

BELGRADE UNIVERSITY SCHOOL OF ELECTRICAL ENGINEERING



UB-SEE
2017 / 2018

**KNOWLEDGE IS THE GOLDEN LADDER OVER
WHICH WE CLIMB TO HEAVEN; KNOWLEDGE IS
THE LIGHT WHICH ILLUMINATES OUR PATH
THROUGH THIS LIFE AND LEADS TO A FUTURE
LIFE OF EVERLASTING GLORY.**

MIHAJLO PUPIN

Serbian scientist and inventor

INTRODUCTION



This is the year in which the School of Electrical Engineering celebrates its 69th anniversary. Keeping the tradition of our highly regarded predecessors, and doing our best to maintain and enhance the good reputation that we have enjoyed for decades, we are committed to education of engineers for future technological development of Serbia.

As a leader in university education in Serbia, we embarked on a reform of our programs in 2003 and were among the first institutions to have the new programs accredited. So far the total of 2235 BSc students, 2223 MSc students, and 77 PhD students have completed these reformed programs, showing that they are ready to accept the challenges imposed by rapid development in all areas of computer science. We are proud of the fact that our graduates are able to generate high income and that their profession is in high demand on the job market. Despite the limitations regarding space, finances, and the number of teaching staff, we believe that we keep the tradition of high quality education primarily thanks to extraordinary efforts of our faculty.

With the adequate support from the state, we aim to create enough professionals who will develop Serbia, building an export oriented economy based on knowledge. The interest of home and foreign investors at this moment coincides with our goals, this being a great opportunity for Serbia that we should not miss.

In the period ahead, special attention will be paid to involving our young staff with international scientific and research projects, H2020 and EUREKA projects, international projects of commercial cooperation with distinguished foreign institutions and companies, and visits to reputable partner research institutions and universities. In this way we can enable our young colleagues to work more effectively, cooperate with peers from other countries and be included into European scientific space.

Professor Zoran Jovanovic, PhD
Dean of the School of Electrical Engineering,
Belgrade University

MISSION

To provide students with top education in the field of electrical and computer engineering, encourage their creativity and responsibility, curiosity, and team work. To provide companies with exceptional engineers who are able to enhance companies' productivity, innovation, and market competitiveness, in Serbia and anywhere around the world. To continuously contribute to technological advancement, computerization, and general development of our country with our scientific and research work.

VISION

To be the leading academic institution in the field of electrical engineering in the region of Southeast Europe, committed to keeping highest standards in teaching and learning, science, and applied research.

