SS CYRIL AND METHODIUS UNIVERSITY IN SKOPJE

FACULTY OF ELECTRICAL ENGINEERING AND INFORMATION TECHNOLOGIES

STUDENT INFORMATION BOOKLET

Skopje, 2019

www.feit.ukim.edu.mk

Published by
Faculty of Electrical Engineering and Information Technologies
Rudjer Boshkovik, 18. MK-1000 Skopje
tel. 02/ 30-99-191
fax 02/ 30 64 262
www.feit.ukim.edu.mk

*

Editorial Board:
Prof. Dimitar Tashkovski, PhD
Prof. Sonja Gegovska-Zajkova, PhD
Ass. Prof. Maja Celevska-Krstevska, PhD
Jagoda Drenkovska

Graphics and art design:
Prof. Goga Cvetkovski, PhD
Maja Nikodinov

*

Copies:
400

*

Print:
Studentski Servis, Skopje

CONTENTS

1. ABOUT THE UNIVERSITY

Ss. Cyril and Methodius University is the oldest, the biggest and the most prestigious teaching, educational, scientific, research and cultural institution in the Republic of North Macedonia. Throughout its 70 years of existence, the University achieved significant milestones in the creation of the country's highly professional and scientific staff, as well as in the overall development of the Republic of North Macedonia.

Ss. Cyril and Methodius University was founded in 1949 with three faculties: Faculty of Philosophy, Faculty of Medicine and Faculty of Agriculture and Forestry. Today, the University represents a functional community of 23 faculties, 5 research institutes and 12 associate members. Its activities are stipulated by the Law of Higher Education and the University Statute.

Currently, the university has around 50.000 domestic students in total on all faculties and cycles of studies, as well as over 700 foreign students. The School of Doctoral Studies at the university implements the third cycle – doctoral studies with 1071 enrolled students. The university employs over 3.100 teaching-and research staff and associates, as well as administrative staff, that participate in the realization of the educational and scientific research process at the faculties and institutes.

The university produced over 140.000 higher professional staff, about 13.800 masters and over 4.000 doctors of science from all scientific fields to date.

Special emphasis in the university's operation is put on sports, arts, as well as informative and recreational activities organized through various societies, associations, clubs etc.

In order to fulfil its educational, social and moral obligations towards the student, Ss Cyril and Methodius University bases the scientific and educational activities on European and global models and standards. The University fulfills its function in creating complete and responsible individuals, citizens of the world who will be ready to face and respond to the growing multicultural contexts that await them.

2. CODE OF THE UNIVERSITY

1. First objective of the Ss Cyril and Methodius University is Knowledge, based on the fundamental values: Truth, Goodness and Beauty.

2. At the University, everyone is responsible for their own behavior and actions.

3. All colleagues at the University work jointly in science and education, following the same ethical, human and work values.

4. Everyone at the University preserves its reputation, as well as one's personal reputation.

5. The relations at the University are built on the dignity and self-dignity of its institutions, actors and students. There is loyalty, respect and protection of common interests in their mutual relations.

6. The University nurtures its general and academic traditions.

7. University institutions, actors and students are equal.

8. Ss Cyril and Methodius University stands for a united world and defends the pluralism of knowledge.

9. The work of Ss Cyril and Methodius University is public.

10. Ss Cyril and Methodius University applies the highest standards of ethical behavior of intellectuals.

11. The norms of this code at the Ss. Cyril and Methodius University in Skopje are mandatory for all its teachers and students who are obliged with their honor to keep and apply them.

3. ABOUT FEEIT

The history of the Faculty of Electrical Engineering and Information Technologies starts in 1959, when the Government of People's Republic of Macedonia made a resolution to establish the Department of Electro-mechanical Engineering as a part of the Technical Faculty. The first year marked enrolment of 50 students in total. After several years of operation and the growing societal needs for engineers, this department was further divided into: Department of Electrical Engineering and Department of Mechanical Engineering. Later on, these two departments founded the Faculty of Electrical and Mechanical Engineering in 1965.

The ever increasing development of electrical engineering and, especially, of electrical energy, electronics, automation, telecommunications and computer technology imposed the need to elevate the education in the field into a separate institution. Therefore, the year 1973 marks the official start of operation of the Faculty of Electrical Engineering and Information Technologies as a separate higher education, scientific and applied research institution.

Up until 1978, all faculty activities were performed within two institutes, i.e. institutes for power engineering and for electronics. Today, these activities are conducted by as many as 10 institutes with 17 laboratories operating within.

The scope of the applied research activity during the development of the Faculty underwent several significant changes, from its zenith in the late eighties to a drastic decline in the beginning of the transition period. Today, the funding from the applied research participates with 16% in the total faculty budget.

There are about 2000 full-time students at the Faculty of Electrical Engineering and Information Technologies today. As of the academic year 2016/2017, 731

candidates received degree of Electrical Engineer, and the number of graduate engineers in Electrical Engineering is 6515. In the same period, 480 candidates received the title of Master in Electrical Engineering, while 128 candidates received a doctorate in technical sciences. Additionally, 1733 candidates got the graduate engineer in electrical engineering and information technologies degree in accordance with the new European credit transfer system and the number of graduates of the three-year professional studies in informatics is 81. A total of 449 candidates are registered for the ECT system.

The Faculty is constantly working on the promotion of its scientific research potentials and its scientific research activity. These continuous efforts result in a high number of domestic and international scientific research projects, a relatively high number of masters and doctors and a significant number of scientific papers published or presented, internationally.

4. MISSION

Continuous education of professional, creative and entrepreneurial individuals in the electrical engineering and new technologies that will work successfully and promote new jobs and new opportunities.

Mission statement: Our strategic target is to position ourselves as leading educational and research institution in the Republic of North Macedonia in the field of electrical engineering and new technologies.

Employing constant technological innovation, quality and creativity in the students' curricula, we provide continuous education of professional, creative and entrepreneurial individuals that will not only work successfully in their professional orientation, but also create new employment opportunities and discover new horizons. We realize our educational mission with undergraduate and postgraduate studies by developing intensive communication with students, universities and similar institutions worldwide, as well as with business and industry. We accomplish our research mission with doctoral theses and numerous international joint scientific projects, thus achieving permanent success in scientific research on national and international level.

Finally, by enabling conditions for knowledge and technology transfer, we provide respectable support to the technological and economical sustainable development of our industry.

5. VISION

Our vision is to be part of the global family of most prestigious institutions in the field of electrical engineering and new technologies, as well as to a support the integration of our country and our economy in terms of its international competitiveness and transfer of knowledge and technologies.

6. STRATEGIC GOALS

1. Strengthening and encouraging attractiveness of professional and scientific degrees promoting new career and business opportunities.
2. Strategy for development towards EU community and quality of performance in accordance with EU standards.
3. Fostering and improving the possibility to meet educational requirements for individuals of all professional and age categories.
4. Stimulating efficient transfer of knowledge and expertise from academia to industry and involvement in тхе overall social development of Republic of North Macedonia.
5. Establishment of scientific, technological and innovation centers, accelerators and spin-off companies to achieve better communication between our significant scientific and research potential and the innovative businesses.

7. STRUCTURE AND ORGANIZATION OF FEEIT

The governing bodies of the faculty are: the Faculty Council, the Dean and the Dean's Office.

The Faculty Council (NNS) is an expert body of the faculty comprising professors, associate professors and assistant professors employed at the faculty and student representatives.

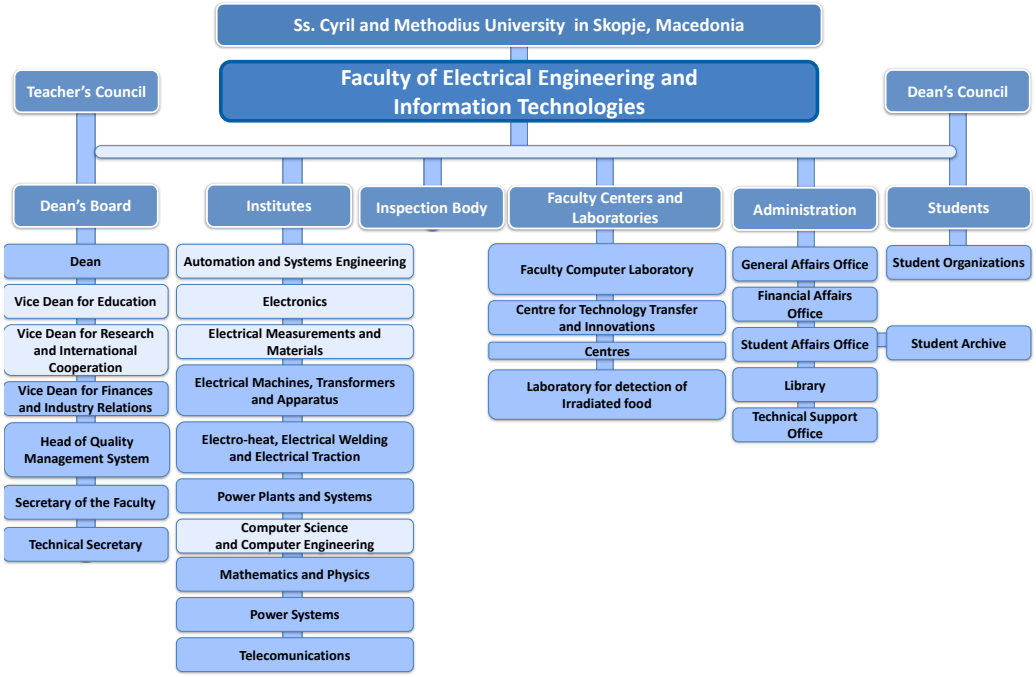
Dean is the governing body of the faculty. The Dean represents the faculty in the country and abroad.

