of courses offered in this field. The quality of studies in this regard increases when our students can be compared to top university students.

Mechanisms (actions): Improving selection methods of bachelor-level students and offering various courses at the Ph.D. level are the key elements of research and education in our department, and the department intends to open well Ph.D. studies. So far, we have not had PhD studies but from Master level studies we have seen a great deal of interest in students to continue with PhD studies.

Purpose: To open the PhD study program and bachelor study programs Software Design BA Professional and Software Engineering BSc.

Indicators: Number of Ph.D. students by number of staff faculty; Ability to accept highly qualified students from Kosovo and the region

Number: Number and quality of courses, seminars, and schools summer offered by the department; Quality of PhD studies rises when our students can compare themselves with students of top universities.

Mechanisms (actions): Providing external finance for Ph.D. students through research grants; Improving Ph.D. student selection methods; Offering various Ph.D. courses; Continue to improve conditions for Ph.D. student research.

Faculty Recruitment: Over the past few years, the department has succeeded in employing a considerable number of qualified academic staff. But despite this, it remains a challenge to increase the number of qualified staff.

Purpose: To attract and recruit excellent faculty staff.

Indicators

- A significant number of new staff
- Recruitment of international staff.
- Recruitment of female staff

Mechanisms (actions)

- Positions should be announced through open competition, with some priority areas
- Formation of review committees composed of faculty staff to select qualified staff
- Make sure that all members of the academic staff assist in the process of selecting new staff academic.
- Provide international visiting staff who can be potential faculty staff in the future.
- In Computer Science it is difficult to find experienced staff due to the new direction therefore, we must keep in mind that the staff will be mostly young.



UUHP Campus

UUHP Infrastructure



25,000 m²

Kampusit universitar

14,820 m²

Hapësira e infrastrukturës

1,701 m²

4 Amfiteatro

3,068 m²

40 Salla të mësimit

527 m²

3 Biblioteka

476 m²

9 Laboratore

356 m²

3 Kabinete të informatikës

1,423 m²

47 zyra administrative dhe stafit akademik

7,269 m²

Hapësira ndihmëse

CONCLUDING REMARKS

The Faculty of Computer Science is proud to offer modern programs, in line with market demands. The value of The Faculty of Computer Science is reflected in the provision of knowledge of basic and advanced science and challenges technology in the field of computer science and application in the IT industry.

Knowing that graduates and engineers in modern times should be able to solve much more complex issues, design and implement software packages, design and implement network solutions, or improve technologies of information, our programs at the Bachelor and Master levels cover techniques that will affect productivity growth in software and information technology development.

SUMMARY VOCABULARY

SWOT analysis

A tool developed by the business development strategy that allows organizations to analyze environmental variables to develop an optimal strategy to pursue organizational objectives.

Accreditation Process

The process through which a third party formally acknowledges that the organization has the competencies and tools to perform certain tasks.

The Bologna Process

In June 1999, several European Education Ministers met and signed an agreement at the University of Bologna. The Bologna Process took place following this historic agreement that aims to reform and harmonize higher education systems all over Europe. The main objective of the process would take place, in 2010, in a European Higher Education Area (EHEA).

European Higher Education Area

Ministerial-level agreements reached between 1998 and 2010 in the European dimension of higher education policy as it is developed in the context of the Bologna Process.

ACTION PLAN

Nr.	Strategic Objective	Activities	Measures	Holders	Time frame	Cost €
Strategic priority 1: Quality assurance in teaching/learning						
1.	Increase of academic staff (Bachelor and PhD)	Additional vacancy notices		UUHP, FCS, Senate, MEST	2024-2027	100.000,00
Strategic priority 2: Development of research						
1.	Creation of research groups			FCS	2024-2027	000,000
Strategic priority 3: Contribution in Community						
1.	The ability of graduates to work	Graduation	Close correlation of theory and practice	FCS	2024-2027	000,000
Strategic priority 4: Internationalization and networking						
1.	Participation in project Tkaedit			ERASMUS+, LNU, NTNU, UUHP, FSHK	2023-2026	50,000
	Participation in project LAIA			ERASMUS+, UUHP, FSHK, UNIVERSITY OF PIRAEUS RESEARCH CENTER - UNIVERSITY OF PIRAEUS RESEARCH CENTER; TALLINNA TEHNIKAÜLIKOOOL - TALLINN UNIVERSITY OF TECHNOLOGY; MESDHEU EDUCATION SHPK - MEDITERRANEAN UNIVERSITY OF ALBANIA; UNIVERSITET ALEKSANDER XHUVANI ELBASAN - UNIVERSITY OF ELBASAN ALEKSANDER XHUVANI;	2023-2026	46,000

				UNIVERSITETI BUJQESOR I TIRANES - AGRICULTURAL UNIVERSITY OF TIRANA AUT; UNIVERSITETI POLITEKNIK I TIRANES - UPT		
	Participation in project ICM for staff and student mobility				2023-2026	
2.	Participation in the project of USAID			USAID, UUHP, FCS, IOWA State University and IOWA University	2023-2028	
Strategic priority 5: Infrastructure development						
1.	Lab for the new program			UUHP, FCS, Senate		40.000
Strategic priority 6: Financial stability						
1.						000,000
Strategic priority 7: Opening of unique programs						
1.	Opening a new Bachelor programs (Software Design BA Professional and Software Engineering BSc)			UUHP, Senate, FCS, MEST	2024-2027	80.000,00