MANAGEMENT AND FACULTY



DEAN

Zoran Jovanovic, PhD
full professor



VICE DEAN FOR COOPERATION WITH INDUSTRY

Milo Tomasevic, PhD
full professor



VICE DEAN FOR SCIENCE

Zlatan Stojkovic, PhD
full professor



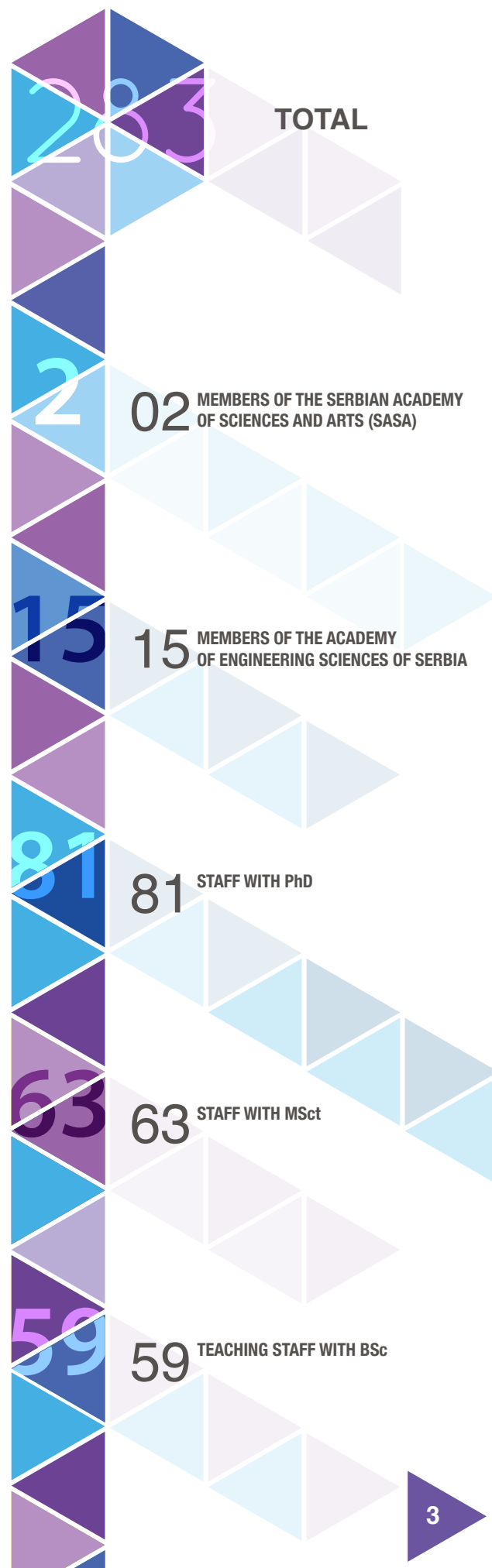
VICE DEAN FOR EDUCATION

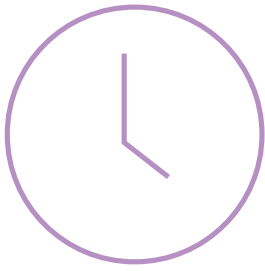
Predrag Ivanis, PhD
associate professor



VICE DEAN FOR FINANCE

Goran Kvascev, PhD
assistant professor





2015

20.000

The 20,000th graduate of electrical and computer engineering obtained their degree



2006



The Innovation Center of the School of Electrical Engineering (ICEF) was founded

2004

The Software Engineering study program was founded

1987

The Department for Computer Engineering and Information Technology was founded

1955

The Department for Microelectronics and Physics was founded

1948



The School of Electrical Engineering was founded. It consisted of two study programs: Power Engineering and Telecommunications

1946

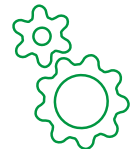
The study program for Electrical Engineering was founded at Belgrade University

1937

Power Engineering and Telecommunications study programs were founded at the Department for Mechanical and Electrical Engineering

1935

The Department for Mechanical and Electrical Engineering was founded at Belgrade University



1922

The first electrical engineering degree was awarded at Belgrade University

1898

Professor Stevan Markovic founded the Department for Electrical Engineering within the Engineering study program of the Higher School in Belgrade

1894



The first academic lecture in the field of electrical engineering was held in Serbia

HISTORY



The development of the School of Electrical Engineering is closely connected to the history of university education in Serbia. During his two-week visit to Belgrade in June 1892, Serbian scientist **Nikola Tesla** addressed students in the hall of the **Higher School** (which later became Belgrade University),

which at the time had an **engineering department**. Tesla's speech was several times interrupted by euphoric reactions of welcoming and supportive youth, so Kosta Alkovic, the head of the institution, had to ask them to be quiet so that Tesla could go on with his speech in which he talked about his eight-year electrical engineering work, latest research and inventions. He had delivered the same speech in London and Paris in February of the same year. Two years after Tesla's speech, in 1894, professor Stevan Markovic founded the Department for Electrical Engineering within the engineering study program of the Higher School and the first electrical engineering lab, which triggered intensive electrical engineering research.

The Higher School became Belgrade University on February 27th 1905, when the Law on University was passed. In the same year the schools of the University were formed, including the Engineering School. Belgrade University's first degrees in electrical engineering were awarded in 1922.

Engineering education significantly expanded after the Engineering Department was reorganized in 1935. The

Mechanical Department became the Mechanical and Electrical Engineering Department, where by 1937 four study programs were formed: mechanical, aeronautical, power, and telecommunications. Since telecommunications lacked lab equipment, this program started operating after the Second World War. The Department for Electrical Engineering was founded in 1946, which became the School of Electrical Engineering in 1948. It consisted of two study programs: Power Engineering and Telecommunications. The new study program, Microelectronics and Physics, was founded in 1955. Over the years, the telecommunications program developed in the directions of electronics, automation, and computer science. The fourth study program – Computer Engineering and Information Technology – was founded in 1987.