The Dean's Board is the governing body of the faculty and has 15 members: the Dean, the Vice Deans, the President of the Student Parliament of the faculty and the heads of the institutes.

The faculty consists of ten institutes that perform academic and educational activity and scientific/research activity in specific scientific fields. Each institute has a head of the institute who is its representative in the Dean's Board.

Several faculty centres have been established within the faculty as additional working units for closer cooperation and connection of the faculty and the economy.

The quality of the teaching, scientific, research and applicative work is confirmed by the ISO9001:2008 certificate.



8. FACULTY AUTHORITIES

Dean of the Faculty

Prof. Dimitar Tashkovski, PhD
Phone: + 389 2 3099 191
Fax: + 389 2 3064 262
e-mail: dtaskov@feit.ukim.edu.mk

Vice Dean for Education

Prof. Sonja Gegovska Zajkova, PhD
Phone: + 389 2 3099 193
Fax: + 389 2 3064 262
e-mail: szajkova@feit.ukim.edu.mk

Vice Dean for Research and International Cooperation

Prof. Vladimir Dimchev, PhD
Phone: + 389 2 3099 198
Fax: + 389 2 3064 262
e-mail: vladim@feit.ukim.edu.mk

Vice Dean for Finances and Industry Relations

Prof. Vladimir Atanasovski, PhD
Phone: + 389 2 3099 130
Fax: + 389 2 3064 262
e-mail: vladimir@feit.ukim.edu.mk

Secretary

Jagoda Drenkovska
Phone: +389 2 3099 192
e-mail: jagoda@feit.ukim.edu.mk

Dean's Office Assistant

Maja Nikodinov
Phone: +389 2 3099 191
e-mail: tehsekretar@feit.ukim.edu.mk

9. FACULTY STRUCTURE AND INSTITUTES

Institute of Mathematics and Physics (IMP)

Head of institute: prof. Margarita Ginovska PhD

Physics Laboratory

Head of laboratory: associate prof. Lihnida Stojanovska- Georgievska, PhD

Institute of Electrical Measurements and Materials (IEMEM)

Head of institute: prof. Marija Cundeva-Blajer, PhD

Laboratory of Electrical Measurements

Head of laboratory: associate prof. Zivko Kokolanski, PhD

Institute of Power Transmission Systems (IPTS)

Head of institute: prof. Vesna Borozan, PhD

Laboratory of High Voltage

Head of laboratory: prof. Mirko Todorovski, PhD

Power Markets Laboratory

Head of laboratory: associate prof. Aleksandra Krkoleva-Mateska, PhD

Institute of Power Plants and Systems (IPPS)

Head of institute: prof. Anton Chaushevski, PhD

Laboratory of Relay Protection

Head of laboratory: prof. Sofija Nikolova-Poceva, PhD

Laboratory of Solar Energy

Head of laboratory: associate prof. Dimitar Dimitrov, PhD

Institute of Electrical Machines, Transformers and Apparatuses (IAMTA)

Head of institute: prof. Vlatko Stoilkov, PhD

Laboratory of Electrical Machines, Transformers and Apparatuses

Head of laboratory: prof. Krste Najdenkoski, PhD

Laboratory of Electric Drivers

Head of laboratory: assistant prof. Mihail Digalovski, PhD

Institute of Electroheat, Electrical Welding and Electrical Traction (IEEWET)

Head of institute: prof. Marija Kacarska, PhD

Laboratory of Fundamentals of Electrical Engineering

Head of laboratory: prof. Vesna Arnautovski-Toseva, PhD

Institute of Electronics (IE)

Head of institute: prof. Zoran Ivanovski, PhD

Laboratory of Electronics

Head of laboratory: assistant prof. Tomislav Kartalov, PhD

Laboratory of Electronic Measurements

Head of laboratory: Mario Makraduli, MsC

Signal Processing Laboratory

Head of laboratory: assistant prof. Branislav Gerazov, PhD

Institute of Telecommunications (ITC)

Head of institute: prof. Borislav Popovski, PhD

Laboratory of Telecommunications

Head of laboratory: prof. Pero Latkoski, PhD

Laboratory of Wireless and Mobile Networks

Head of laboratory: assistant prof. Valentin Rakovic, PhD

Laboratory of Optic Communications

Head of laboratory: prof. Borislav Popovski, PhD

Institute of Automation and System Engineering (IASE)

Head of institute: prof. Mile Stankovski, PhD

Laboratory of Automation and System Engineering

Head of laboratory: associate prof. Vesna Ojleska-Latkoska, PhD

Institute of Computer Science and Computer Engineering (ICSCE)

Head of institute: prof. Marija Kalendar, PhD

Laboratory of Computer Technologies and Engineering

Head of laboratory: assistant prof. Danijela Efnusheva, PhD

Faculty Laboratory of Automatic Data-Processing (FLADP)

10. STUDENT AFFAIRS OFFICE

The Student Affairs Office keeps registers of enrolled and graduated students and forms and updates the student files from the three study cycles. The service is involved in the enrollment of new students every academic year, receiving documents and processing data. Each year, the Student Affairs Office is actively involved in promoting graduate engineers and masters from the previous academic year, as well as rewarding students with above-average results.

Also, the office performs all necessary analyses and reports at the request of the Faculty Dean, the University Rectorate and the Ministry of Education and Science, provides regular quarterly reports to the State Statistical Office for enrolled and graduate students.

However, the most prominent role of this office on daily basis with students is issuance of applications, certificates, verification and enrollment in semesters, as well as providing the students with necessary information.

Head of Student Affairs Office: Marija Stoilkova

Advisor for master's and doctoral studies: Marijana Mitevska

Student Affairs Advisor: Trajka Dimovska-Anchevska

phone: 30-99-199, ssluzba@feit.ukim.edu.mk

Working time with students: from 12:30 to 14:30.

11. LIBRARY

The Faculty Library functions as a communal unit for both the Faculty of Electrical Engineering and Information Technologies and the Faculty of Mechanical Engineering and is located in the faculties' main building, on the ground floor. The entire collection consists of more than 34,000 book titles (monographs, handbooks, dictionaries, conference proceedings, research works, dissertations and theses), nearly 700 serials and a sufficient number of standards. Our collection comprises interdisciplinary academic literature, textbooks, research materials, and a special collection of doctoral dissertations and Master's theses defended at these two

faculties. All items are processed and classified in accordance with valid international standards. Materials not available in the Faculty Library can be ordered via interlibrary loan from the country and abroad.

The Faculty Library contributes to the creation of the library working policy according to the integrated library system of the university.

The Faculty Library collects, edits and distributes the scientific, study and professional literature and gives the information about the use of the library fund and compiling a bibliography to the teaching/scientific staff, the collaborators and students.

All the information about the Library holdings can be accessed through the electronic catalogue: http://biblio.feit.ukim.edu.mk

Library staff

Rozita Petrinska-Labudovikj, MLS, MPM – Head of the Library

e-mail: rozitape@feit.ukim.edu.mk

Phone: +389 2 3099 187

e-mail: biblio@feit.ukim.edu.mk

Ljiljana Andreevska – Librarian

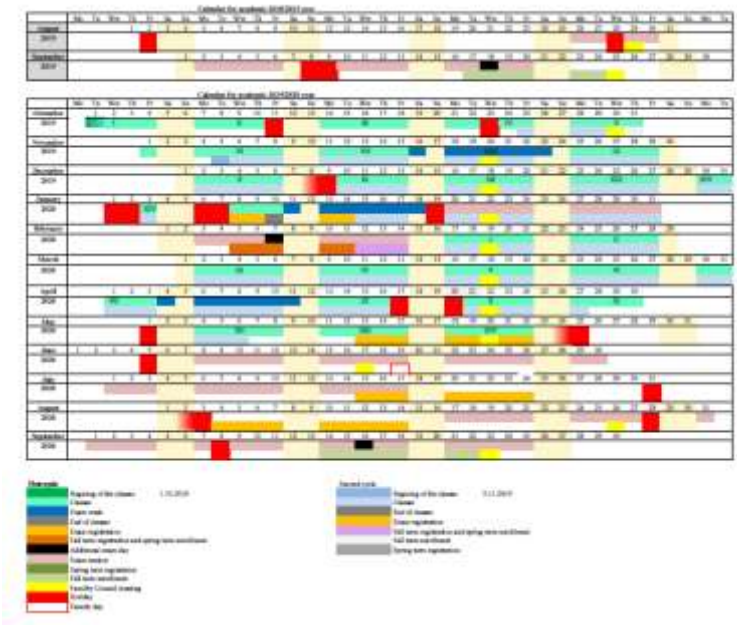
e-mail: ljilja@feit.ukim.edu.mk

Opening hours

Library Office: 11.00 – 15.00

Reading Room: 08.00 – 21.00

12. CALENDAR FOR ACADEMIC 2019/20 YEAR



13. STUDENT INFORMATION SYSTEM iKNOW

The Student Information System iKnow is intended to provide all the necessary functionalities for the proper, effective and efficient work of the FEEIT students within the university. To use the application, it is necessary for the student to first log in to the system.