The School of Electrical Engineering became an independent unit of Belgrade University in 1948

The School of Electrical Engineering in Belgrade has always kept pace with global scientific and research trends and technological development. Following global developments, the school founded its Software Engineering study program in 2004.



Power Engineering



Signals and Systems



Computer Engineering



Telecommunications and Information Technology



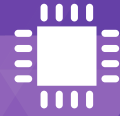
Software Engineering



Microelectronics and Physics



Electronics



MODULES

Electrical measurements
Relay protection
High voltage
Power system
Internet technologies
Acoustics
Signal processing
Radio and IP communications
Telecommunications
Electronics
Industrial and power electronics
Integrated circuit modelling
Analog and digital system
Digital signal processing
Computer engineering
Computer architecture and computer networks
Software engineering
Data science and analysis
Information systems
Software design and testing
Supercomputing
Robotics
Process management and signal processing
Biomedical engineering
Climatology and atmosphere ecology
Atomic and nuclear physics
Dosimetry and radiation protection
Electrical engineering materials
Physical and technical measurements
Calibration and temperature measurement
Nuclear engineering and medical engineering
Microelectronics and elements of electronic devices
Electro-optics and physical electronics
Optical telecommunications
Opto-electronic and laser system
Fundamentals of electrical engineering
Antenna and radio propagation
Microwave engineering
Electrical drives regulation
Electrical drives
Electrical micro machine
Transformer and choker
Electrical vehicles
Power conveter
Assessment of working environment conditions
Low-voltage electrical and lightning protection installations
Electrothermic and thermic processes in power engineering

STUDY STRUCTURE

The new study organization was introduced in 2003, since when BSc studies take four years, i.e. eight semesters. There are two BSc study programs: Electrical and Computer Engineering, and Software Engineering. Upon completing the four-year program the student obtains the degree of a BSc engineer of electrical and computer engineering, or a BSc software engineer.

MSc studies last for one academic year, after which the student becomes a MSc engineer of electrical and computer engineering. Doctoral studies are offered for one study program, they last for three academic year and are split into 11 modules.



PhD STUDIES

3
academic
years

11
modules

180
ECTS

MSc STUDIES

1
academic
years

12
modules

60
ECTS

BSc STUDIES

1. Electrical and Computer Engineering
2. Software Engineering

4
academic
years

7
modules

240
ECTS

ACTIVITIES

In accordance with the Bologna Process, each semester carries 30 ECTS credits. In the eighth semester of BSc studies the student is required to write the graduation paper which carries 12 ECTS credits.

SCIENCE AND RESEARCH

School of Electrical Engineering - University of Belgrade represents the largest engineering faculty in region, and 3rd largest engineering faculty in Europe. SEE has very important role and contribution to the engineering society, providing excellent experts, collaborating with national industry, military, as well as many international partners. SEE has implemented a vast number of successful commercial projects that have been used by many public and scientific institutions and companies in Serbia. Several awards for outstanding contributions to the development of computer science in Serbia are proving the significance of SEE.

Organization

The School of Electrical Engineering has organized or co-organized 17 conferences in Serbia and abroad in the past year.

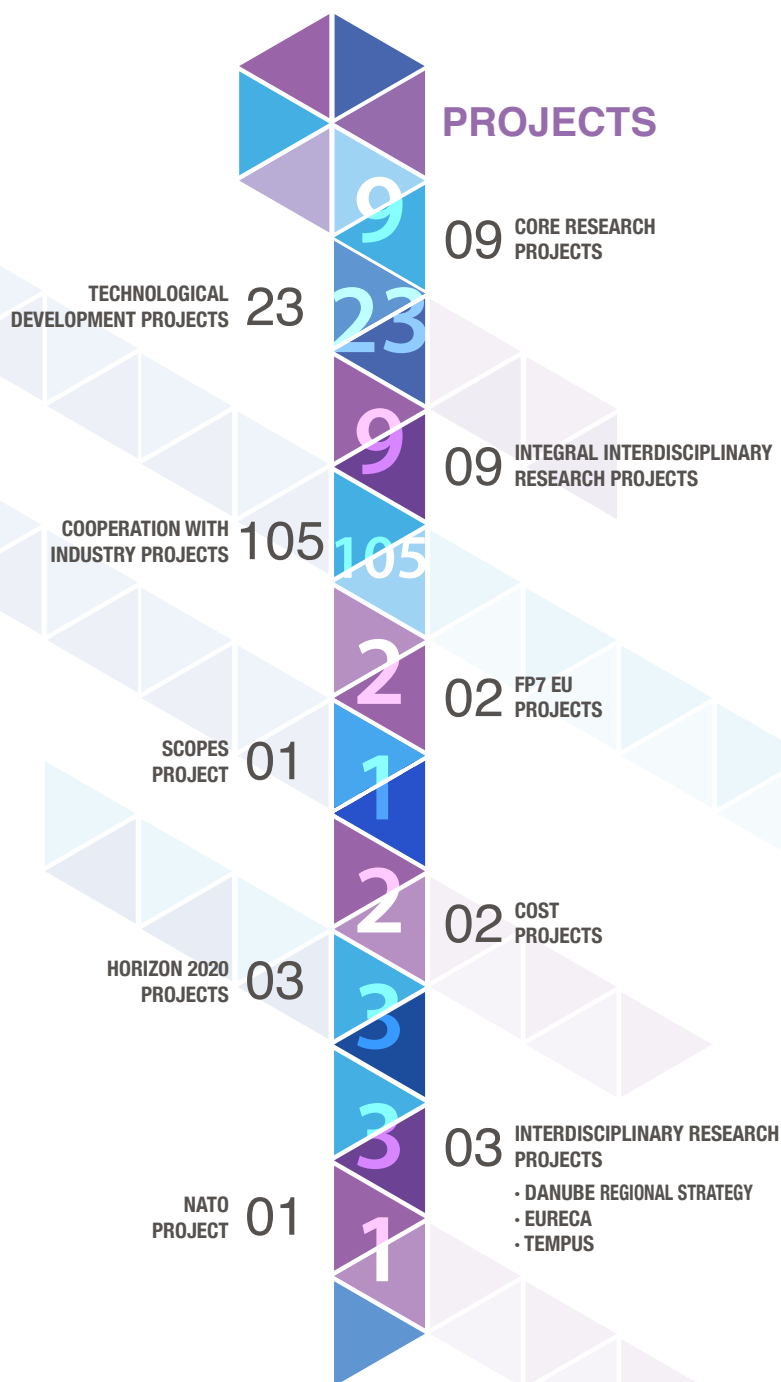


Publishing

The School of Electrical Engineering is the publisher of the international journal *"Applicable Analysis and Discrete Mathematics"*, which is included in the Thomson SCI list of scientific journals.

Publications in 2016

- 124** papers in international journals on the SCI list
- 80** papers in Serbian journals
- 104** papers in international conference proceedings
- 47** papers in Serbian conference proceedings
- 12** books



THREE NATIONAL PRIORITIES

1. Information and communication technologies
2. Power engineering and energy efficiency
3. New materials and nanoscience

COOPERATION WITH SERBIAN INDUSTRY

In addition to its dominant educational function, the School of Electrical Engineering has had a significant role in the society ever since it was founded, supporting the development of Serbian industry through its research and development activities. The School participates in 157 projects with Serbian companies, public and state institutions, and scientific institutes, while at the same time participating in 9 international commercial projects.

Serbian companies which have traditionally been partners of the School of Electrical Engineering are: Serbian Telecom, VIP Mobile, PTT (the national postal service), EPS (the national power company), thermal plants and hydro plants – TENT in Obrenovac, Kolubara, Kostolac, Djerdap, Bajina Basta, etc.

The school successfully cooperates with educational and scientific institutions in Serbia (Mihajlo Pupin Institute, Nikola Tesla Institute, Nuclear Science Institute in Vinca,

Military Technical Institute, Military Academy, School of Medicine, School of Dental Medicine, School of Veterinary Medicine, Serbia's Clinical Center, etc.), either by creating projects for their needs or by doing joint projects for third parties.

Over the last decade, the school has carried out a number of development projects in the field of modeling, implementation, and testing of software and hardware solutions, whose quality resulted in a large number of satisfied users.