Registered users through this application will be able to review announcements, personal data, enrolled semesters, courses, applications and registrations. The system also allows students to enrol in new semesters, courses, and register for exams for a specific session.

The website through which students can log in to the student information system iKnow is http://www.iknow.ukim.edu.mk/.

14. EXCERPT FROM THE PROCEDURE AND RULES FOR ORGANIZATION AND REALIZATION OF THE EXAM

1. The final and partial exams (hereinafter: exams) are organized according to a previously announced schedule. The exam schedule contains information about the subject (semester, study program and institute), date, hour and room of the exam, as well as the date by which the exam results should be announced.

2. The exam starts exactly at the scheduled time according to the schedule of exams.

3. Students are distributed in the rooms provided according to the schedule of exams.

4. If the exam requires more than one room, the schedule of students per room is published on the bulletin board, at least 15 minutes before the start of the exam.

5. Teaching and research assistants who are engaged in teaching the subject for which the exam is conducted, as well as additional appointed ones are on duty at the exam. The subject teacher can also be on duty at the exam.

6. The assistant or teacher on duty at the exam (hereinafter: the duty officer) is obliged to provide normal conditions and maintain order in the room where the exam takes place.

7. The duty officer is obliged to determine the identity of the student (by inspecting the student ID) before taking the exam and arrange a sitting in the room.

8. At the beginning of the exam, students receive exam notebooks and a question and assignment sheet. The student enters the required data on the cover page of the exam notebook.

9. Only writing utensils and a calculator can be brought to the exam. Books / teaching aids and a computer can be used for the exam if the subject teacher allows it. The subject teacher is obliged during the teaching to inform the students what are the allowed means to use at the exam.

10. Before the beginning of the exam, the duty officer informs the students what means are allowed on the exam.

11. It is allowed to write in the exam notebook only with a ballpoint pen.

12. The duty officers can give certain explanations of the questions asked by the students.

13. The duty officers are obliged to remove from the exam any student who disturbs the order in the room or uses illegal means and to notify the subject teacher, responsible for organizing and conducting the exam.

14. The student who is removed from the exam or uses illegal means can be given to the Disciplinary Commission of FEEIT upon the proposal of the subject teacher.

15. BASIC INFORMATION ON THE SUBJECTS

Determined ratio between compulsory and elective subjects

Each of the study programs consists of compulsory and elective courses, where all courses are one-semester.

The number of compulsory courses is up to 60% of the total number of courses.

The rest of the courses of the study programs consist of 30% elective courses that the students can choose from all courses on the faculty list and 10% elective courses that the students can choose from the common university list of electives. The student can also choose courses offered by FEEIT from the common university list of electives.

Each academic year, students have to earn 3 credits of compulsory internships with a duration of one month.

Description of the week number of classes

3+2+1

The first number represents the number of classes for lectures.

The second number represents the number of classes for auditory exercises.

The third number represents the number of classes for laboratory exercises.

Prerequisites for enrolling in the course

If another course from a previous semester is provided as a prerequisite for a certain course, then the student should have a signature from the subject teacher for completed academic assignments for that course. In all other cases, the course must be passed.

Description of the subject code

ЗФЕИТХХYZZZ

3 – represents third accreditation of the FEEIT study program.

XX – repreents the ordinal number of the institute that proposed the course.

Y – can be letter **З** (cyrilic Z, for winter semester) or letter **Л** (cyrilic L, for summer semmester) and represents the semester in which the certain course can be taken.

ZZZ – is the ordinal number of the course in the list of courses proposed by the corresponding institute.

Ordinal number of the institute at FEEIT

Automation and System Engineering	01
Electrical Machines, Transformers and Apparatuses	02
Electrical Measurements and Materials	03
Power Plants and Systems	04
Electronics	05
Electroheat, Electrical Welding and Electrical Traction	06
Computer Science and Computer Engineering	07
Mathematics and Physics	08
Power Transmission Systems	09
Telecommunications	10

16. UNDERGRADUATE STUDIES

1. Power Engineering, Automation and Renewable Energy Sources (PEARES)

2. Power Systems (PS)

3. Power Engineering and Management (PEM)

4. Computer System Engineerging, Automations and Robotics (CSEAR)

5. Computer Technologies and Engineering (CTE)

6. Computer Hardware Engineering and Electronics (CHEE)

7. Telecommunication and Information Engineering (TCIE)

Study Programme

Power Engineering, Automation and Renewable Energy Sources




2019 – 2020

Study Programme	**Power Engineering, Automation and Renewable Energy Sources (PEARES)**
Degree Programme	First cycle degree programme
Level of qualification	Bachelor of Science in Electrical Engineering and Information Technologies in Power Engineering, Automation and Renewable Energy
Occupational Profiles of Graduates	Graduated engineers from this profile are empowered with skills to work in power sector (power plants utilities, energy transmission and distribution) in industry, small and medium enterprises, engineering and consalting companies as well as in research and development centers and educational institutions.
The Programme Learning Outcomes	The study programme provides graduated electrical engineer with high-level educated research skills and competencies for design, professional development and put into operation the power plants and devices, in entire power system (production, transmission and distribution) utilizing the principles of electro-thermical and electro-mechanical energy conversion. The further educational goals are: Variable speed and torque control of electrical drives; Design and process automatisation; Modelling analysis and design of electrical machinery and transformers by means of advanced software tools; Efficiency and reliable industry/haushold energy consumption. Electrical engineers with this profile have the chance to work with esteemed innovators, engineers, and scientists to develop economically viable and environmentally sustainable clean-energy systems that utilize renewable energy sources, with emphasis on wind, solar, and water power exploitation. Furthermore students have the opportunity to gain practical skills for investigationg RES and testing the machinery and equipment in our modern laboratory.

Year 1

Semester 1

Mandatory courses for Semester 1			
Code	Tile	Classes	ECTS
3ФЕИТ083009	**Mathematics 1**	3+3+0+0	7
3ФЕИТ063005	**Fundamentals of Electrical Engineering**	4+3+0+0	7
3ФЕИТ073027	**Programming and Algorithms**	2+2+2+0	6
3ФЕИТ083016	**Physics 1**	3+2+1	7
	Elective course – Foreign Language		3

Elective courses for Semester 1			
Code	Tile	Classes	ECTS
3ФЕИТ123003	**German**	2+1+0+0	3
3ФЕИТ123006	**French**	2+1+0+0	3
3ФЕИТ123015	**English**	2+1+0+0	3
3ФЕИТ123017	**Russian**	2+1+0+0	3

Semester 2

Mandatory courses for Semester 2			
Code	Tile	Classes	ECTS
3ФЕИТ08Л010	**Mathematics 2**	3+3+0	7
3ФЕИТ06Л004	**Fundamentals of Electric Circuits**	3+2+1	7
3ФЕИТ08Л017	**Physics 2**	3+2+1	7
	Sport	0+2	0
	Elective course 1		6
	Elective course 2		3

Elective course 1			
Code	Tile	Classes	ECTS
3ФЕИТ07Л004	**Libraries and Programming**	2+2+2	6
3ФЕИТ07Л025	**Data Structures and Programming**	2+2+2	6

Elective course 2			
Code	Tile	Classes	ECTS
3ФЕИТ03Л002	**Electrical Materials**	2+0+1	3
3ФЕИТ11Л001	**Practicum on Matlab**	0+1+2	3

Year 2

Semester 3

Mandatory courses for Semester 3			
Code	Tile	Classes	ECTS
3ФЕИТ083011	**Mathematics 3**	3+3+0	6
3ФЕИТ033005	**Measurements in Electrical Engineering**	3+1+1	6
3ФЕИТ053035	**Signals and Systems**	3+2+0	6
	Elective course 1		6
	Elective course 2		6

Elective course 1			
Code	Tile	Classes	ECTS
3ФЕИТ053018	**Electronics**	3+1+1	6
3ФЕИТ053019	**Electronics 1**	3+1+1	6

Elective course 2			
Code	Tile	Classes	ECTS
3ФЕИТ063002	**Energy and Sustainable Development**	2+1+0	3
3ФЕИТ083006	**Engineering Mechanics**	3+2+0	6
3ФЕИТ023022	**Technical Standards and Regulative**	2+1+0	3

Semester 4

Mandatory courses for Semester 4			
Code	Tile	Classes	ECTS
3ФЕИТ05Л015	**Electromagnetics**	3+2+0	6
3ФЕИТ02Л010	**Electromechanical Energy Conversion**	3+2+0	6
	Elective course 1		3
	Elective course 2		3
	Elective course 3		6
	Elective course 4		6

Elective courses 1 and 2			
Code	Tile	Classes	ECTS
3ФЕИТ08Л001	**Probability**	2+1+0	3
3ФЕИТ08Л003	**Discrete Mathematics 1**	2+1+0	3
3ФЕИТ08Л008	**Complex Analysis**	2+1+0	3
3ФЕИТ08Л012	**Numerical Methods**	2+0+1	3

Elective course 3			
Code	Tile	Classes	ECTS
3ФЕИТ01Л020	**Control Systems**	2+2+1	6
3ФЕИТ01Л021	**Automatic Control 1**	2+2+1	6

Elective course 4			
Code	Tile	Classes	ECTS
3ФЕИТ02Л013	**Engineering Software Tools**	2+1+2	6
3ФЕИТ05Л038	**Electric Circuit Theory**	3+2+0	6