NORDEUS



Vast

COMTRADE

NetSeT
GLOBAL SOLUTIONS

MikroElektronika
DEVELOPMENT TOOLS & HARDWARE

TERI
engineering

centili

RT-RK
COMPUTER BASED SYSTEMS

go



UNO-LUX NS

Merit
SOLUTIONS

FRAME

Atos

endava

MICOM

INTERNATIONAL COOPERATION

Cooperation with foreign companies is carried out in the form of joint development projects requested either by those companies or third parties, donation of equipment, and awarding and supporting students through scholarships. Over the past three years, a number of companies have donated valuable lab equipment to the school.

Some former students are now the key persons in charge of development in large multinational companies which implement their research and development solutions in Belgrade. This is the best example how our engineers can be on top of the world in their career while staying in Serbia. Some of the partners are: Microsoft, Nordeus, ABB, Siemens, Ericsson, Oracle, Google, NVidia, IBM, Elsys, etc.

The need for permanent improvement of skills of public and private sector employees is becoming stronger, since

today's engineers cannot use only the knowledge and skills acquired just during their studies. Therefore, engineers are offered contemporary courses which enhance their knowledge and skills or qualify them for other jobs which are currently in more demand.



The School of Electrical Engineering aims to take as prominent position as possible in Belgrade, Serbia, Europe, and the world. Higher education in Europe is based on the idea of unity and mutual harmonization of education systems, enabling cooperation and mobility of students and teachers, and creating a common market of highly qualified workforce.

Reviewing its system of studies and the role of its graduates on the job market, the School of Electrical Engineering embarked on a reform which coincided with the Bologna process within Serbia's education system. As a result, today we offer accredited study programmes in Serbian and English, and we receive numerous recognitions for our work. The large number of our BSc, MSc, and PhD graduates is the best evidence of the quality of our work.

The School of Electrical Engineering is a member or supporter of a number of engineering and student associations in Serbia and abroad:



Institute of Electrical and Electronics Engineers



International Council on Large Electric Systems



Electrical Engineering Students' European association



The National Association for Electronics, Telecommunications, Computer Science, Automation, and Nuclear Engineering



The Serbian Association of Physicists

THE SCHOOL OF ELECTRICAL ENGINEERING FOUNDED OR COFOUNDED:

The Computer Center of
Belgrade University

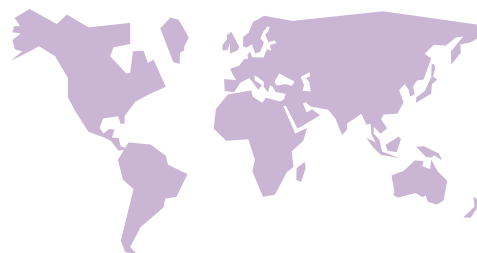
The Business Technology
Incubator of Technical Faculties

The Innovation Center of the
School of Electrical Engineering

A number of clusters (the
Serbian cluster of software
developers, the cluster of
producers of bespoke computer
systems, etc.)

FACULTY AND THE WORLD

The School of Electrical Engineering is the most recognizable and esteemed brand of our higher education, being an institution of national interest ever since it was founded. Our school's graduates work for renowned companies in Europe, US, Canada, Australia, and New Zealand, but they also occupy positions at prestigious universities and scientific institutes worldwide. Over 6,000 engineers worldwide have Serbian origin.