Year 3

Semester 5

Mandatory courses for Semester 5			
Code	Tile	Classes	ECTS
3ФЕИТ023005	**Electric Generators and Transformers**	3+1+1	6
3ФЕИТ023012	**Power Converters**	3+1+1	6
3ФЕИТ023018	**Fundamentals of Renewable Energy Sourses**	3+1+1	6
	Elective course 1		6
	Elective course 2		6

Elective course 1			
Code	Tile	Classes	ECTS
3ФЕИТ103009	**Introduction to Telecommunications**	3+1+1	6
3ФЕИТ103020	**Communication Technologies**	3+1+1	6

Elective course 2			
Code	Tile	Classes	ECTS
3ФЕИТ023016	**Low Voltage Apparatuses**	3+1+1	6
3ФЕИТ063006	**Microcontroller Application**	3+0+2	6

Semester 6

Mandatory courses for Semester 6			
Code	Tile	Classes	ECTS
3ФЕИТ06Л001	**Electrothermal Conversion**	3+1+1	6
3ФЕИТ02Л008	**Electric Motors**	3+1+1	6
3ФЕИТ03Л004	**Power Systems Measurements**	3+1+1	6
3ФЕИТ04Л016	**Power Plants and Substation**	3+2+0	6
	Elective course		6

Elective course			
Code	Tile	Classes	ECTS
3ФЕИТ09Л013	**Power Quality**	3+1+1	6
3ФЕИТ02Л015	**Grid Integration of Renewable Energy Sources**	3+1+1	6
3ФЕИТ09Л016	**Low Voltage Electrical Installations and Lighting**	2+2+1	6
3ФЕИТ02Л017	**Mechatronics Fundamentals**	3+1+1	6
3ФЕИТ03Л008	**LabVIEW Programming**	1+0+2	3
3ФЕИТ02Л019	**Application of Power Converters in Renewable Energy Sources**	3+1+1	6

Year 4

Semester 7

Mandatory courses for Semester 7			
Code	Tile	Classes	ECTS
3ФЕИТ023011	**Electric Drives**	3+1+1	6
3ФЕИТ093019	**Transmission and Distribution Power Systems**	3+2+0	6
	Elective course 1		6
	Elective course 2		6
	Elective course 3		6

Elective courses 1, 2 and 3			
Code	Tile	Classes	ECTS
3ФЕИТ023001	**Wind Generators and Wind Generator Systems**	3+1+1	6
3ФЕИТ023004	**Dynamics and Modelling of Electrical Machines**	3+1+1	6
3ФЕИТ023006	**Electric Components of Automatic Control**	3+1+1	6
3ФЕИТ023014	**Small and Special Electrical Machines**	3+0+2	6
3ФЕИТ023020	**Design of Electric Machines and Transformers**	3+2+0	6
3ФЕИТ023021	**Design of RES Based Systems**	3+2+0	6

Semester 8

Mandatory courses for Semester 8			
Code	Title	Clases	ECTS
ЗФЕИТ12Л007	**Final Thesis**		9
ЗФЕИТ12Л016	**Internship**		3
	Elective course 1		6
	Elective course 2		6
	Elective course 3		3
	Elective course 4		3

Elective courses 1 and 2			
Code	Title	Clases	ECTS
ЗФЕИТ02Л002	**Diagnosis, Testing and Protection of Electrical Machines**	3+0+2	6
ЗФЕИТ02Л003	**Digital Control of Electrical Machines**	3+1+1	6
ЗФЕИТ06Л003	**Electric Vehicles**	3+1+1	6
ЗФЕИТ04Л024	**Power System Protection**	2+2+1	6
ЗФЕИТ03Л012	**Measurement Systems and Data Acquision**	3+1+1	6
ЗФЕИТ02Л023	**Control of Electric Drives**	3+1+1	6
ЗФЕИТ04Л029	**Photovoltaic Systems**	3+1+1	6

Elective courses 3 и 4			
Code	Title	Clases	ECTS
ЗФЕИТ09Л008	**Economic Assessment of Investments**	2+1+0	3
ЗФЕИТ04Л010	**Communication Skills**	2+1+0	3
ЗФЕИТ11Л002	**Entrepreneurship**	2+1+0	3
ЗФЕИТ03Л009	**Principles of Quality Management**	2+1+0	3
ЗФЕИТ04Л020	**Project Management and Ethics in Engineering**	2+1+0	3
ЗФЕИТ09Л021	**Regulation in Electricity Sector**	2+1+0	3
ЗФЕИТ08Л015	**Technological Innovations**	2+1+0	3

Study Programme

POWER SYSTEMS

2019 – 2020

Study Programme	**Power Systems (PS)**
Degree Programme	First cycle degree programme
Level of qualification	Bachelor of Science in Electrical Engineering and Information Technologies in Power Systems
Occupational Profiles of Graduates	Graduates from this programme will have unique opportunity to become a part of the Power Industry, which is one of the most stabile industries and continuously employs a number of young engineers for many decades now. The field of Power Systems offers chances for successful career and well payed job in transmission and distribution companies, electricity trading and supply, as well as, in the public sector, consultancy, installation design and equipment production companies. Following the implementation of the emerging technologies and market practices in the Power Systems, adequate specialists are urgently required in the country and worldwide, where our diploma is recognized without limitations.
The Programme Learning Outcomes	The study programme in Power Systems enables students to acquire knoledge and skills in three out of four main activities of Power Industry: electricity transmission, distribution and supply. The teaching process includes use of state-of-the-art software tools for simulation and analyses of Power Systems operation, as well as, for in-deep study of Power Systems planning and control, Electricity Markets, High Voltage Engineering, Low Voltage Installations, Lighting and Quality of Supply. Quite a few Lab exercises in Faculty's Laboratories provide additional opportunities for students to gain practical knowledge in the area of power engineering. The theoretical and practical knowledge acquired during this programme qualify its students for resolving a spectrum of technical problems they may encounter in their careers

Year 1

Semester 1

Mandatory courses for Semester 1			
Code	Tile	Classes	ECTS
ЗФЕИТ083009	**Mathematics 1**	3+3+0+0	7
ЗФЕИТ063005	**Fundamentals of Electrical Engineering**	4+3+0+0	7
ЗФЕИТ073027	**Programming and Algorithms**	2+2+2+0	6
ЗФЕИТ083016	**Physics 1**	3+2+1	7
	Elective course – Foreign Language		3

Elective courses for Semester 1			
Code	Tile	Classes	ECTS
ЗФЕИТ123003	**German**	2+1+0+0	3
ЗФЕИТ123006	**French**	2+1+0+0	3
ЗФЕИТ123015	**English**	2+1+0+0	3
ЗФЕИТ123017	**Russian**	2+1+0+0	3

Semester 2

Mandatory courses for Semester 2			
Code	Tile	Classes	ECTS
ЗФЕИТ08Л010	**Mathematics 2**	3+3+0	7
ЗФЕИТ06Л004	**Fundamentals of Electric Circuits**	3+2+1	7
ЗФЕИТ08Л017	**Physics 2**	3+2+1	7
	Sport	0+2	0
	Elective course 1		6
	Elective course 2		3

Elective course 1			
Code	Tile	Classes	ECTS
ЗФЕИТ07Л004	**Libraries and Programming**	2+2+2	6
ЗФЕИТ07Л025	**Data Structures and Programming**	2+2+2	6

Elective course 2			
Code	Tile	Classes	ECTS
3ФЕИТ03Л002	**Electrical Materials**	2+0+1	3
3ФЕИТ11Л001	**Practicum on Matlab**	0+1+2	3

Year 2

Semester 3

Mandatory courses for Semester 3			
Code	Title	Clases	ECTS
3ФЕИТ083011	**Mathematics 3**	3+3+0	6
3ФЕИТ033005	**Measurements in Electrical Engineering**	3+1+1	6
3ФЕИТ093020	**Design of Low Voltage Electrical Installations**	2+2+1	6
3ФЕИТ053035	**Signals and Systems**	3+2+0	6
	Elective course		6

Elective course			
Code	Title	Clases	ECTS
3ФЕИТ053018	**Electronics**	3+1+1	6
3ФЕИТ053019	**Electronics 1**	3+1+1	6

Semester 4

Mandatory courses for Semester 4			
Code	Title	Clases	ECTS
3ФЕИТ02Л007	**Electric Generators and Transformers**	3+1+1	6
3ФЕИТ09Л009	**Power Networks**	3+2+0	6
3ФЕИТ05Л015	**Electromagnetics**	3+2+0	6
	Elective course 1		3
	Elective course 2		3
	Elective course 3		6

Elective courses 1 and 2			
Code	Title	Clases	ECTS
3ФЕИТ08Л001	**Probability**	2+1+0	3
3ФЕИТ08Л003	**Discrete Mathematics 1**	2+1+0	3
3ФЕИТ08Л008	**Complex Analysis**	2+1+0	3
3ФЕИТ08Л012	**Numerical Methods**	2+0+1	3

Elective course 3			
Code	Title	Clases	ECTS
3ФЕИТ01Л020	**Control Systems**	2+2+1	6
3ФЕИТ01Л021	**Automatic Control 1**	2+2+1	6

Year 3

Semester 5

Mandatory courses for Semester 5			
Code	Title	Clases	ECTS
3ФЕИТ093003	**High Voltage Transmission Networks and Systems**	3+2+0	6
3ФЕИТ093005	**Power Distribution Systems**	3+1+1	6
3ФЕИТ093023	**High Voltage Engineering 1**	3+2+0	6
	Elective course 1		6
	Elective course 2		6

Elective course 1			
Code	Title	Clases	ECTS
3ФЕИТ103009	**Introduction to Telecommunications**	3+1+1	6
3ФЕИТ103020	**Communication Technologies**	3+1+1	6

Elective course 2			
Code	Title	Clases	ECTS
3ФЕИТ093010	**Electric Lighting**	3+1+1	6
3ФЕИТ093015	**Overboard Transmission lines and cables**	3+2+0	6

Semester 6

Mandatory courses for Semester 6			
Code	Title	Clases	ECTS
3ФЕИТ09Л007	**Economics for Engineers**	3+2+0	6
3ФЕИТ09Л014	**Computer Analysis Methods for Electric Power Systems**	3+1+1	6
3ФЕИТ04Л016	**Power Plants and Substation**	3+2+0	6
	Elective course 1		6
	Elective course 2		6

Elective course 1 and 2			
Code	Title	Clases	ECTS
3ФЕИТ09Л002	**Computer Applications in Power Systems**	3+2+0	6
3ФЕИТ09Л011	**Groundings and Grounding Systems in Power Networks**	3+2+0	6
3ФЕИТ09Л013	**Power Quality**	3+1+1	6
3ФЕИТ03Л004	**Power Systems Measurements**	3+1+1	6
3ФЕИТ09Л024	**High Voltage Engineering 2**	3+2+0	6

Year 4

Semester 7

Mandatory courses for Semester 7			
Code	Title	Clases	ECTS
ЗФЕИТ093017	**Electricity Markets**	3+2+0	6
ЗФЕИТ093022	**Power System Operation**	3+2+0	6
ЗФЕИТ093025	**Power Systems Control and Dispatching**	3+2+0	6
	Elective course 1		6
	Elective course 2		6

Elective courses 1 and 2			
Code	Title	Clases	ECTS
ЗФЕИТ093001	**FACTS Devices in Power Systems**	3+2+0	6
ЗФЕИТ093006	**Reliability of Power Systems**	3+2+0	6
ЗФЕИТ093012	**Smart Grids**	3+2+0	6
ЗФЕИТ023018	**Fundamentals of Renewable Energy Sources**	3+1+1	6

SemesterVIII семестар

Mandatory courses for Semester 8			
Code	Title	Clases	ECTS
ЗФЕИТ12Л007	**Final Thesis**		9
ЗФЕИТ09Л018	**Power System Planning**	3+2+0	6
ЗФЕИТ12Л016	**Internship**		3
	Elective course 1		6
	Elective course 2		3
	Elective course 3		3

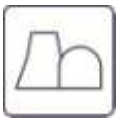
Elective course 1			
Code	Title	Clases	ECTS
ЗФЕИТ03Л008	**LabVIEW Programming**	1+0+2	3
ЗФЕИТ04Л024	**Power System Protection**	2+2+1	6

Elective course 2 and 3			
Code	Title	Clases	ECTS
ЗФЕИТ09Л008	**Economic Assessment of Investments**	2+1+0	3
ЗФЕИТ04Л010	**Communication Skills**	2+1+0	3
ЗФЕИТ11Л002	**Entrepreneurship**	2+1+0	3
ЗФЕИТ03Л009	**Principles of Quality Management**	2+1+0	3
ЗФЕИТ04Л020	**Project Management and Ethics in Engineering**	2+1+0	3
ЗФЕИТ09Л021	**Regulation in Electricity Sector**	2+1+0	3
ЗФЕИТ08Л015	**Technological Innovations**	2+1+0	3

Study Programme

POWER ENGIENNRING AND MANAGEMENT

2019 – 2020



Study Programme	**Power Engineering and Management (PEM)**
Degree Programme	First cycle degree programme
Level of qualification	Bachelor of Science in Electrical Engineering and Information Technologies in Power Engineering and Management
Occupational Profiles of Graduates	Graduates from this study curriculum are capable to create their own business or to be employed in some of the companies that are dealing with: generating electricity by classical or renewable sources; trading; power distribution and transmission companies; management, design, protection, automation and control of electric power facilities; consulting services in project management studies and techno-economic analysis; energy efficiency and environment etc.
The Programme Learning Outcomes	Study programme Power engineering and Management follows the needs of the companies in power engineering area in order to create modern educated engineer that will have professional knowledge in power engineering, information and communication technologies, as well as, competence and knowledge for managing complex technical projects in a new market oriented business environment. In this study programme the students are studying technologies for power generation from classical and renewable sources; substation and control systems in power systems; modern software tools for solving engineering tasks; methods for efficient usage of electricity, as well as, managerial skills and techniques of project management.

Year 1

Semester 1

Mandatory courses for Semester 1			
Code	Tile	Classes	ECTS
3ФЕИТ083009	**Mathematics 1**	3+3+0+0	7
3ФЕИТ063005	**Fundamentals of Electrical Engineering**	4+3+0+0	7
3ФЕИТ073027	**Programming and Algorithms**	2+2+2+0	6
3ФЕИТ083016	**Physics 1**	3+2+1	7
	Elective course – Foreign Language		3

Elective courses for Semester 1			
Code	Tile	Classes	ECTS
3ФЕИТ123003	**German**	2+1+0+0	3
3ФЕИТ123006	**French**	2+1+0+0	3
3ФЕИТ123015	**English**	2+1+0+0	3
3ФЕИТ123017	**Russian**	2+1+0+0	3

Semester 2

Mandatory courses for Semester 2			
Code	Tile	Classes	ECTS
3ФЕИТ08Л010	**Mathematics 2**	3+3+0	7
3ФЕИТ06Л004	**Fundamentals of Electric Circuits**	3+2+1	7
3ФЕИТ08Л017	**Physics 2**	3+2+1	7
	Sport	0+2	0
	Elective course 1		6
	Elective course 2		3

Elective course 1			
Code	Tile	Classes	ECTS
3ФЕИТ07Л004	**Libraries and Programming**	2+2+2	6
3ФЕИТ07Л025	**Data Structures and Programming**	2+2+2	6

Elective course 2			
Code	Tile	Classes	ECTS
3ФЕИТ03Л002	**Electrical Materials**	2+0+1	3
3ФЕИТ11Л001	**Practicum on Matlab**	0+1+2	3

Year 2

Semester 3

Mandatory courses for Semester 3			
Code	Title	Clases	ECTS
3ФЕИТ083011	**Mathematics 3**	3+3+0	6
3ФЕИТ033005	**Measurements in Electrical Engineering**	3+1+1	6
3ФЕИТ053035	**Software Tools in Power Engineering**	3+2+0	6
3ФЕИТ043027	**Signals and Systems**	3+0+2	6
	Elective course		6

Elective course			
Code	Title	Clases	ECTS
3ФЕИТ053018	**Electronics**	3+1+1	6
3ФЕИТ053019	**Electronics 1**	3+1+1	6

Semester 4

Mandatory courses for Semester 4			
Code	Title	Clases	ECTS
3ФЕИТ02Л007	**Electric Machines and Transformers**	3+1+1	6
3ФЕИТ05Л015	**Electromagnetics**	3+2+0	6
3ФЕИТ04Л012	**Management and Engineering Economy**	3+2+0	6
	Elective course 1		3
	Elective course 2		3
	Elective course 3		6

Elective courses 1 and 2			
Code	Title	Clases	ECTS
3ФЕИТ08Л001	**Probability**	2+1+0	3
3ФЕИТ08Л003	**Discrete Mathematics 1**	2+1+0	3
3ФЕИТ08Л008	**Complex Analysis**	2+1+0	3
3ФЕИТ08Л012	**Numerical Methods**	2+0+1	3

Elective course 3			
Code	Title	Clases	ECTS
3ФЕИТ01Л020	**Control Systems**	2+2+1	6
3ФЕИТ01Л021	**Automatic Control 1**	2+2+1	6

III Година

Semester 5

Mandatory courses for Semester 5			
Code	Title	Clases	ECTS
3ФЕИТ043004	**Power Plants**	3+2+0	6
3ФЕИТ093019	**Transmission and Distribution Power Systems**	3+2+0	6
3ФЕИТ043019	**Project Management**	2+2+0	6
3ФЕИТ043023	**Electrical Substations**	3+2+0	6
	Elective course		6

Elective course			
Code	Title	Clases	ECTS
3ФЕИТ103009	**Introduction to Telecommunications**	3+1+1	6
3ФЕИТ103020	**Communication Technologies**	3+1+1	6

Semester 6

Mandatory courses for Semester 6			
Code	Title	Clases	ECTS
ЗФЕИТ04Л014	**Renewable Energy Sources for Electricity Generation**	3+2+0	6
ЗФЕИТ04Л024	**Power System Protection**	2+2+1	6
	Elective course 1		6
	Elective course 2		6
	Elective course 3		6

Elective courses 1, 2 and 3			
Code	Title	Clases	ECTS
ЗФЕИТ04Л003	**Power Plant and System Operation**	3+2+0	6
ЗФЕИТ03Л001	**Electrical Measurements of Non-electrical Quantities**	3+1+1	6
ЗФЕИТ04Л006	**Grounding, Professional Risk and Safety in Power Plants**	3+2+0	6
ЗФЕИТ04Л011	**Small Hydro Power Plants**	3+2+0	6
ЗФЕИТ04Л013	**Nuclear Power Plants**	3+2+0	6
ЗФЕИТ04Л015	**Operational and Financial Managemet**	3+2+0	6
ЗФЕИТ04Л029	**Photovoltaic Systems**	3+1+1	6