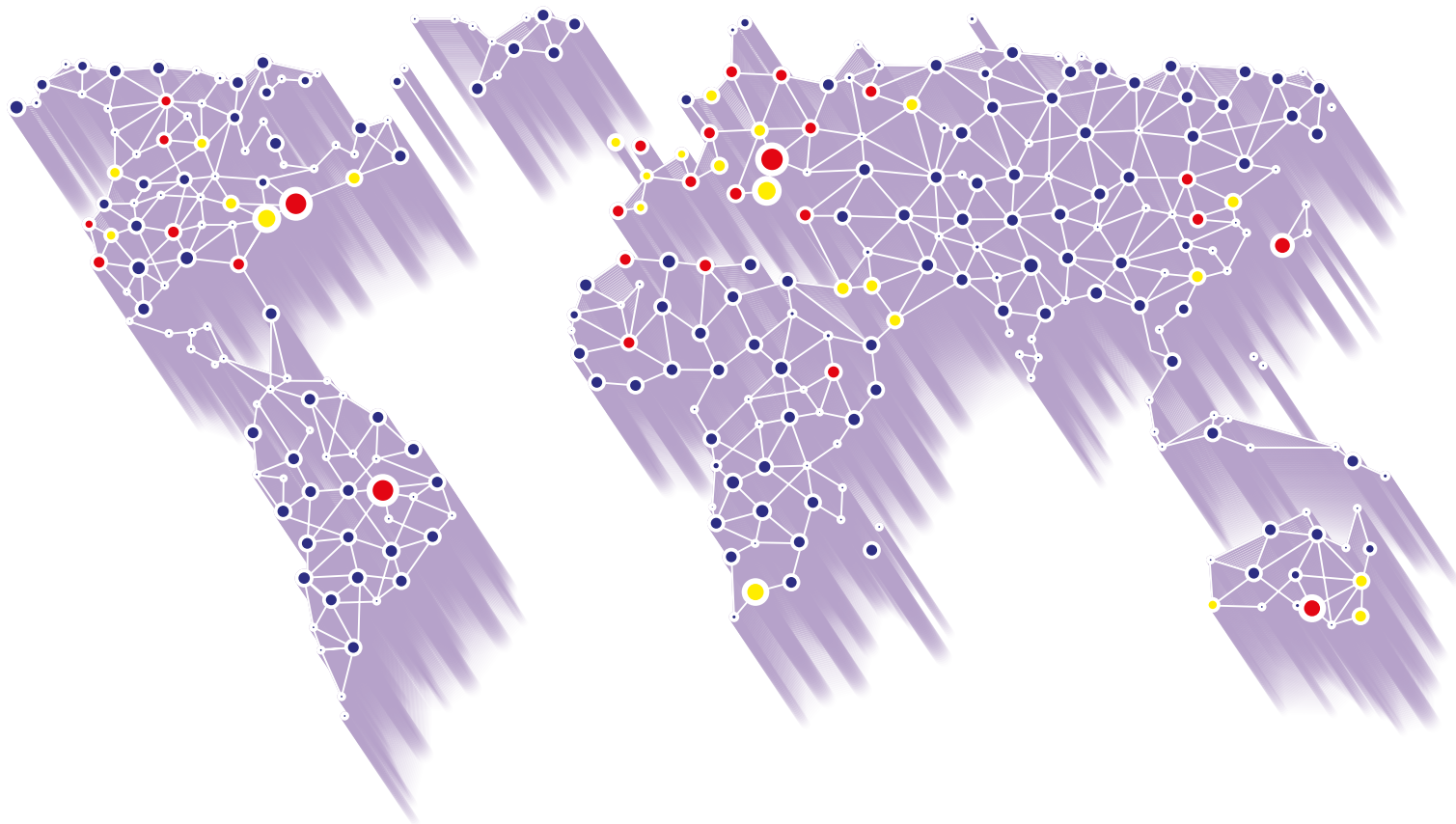


If I would be fortunate to achieve some of my ideals, it would be on the behalf of the whole of humanity. If those hopes would become fulfilled, the most exciting thought would be that it is a deed of a Serb.

Nikola Tesla

Serbian scientist and inventor

Thanks to successful engineers and scientists who studied at the School of Electrical Engineering, the institution is linked to a large number of prestigious universities, research centers, and multinational companies around the world. In 2001, former graduates established the organization called ETF BAFA - Belgrade Alumni and Friends Association. The school is proud of its students, while at the same time the activities, donations, and attitudes of students suggest that they are also proud of their school.



● Alumni groups

● Partner institutions

INNOVATION CENTER - ICEF



The Innovation Center of the School of Electrical Engineering is the scientific institution which represents a link among graduates, post-doctoral researchers, prominent professors, engineering experts, and Serbian and international industries. The advanced engineering methods are applied in modern and systematic ways, offering innovative solutions for a number of scientific and industrial challenges. By implementing various research results, ICEF contributes to the development of new products, solutions, technologies, and services in response to market demands.