Year 4

Semester 7

Mandatory courses for Semester 7			
Code	Title	Clases	ECTS
ЗФЕИТ043008	**Cogeneration Plants**	3+2+0	6
ЗФЕИТ043028	**Power Plant and Substation Control Systems**	3+2+0	6
	Elective course 1		6
	Elective course 2		6
	Elective course 3		6
Elective courses 1, 2 and 3			

Code	Title	Clases	ECTS
3ФЕИТ043001	**Business and Entrepreneurship in Engineering**	3+2+0	6
3ФЕИТ043002	**Wind Power Plants**	3+2+0	6
3ФЕИТ043005	**Energy Efficiency and Environmental Management**	3+2+0	6
3ФЕИТ043007	**Identification and Risk Management in Engineering Projects**	3+2+0	6
3ФЕИТ043018	**Electric Power Plants Planning and Operation**	3+2+0	6
3ФЕИТ043021	**Design and Integration of Renewable Energy Sourses in Power Systems**	3+1+1	6
3ФЕИТ043025	**Quality Management Systems and Standardization in Engineering**	3+2+0	6
3ФЕИТ043026	**Systems of Artificial inteligence in Power System**	3+1+1	6

Semester 8

Mandatory courses for Semester 8			
Code	Title	Clases	ECTS
3ФЕИТ12Л007	**Final Thesis**		9
3ФЕИТ04Л009	**Computer-based Modeling in Power Engineering**	3+2+0	6
3ФЕИТ04Л022	**Designing of Power Plants and Substations**	3+2+0	6
3ФЕИТ12Л016	**Internship**		3
	Elective course 1		3
	Elective course 2		3

Elective courses 1 and 2			
Code	Title	Clases	ECTS
3ФЕИТ09Л008	**Economic Assessment of Investments**	2+1+0	3
3ФЕИТ04Л010	**Communication Skills**	2+1+0	3
3ФЕИТ11Л002	**Entrepreneurship**	2+1+0	3
3ФЕИТ03Л009	**Principles of Quality Management**	2+1+0	3
3ФЕИТ04Л020	**Project Management and Ethics in Engineering**	2+1+0	3
3ФЕИТ09Л021	**Regulation in Electricity Sector**	2+1+0	3
3ФЕИТ08Л015	**Technological Innovations**	2+1+0	3

Study Programme

COMPUTER SYSTEM ENGINEERING, AUTOMATION AND ROBOTICS

2019 – 2020

Study Programme	**Computer System Engineering, Automation and Robotics (CSEAR)**
Degree Programme	First cycle degree programme
Level of qualification	Bachelor of Science in Electrical Engineering and Information Technologies, in Computer System Engineering, Automation and Robotics
Occupational Profiles of Graduates	The ever present increase in production efficiency, quality and optimization, demands a constant exploitation of integrated and advanced automation concepts in both technical and non-technical systems (eco-systems, economic systems, medical systems, etc.). Therefore, the programme strives to insure that engineers graduated through it find a wide variety of employment and advancement opportunities: they will be able to identify, analyze, understand and solve problems in different environments, from industrial plants to non-technical settings. They will be competent to work with modern industrial automation, with supervision, remote control and data acquisition systems, as programmers and hardware or software engineers, in academic institutions and/or research centers, etc.
Occupational Profiles of Graduates	Students gain extensive fundamental and practical knowledge from all disciplines in system engineering, control theory, automation and robotics. The acquired knowledge and skills are based on modern scientific knowledge in the fields of automation and robotics, computer information technologies, process control, management, bioengineering, cybernetics in medicine, measurement-process technology, industrial internet of things, etc. Students will gain knowledge of: presenting, modeling and analyzing the behavior of systems of different natures (not only technical ones), application of methods, techniques and tools for mathematical systems analysis and problem solving using a systemic approach, comprehension of methods for information processing and data acquisition in the control and automation systems, analysis and synthesis of automatic control systems, robotic systems, artificial intelligence and machine learning systems, intelligent control systems and application of control systems elements.

Year 1

Semester 1

Mandatory courses for Semester 1			
Code	Tile	Classes	ECTS
3ФЕИТ083009	**Mathematics 1**	3+3+0+0	7
3ФЕИТ063005	**Fundamentals of Electrical Engineering**	4+3+0+0	7
3ФЕИТ073027	**Programming and Algorithms**	2+2+2+0	6
3ФЕИТ083016	**Physics 1**	3+2+1	7
	Elective course – Foreign Language		3

Elective courses for Semester 1			
Code	Tile	Classes	ECTS
3ФЕИТ123003	**German**	2+1+0+0	3
3ФЕИТ123006	**French**	2+1+0+0	3
3ФЕИТ123015	**English**	2+1+0+0	3
3ФЕИТ123017	**Russian**	2+1+0+0	3

Semester 2

Mandatory courses for Semester 2			
Code	Tile	Classes	ECTS
3ФЕИТ08Л010	**Mathematics 2**	3+3+0	7
3ФЕИТ06Л004	**Fundamentals of Electric Circuits**	3+2+1	7
3ФЕИТ08Л017	**Physics 2**	3+2+1	7
	Sport	0+2	0
	Elective course 1		6
	Elective course 2		3

Elective course 1			
Code	Tile	Classes	ECTS
3ФЕИТ07Л004	**Libraries and Programming**	2+2+2	6
3ФЕИТ07Л025	**Data Structures and Programming**	2+2+2	6

Elective course 2			
Code	Tile	Classes	ECTS
3ФЕИТ03Л002	**Electrical Materials**	2+0+1	3
3ФЕИТ11Л001	**Practicum on Matlab**	0+1+2	3

Year 2

Semester 3

Mandatory courses for Semester 3			
Code	Title	Clases	ECTS
3ФЕИТ083011	**Mathematics 3**	3+3+0	6
3ФЕИТ033005	**Measurements in Electrical Engineering**	3+1+1	6
3ФЕИТ053035	**Signals and Systems**	3+2+0	6
3ФЕИТ013023	**Systems Thinking**	2+2+1	6
	Elective course		6

Elective course			
Code	Title	Clases	ECTS
3ФЕИТ053018	**Electronics**	3+1+1	6
3ФЕИТ053019	**Electronics 1**	3+1+1	6

Semester 4

Mandatory courses for Semester 4			
Code	Title	Clases	ECTS
3ФЕИТ05Л010	**Digital and Industrial Electronics**	3+1+1	6
3ФЕИТ05Л015	**Electromagnetics**	3+2+0	6
3ФЕИТ07Л010	**Computer Architectures**	2+2+1	6
3ФЕИТ01Л021	**Automatic Control 1**	2+2+1	6
	Elective course 1		3
	Elective course 2		3

Elective courses 1 and 2			
Code	Title	Clases	ECTS
3ФЕИТ08Л001	**Probability**	2+1+0	3
3ФЕИТ08Л003	**Discrete Mathematics 1**	2+1+0	3
3ФЕИТ08Л008	**Complex Analysis**	2+1+0	3
3ФЕИТ08Л012	**Numerical Methods**	2+0+1	3

Year 3

Semester 5

Mandatory courses for Semester 5			
Code	Title	Clases	ECTS
3ФЕИТ013005	**Elements of Automation and Robotics**	2+2+1	6
3ФЕИТ013022	**Automatic Control 2**	2+2+1	6
	Elective course 1		6
	Elective course 2		6
	Elective course 3		6

Elective course 1			
Code	Title	Clases	ECTS
3ФЕИТ103009	**Introduction to Telecommunications**	3+1+1	6
3ФЕИТ103020	**Communication Technologies**	3+1+1	6

Elective course 2			
Code	Title	Clases	ECTS
3ФЕИТ093004	**Introduction to Power Systems**	3+2+0	6
3ФЕИТ023009	**Electric Power Devices**	3+1+1	6
3ФЕИТ043017	**Fundamentals of Energetics**	3+2+0	6

Elective course 3			
Code	Title	Clases	ECTS
3ФЕИТ013003	**Discrete-Event Systems**	2+2+1	6
3ФЕИТ013014	**Introduction to Artificial Intelligence**	2+2+1	6

Semester 6

Mandatory courses for Semester 6			
Code	Title	Clases	ECTS
3ФЕИТ01Л007	**Computer Process Control**	2+2+1	6
3ФЕИТ01Л010	**Modeling, Simulation and Identification**	2+2+1	6
3ФЕИТ01Л018	**Robotics 1**	2+2+1	6
	Elective course 1		6
	Elective course 2		6

Elective courses 1 and 2			
Code	Title	Clases	ECTS
3ФЕИТ12Л008	**Industrial Communication Networks**	3+1+1	6
3ФЕИТ01Л006	**Intelligent Control Systems**	2+2+1	6
3ФЕИТ07Л016	**Microprocessor Systems**	2+2+1	6
3ФЕИТ07Л018	**Data Modeling and Database Systems**	2+2+1	6
3ФЕИТ01Л016	**Design of Security Systems**	2+2+1	6

Year 4

Semester 7

Mandatory courses for Semester 7			
Code	Title	Clases	ECTS
3ФЕИТ013011	**Nonlinear Control Systems**	2+2+1	6
3ФЕИТ013015	**Programmable Logic Controllers**	2+2+1	6
3ФЕИТ013017	**Control Systems Design**	2+2+1	6
	Elective course 1		6
	Elective course 2		6

Elective courses 1 and 2			
Code	Title	Clases	ECTS
3ФЕИТ013001	**Production Plants Automation**	2+2+1	6
3ФЕИТ013002	**Power Plant Control and Automation**	2+2+1	6
3ФЕИТ033008	**Machine Learning**	2+2+1	6
3ФЕИТ033011	**Process Measurements**	3+1+1	6
3ФЕИТ013019	**Robotics 2**	2+2+1	6

Semester 8

Mandatory courses for Semester 8			
Code	Title	Clases	ECTS
3ФЕИТ12Л007	**Final Thesis**		9
3ФЕИТ12Л016	**Internship**		3
	Elective course 1		6
	Elective course 2		6
	Elective course 3		3
	Elective course 4		3

Elective courses 1 and 2			
Code	Title	Clases	ECTS
3ФЕИТ01Л004	**Distributed Control Systems and SCADA**	2+2+1	6
3ФЕИТ05Л023	**Machine Vision**	3+1+1	6
3ФЕИТ01Л009	**Mobile Robotics**	2+2+1	6
3ФЕИТ01Л012	**Operations Research**	2+2+1	6
3ФЕИТ01Л013	**Optimal Controllers and Observers**	2+2+1	6

Elective courses 3 and 4			
Code	Title	Clases	ECTS
ЗФЕИТ09Л008	**Economic Assessment of Investments**	2+1+0	3
ЗФЕИТ04Л010	**Communication Skills**	2+1+0	3
ЗФЕИТ11Л002	**Entrepreneurship**	2+1+0	3
ЗФЕИТ03Л009	**Principles of Quality Management**	2+1+0	3
ЗФЕИТ04Л020	**Project Management and Ethics in Engineering**	2+1+0	3
ЗФЕИТ09Л021	**Regulation in Electricity Sector**	2+1+0	3
ЗФЕИТ08Л015	**Technological Innovations**	2+1+0	3

Study Programme

COMPUTER TECHNOLOGIES AND ENGINEERING




2019 – 2020

Study Programme	**Computer Technologies and Engineering (CTE)**
Degree Programme	First cycle degree programme
Level of qualification	Bachelor of Science in Electrical Engineering and Information Technologies in Computer Technologies and Engineering
Occupational Profiles of Graduates	This study program provides acquisition of broad computer engineering knowledge and flexible employment opportunities for the prospective students. Computer Engineering professionals are needed in a wide variety of industries that design computer systems based on new technologies in many areas of application. A graduated computer engineer from this profile, can continue his/her career in many industry areas, as well as the public sector, where the following is being designed, developed and implemented: computer communication systems and services; complex digital systems; modern information systems; Internet and network systems; analysis and development of intelligent networks. The acquired knowledge of students is an excellent basis for continuing studies in institutions and/or research centers all around the world.
The Programme Learning Outcomes	This study program enables students to receive practical and theoretical knowledge in the field of computer technologies and engineering for: designing and implementing processor architectures and processors; modeling, design and implementation of embedded computer systems; information systems; networks and the Internet; design, implementation and administration of Web systems and servers; algorithms, data structures and programming; database modeling and design; operating systems and development of OS modules and components; security of computer systems; as well as designing and implementing intelligent networks.

Year 1

Semester 1

Mandatory courses for Semester 1			
Code	Tile	Classes	ECTS
3ФЕИТ083009	**Mathematics 1**	3+3+0+0	7
3ФЕИТ063005	**Fundamentals of Electrical Engineering**	4+3+0+0	7
3ФЕИТ073027	**Programming and Algorithms**	2+2+2+0	6
3ФЕИТ083016	**Physics 1**	3+2+1	7
	Elective course – Foreign Language		3

Elective courses for Semester 1			
Code	Tile	Classes	ECTS
3ФЕИТ123003	**German**	2+1+0+0	3
3ФЕИТ123006	**French**	2+1+0+0	3
3ФЕИТ123015	**English**	2+1+0+0	3
3ФЕИТ123017	**Russian**	2+1+0+0	3

Semester 2

Mandatory courses for Semester 2			
Code	Tile	Classes	ECTS
3ФЕИТ08Л010	**Mathematics 2**	3+3+0	7
3ФЕИТ06Л004	**Fundamentals of Electric Circuits**	3+2+1	7
3ФЕИТ08Л017	**Physics 2**	3+2+1	7
	Sport	0+2	0
	Elective course 1		6
	Elective course 2		3

Elective course 1			
Code	Tile	Classes	ECTS
3ФЕИТ07Л004	**Libraries and Programming**	2+2+2	6
3ФЕИТ07Л025	**Data Structures and Programming**	2+2+2	6

Elective course 2			
Code	Tile	Classes	ECTS
3ФЕИТ03Л002	**Electrical Materials**	2+0+1	3
3ФЕИТ11Л001	**Practicum on Matlab**	0+1+2	3

Year 2

Semester 3

Mandatory courses for Semester 3			
Code	Title	Clases	ECTS
3ФЕИТ103018	**Internet Technologies**	3+1+1	6
3ФЕИТ123009	**Logic Design**	3+1+1	6
3ФЕИТ083011	**Mathematics 3**	3+3+0	6
3ФЕИТ053035	**Signals and Systems**	3+2+0	6
	Elective course		6

Elective course			
Code	Title	Clases	ECTS
3ФЕИТ053018	**Electronics**	3+1+1	6
3ФЕИТ053019	**Electronics 1**	3+1+1	6

Semester 4

Mandatory courses for Semester 4			
Code	Title	Clases	ECTS
3ФЕИТ07Л010	**Computer Architectures**	2+2+1	6
3ФЕИТ07Л018	**Data Modeling and Database Systems**	2+2+1	6
3ФЕИТ07Л024	**Data Structures and Algorithm Analysis**	2+2+1	6
	Elective course 1		3
	Elective course 2		3
	Elective course 3		6

Elective course 1 and 2			
Code	Title	Clases	ECTS
3ФЕИТ08Л001	**Probability**	2+1+0	3
3ФЕИТ08Л003	**Discrete Mathematics 1**	2+1+0	3
3ФЕИТ08Л008	**Complex Analysis**	2+1+0	3
3ФЕИТ08Л012	**Numerical Methods**	2+0+1	3

Elective course 3			
Code	**Control Systems**	Clases	ECTS
3ФЕИТ01Л020	**Automatic Control 1**	2+2+1	6
3ФЕИТ01Л021	**Control Systems**	2+2+1	6

Year 3

Semester 5

Mandatory courses for Semester 5			
Code	Title	Clases	ECTS
3ФЕИТ073013	**Computer Communication Technologies**	2+2+1	6
3ФЕИТ073022	**Operating Systems**	2+2+1	6
	Elective course 1		6
	Elective course 2		6
	Elective course 3		6

Elective course 1			
Code	Title	Clases	ECTS
3ФЕИТ103009	**Introduction to Telecommunications**	3+1+1	6
3ФЕИТ103020	**Communication Technologies**	3+1+1	6

Elective course 2			
Code	Title	Clases	ECTS
3ФЕИТ093004	**Introduction to Power Systems**	3+2+0	6
3ФЕИТ0430009	**Electric Power Devices**	3+1+1	6
3ФЕИТ043017	**Fundamentals of Energetic**	3+2+0	6

Elective course 3			
Code	Title	Clases	ECTS
3ФЕИТ073002	**Design and Analysis of Information Systems**	2+2+1	6
3ФЕИТ083004	**Discrete Mathematics 2**	3+2+0	6
3ФЕИТ083005	**Electro optics**	2+2+1	6
3ФЕИТ073011	**Computer Skills and Tools – Laboratory**	0+1+2	3
3ФЕИТ073012	**Computer Hardware and Peripherals**	1+0+2	3
3ФЕИТ073020	**Network Operating Systems**	2+2+1	6
3ФЕИТ123012	**Introduction to WEB Programming**	2+2+1	6
3ФЕИТ033007	**Basic Measurement Technique**	2+2+1	6
3ФЕИТ103038	**Telecommunication Software**	3+1+1	6

Semester 6

Mandatory courses for Semester 6			
Code	Title	Clases	ECTS
3ФЕИТ07Л003	**Security and Protection of Computer Communication Systems and Networks**	2+2+1	6
3ФЕИТ07Л014	**Computer Networks**	2+2+1	6
3ФЕИТ07Л016	**Microprocessor Systems**	2+2+1	6
	Elective course 1		6
	Elective course 2		6

Elective courses 1 и 2			
Code	Title	Clases	ECTS
3ФЕИТ12Л001	**WEB Applications**	2+2+1	6
3ФЕИТ07Л001	**Database Administration**	2+2+1	6
3ФЕИТ07Л005	**Web Systems and Servers**	2+2+1	6
3ФЕИТ05Л010	**Digital and Industrial Electronics**	3+1+1	6
3ФЕИТ07Л009	**Information Systems and Big Data**	2+2+1	6
3ФЕИТ08Л007	**Computer-supported Geometric Modeling**	3+2+0	6
3ФЕИТ07Л015	**Compilers**	2+2+1	6

3ФЕИТ03Л008	**Lab VIEW Programming**	1+0+2	3
3ФЕИТ07Л026	**Introduction to Linux Administration – Laboratory**	1+0+2	3
3ФЕИТ12Л014	**Development of Server-based WEB Applications**	2+2+1	6
3ФЕИТ08Л018	**Physics of Computer Games**	2+2+1	6