One of the fundamental activities of ICEF is to support innovation programs. The development of prototypes, technologies, and software solutions is carried out in cooperation with other scientific institutes. ICEF takes part in a number of EU-funded projects. It offers job positions with professional and technical support and supervision to BSc, MSc, and PHD graduates. Combining the enthusiasm of young scholars and the experience of distinguished professors, ICEF readily meets challenges and specificities of any demand.



OUR STUDENTS

The number of students:

The total number of students enrolled at the moment: 4327
(1328 female and 3427 male)

- BSc studies 3220
- MSc studies 768
- PhD studies 339



Student organizations:



Electrical Engineering Students' European Association



The Student Union of the School of Electrical Engineering



Electron Student Association



The Student Association of the School of Electrical Engineering

Medals won in scientific disciplines:



Prizes won in sport competitions:



ELEKTRIJADA 2017

The international meeting events of students of electrical engineering have traditionally been held for over a half of the century in the region of former Yugoslavia, being the largest annual competition of electrical engineering students in Europe. In May 2017, the students of the School of Electrical Engineering were most successful since the establishment of this competition.





CONTACT

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Bulevar kralja Aleksandra 73
+381 11 324 8464

dekanat@etf.bg.ac.rs



INTERNATIONAL COOPERATION

Cooperation with foreign institutions is offered in the form of joint research and development projects funded by companies or the European Union. Some of these projects included research equipment modernization and research infrastructure strengthening.

On the one hand, international and national projects implemented within the School help to achieve EU priorities, while on the other hand they enable national priorities.

There are three important national priorities in ETF's research portfolio, these being:

1. Information and communication technologies,
2. Power engineering and energy efficiency,
3. New materials and nano science.

ETF has implemented a vast number internationally and nationally funded projects, as well as EU-funded ones, helping to achieve excellence in science, industrial leadership while tackling societal challenges. Additionally, some of ETF's projects support the modernization, accessibility and internationalization of higher education.

Some former students are now key persons in charge of development in large multinational companies worldwide but, apart from that, they also carry out research and develop cutting-edge technologies in Serbia. This is the best example how our engineers can be global leaders in their fields while staying in Serbia at the same time. Some of the partners are: Microsoft, Nordeus, ABB, Siemens, Ericsson, Oracle, Google, NVidia, IBM, Elsys, etc.

CONTACT

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UNIVERSITY OF BELGRADE

SCHOOL OF ELECTRICAL ENGINEERING



Within the University of Belgrade, School of Electrical Engineering (ETF) represents the largest engineering school in the region, as well as the third largest engineering school in Europe. Today, it is one of the leading teaching and research institutions in our country, covering 10 research fields, as well as more than 250 staff members and around 100 journal publications per year.

School of Electrical Engineering

(ETF), as a member of the University of Belgrade, is a leading national higher education and research institution in the field of electrical engineering. Since its foundation, ETF has played an important role in the engineering society as well as higher education, providing excellent experts, collaborating with national and international higher education institutions, national and international research institutions, industry, military, as well as many international partners from various business fields.

ETF'S FIELDS OF RESEARCH

Electronics

Power Engineering

Physical Electronics

Telecommunications

Signals and Systems

Software Engineering

Computer Engineering and Information Theory

MISSION

To provide top education in the field of electrical and computer engineering students while encouraging their creativity and responsibility, curiosity, and team work.

To provide companies with exceptional engineers who are able to enhance companies' productivity, innovation, and market competitiveness, in Serbia and anywhere around the world. To continuously contribute to technological advancement, computerization, and general development of Serbia with our scientific and research work.

ONGOING PROJECTS

9 Core research projects

Technological development projects **23**

3 Horizon 2020 projects

Integral interdisciplinary research projects **9**

105 Cooperations with industry

Cascading Horizon Grants **3**

4 Interdisciplinary projects (NATO SPS, SCOPES, INTERREG Danube Transnational Programme, Danube Regional Strategy, etc)

EUREKA projects **2**

4 COST projects

TIMELINE

The 20,000th graduate of electrical and computer engineering obtained their degree

2015

The Innovation Center of the School of Electrical Engineering (ICEF) was founded

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