Year 4

Semester 7

Mandatory courses for Semester 7			
Code	Title	Clases	ECTS
3ФЕИТ073031	**High Performance Systems and Computing**	2+2+1	6
3ФЕИТ073032	**Modern Processor Architectures**	2+2+1	6
	Elective course 1		6
	Elective course 2		6
	Elective course 3		6

Elective courses 1, 2 and 3			
Code	Title	Clases	ECTS
3ФЕИТ053001	**VLSI Design with PLD and FPGA Components**	3+1+1	6
3ФЕИТ123002	**WEB Services**	2+2+1	6
3ФЕИТ123004	**Android Programming**	2+2+1	6
3ФЕИТ123005	**Applications for Mobile Devices**	2+2+1	
3ФЕИТ103007	**Wireless Networks and Mobile Systems**	3+1+1	6
3ФЕИТ053007	**Embedded Computer Systems**	3+1+1	6
3ФЕИТ083002	**Introduction in Nonmaterial and Nanotechnology**	2+2+1	6
3ФЕИТ053013	**Digital Image Processing**	3+1+1	6
3ФЕИТ073008	**Intelligent Agents**	2+2+1	6
3ФЕИТ033003	**Computerized Measurement Systems**	2+2+1	6
3ФЕИТ073019	**Networking Software and Computer Network Management**	2+2+1	6
3ФЕИТ073021	**Network Standards and Devices**	2+2+1	6
3ФЕИТ123011	**Network Programming**	2+2+1	6

3ФЕИТ073029	**Software Development and Testing**	2+2+1	6
3ФЕИТ083014	**Statistics and Random Processes**	3+2+0	6

Semester 8

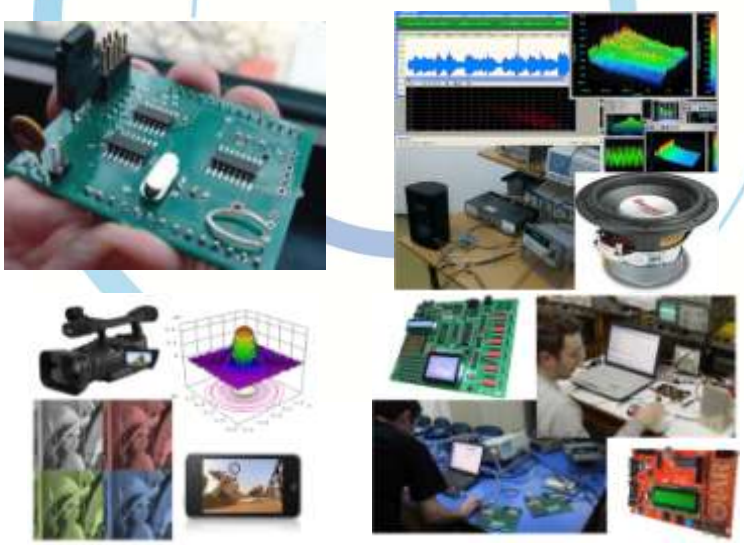
Mandatory courses for Semester 8			
Code	Title	Clases	ECTS
3ФЕИТ12Л007	**Final Thesis**		9
3ФЕИТ07Л007	**Distributed Systems**	2+2+1	6
3ФЕИТ12Л016	**Internship**		
	Elective course 1		6
	Elective course 2		3
	Elective course 3		3

Elective course 1			
Code	Title	Clases	ECTS
3ФЕИТ05Л005	**Biomedical Electronics**	3+1+1	6
3ФЕИТ07Л006	**Virtualization and Cloud Systems**	3+1+1	6
3ФЕИТ01Л004	**Distributed Control Systems and SCADA**	2+2+1	6
3ФЕИТ12Л008	**Industrial Communication Networks**	3+1+1	6
3ФЕИТ01Л006	**Intelligent Control Systems**	2+2+1	6
3ФЕИТ05Л023	**Machine Vision**	3+1+1	6
3ФЕИТ12Л010	**Mobile Services with Android Programming**	2+2+1	
3ФЕИТ07Л017	**Modeling and Simulation Environments**	2+2+1	6
3ФЕИТ07Л023	**OS and Modules for Embedded Systems**	2+2+1	6
3ФЕИТ07Л028	**System-on-Chip Design**	2+2+1	6
3ФЕИТ03Л010	**Process Computers and Measurement**	3+1+1	6
3ФЕИТ07Л030	**Internet of Things Systems**	2+2+1	6

Elective courses 2 и 3			
Code	Title	Clases	ECTS
ЗФЕИТ09Л008	**Economic Assessment of Investments**	2+1+0	3
ЗФЕИТ04Л010	**Communication Skills**	2+1+0	3
ЗФЕИТ11Л002	**Entrepreneurship**	2+1+0	3
ЗФЕИТ03Л009	**Principles of Quality Management**	2+1+0	3
ЗФЕИТ04Л020	**Project Management and Ethics in Engineering**	2+1+0	3
ЗФЕИТ09Л021	**Regulation in Electricity Sector**	2+1+0	3
ЗФЕИТ08Л015	**Technological Innovations**	2+1+0	3

Study Programme

COMPUTER HARDWARE ENGINEERING AND ELECTRONICS



2019 – 2020

Study Programme	**Computer Hardware Engineering and Electronics (CHEE)**
Degree Programme	First cycle degree programme
Level of qualification	Bachelor of Science in Electrical Engineering and Information Technologies in Computer Hardware Engineering and Electronics
Occupational Profiles of Graduates	Engineers of this profile can build their career in companies that design complete solutions based on microprocessor systems (embedded systems for data acquisition, mobile devices, microcontrollers for control and automation in industry, communication equipment, etc.), and in every company that utilizes computers and other electronic equipment.
The Programme Learning Outcomes	The CHEE study programme represents optimal combination of electronics and computer engineering. Combination of knowledge and skills from these two disciplines is a base for creation of high quality engineers, capable of coping with the challenge called complete hardware-software solution. The knowledge in the field of architectures, algorithms and concepts of computer systems, which are offered by the computer hardware engineering, combined with knowledge from the field of electronics (analog design, VLSI design, PLD and FPGA components, microelectronics), will enable the engineer to design products fast, efficient and accurate. The students of this programme will have the opportunity through the elective courses to acquire knowledge in the field of digital signal processing, audio, image and video processing, multimedia systems, biomedical engineering, electromagnetics, electromagnetic waves, antennas and radio engineering.

Year 1

Semester 1

Mandatory courses for Semester 1			
Code	Tile	Classes	ECTS
3ФЕИТ083009	**Mathematics 1**	3+3+0+0	7
3ФЕИТ063005	**Fundamentals of Electrical Engineering**	4+3+0+0	7
3ФЕИТ073027	**Programming and Algorithms**	2+2+2+0	6
3ФЕИТ083016	**Physics 1**	3+2+1	7
	Elective course – Foreign Language		3

Elective courses for Semester 1			
Code	Tile	Classes	ECTS
3ФЕИТ123003	**German**	2+1+0+0	3
3ФЕИТ123006	**French**	2+1+0+0	3
3ФЕИТ123015	**English**	2+1+0+0	3
3ФЕИТ123017	**Russian**	2+1+0+0	3

Semester 2

Mandatory courses for Semester 2			
Code	Tile	Classes	ECTS
3ФЕИТ08Л010	**Mathematics 2**	3+3+0	7
3ФЕИТ06Л004	**Fundamentals of Electric Circuits**	3+2+1	7
3ФЕИТ08Л017	**Physics 2**	3+2+1	7
	Sport	0+2	0
	Elective course 1		6
	Elective course 2		3

Elective course 1			
Code	Tile	Classes	ECTS
3ФЕИТ07Л004	**Libraries and Programming**	2+2+2	6
3ФЕИТ07Л025	**Data Structures and Programming**	2+2+2	6

Elective course 2			
Code	Tile	Classes	ECTS
ЗФЕИТ03Л002	**Electrical Materials**	2+0+1	3
ЗФЕИТ11Л001	**Practicum on Matlab**	0+1+2	3

II Година

Semester 3

Mandatory courses for Semester 3			
Code	Title	Clases	ECTS
ЗФЕИТ053019	**Electronics 1**	3+1+1	6
ЗФЕИТ123009	**Logic Design**	3+1+1	6
ЗФЕИТ083011	**Mathematics 3**	3+3+0	6
ЗФЕИТ033005	**Measurements in Electrical Engineering**	3+1+1	6
ЗФЕИТ053035	**Signals and Systems**	3+2+0	6

Semester 4

Mandatory courses for Semester 4			
Code	Title	Clases	ECTS
ЗФЕИТ05Л015	**Electromagnetics**	3+2+0	6
ЗФЕИТ05Л020	**Electronics 2**	3+1+1	6
ЗФЕИТ01Л020	**Control Systems**	2+2+1	6
	Elective course 1		3
	Elective course 2		3
	Elective course 3		6

Elective course 1 and 2			
Code	Title	Clases	ECTS
ЗФЕИТ08Л001	**Probability**	2+1+0	3
ЗФЕИТ08Л003	**Discrete Mathematics 1**	2+1+0	3
ЗФЕИТ08Л008	**Complex Analysis**	2+1+0	3
ЗФЕИТ08Л012	**Numerical Methods**	2+0+1	3

Elective course 3			
Code	Title	Clases	ECTS
3ФЕИТ07Л010	**Computer Architectures**	2+2+1	6
3ФЕИТ05Л027	**Modeling and Simulation in Electronics**	3+1+1	6
3ФЕИТ05Л038	**Electric Circuit Theory**	3+2+0	6

IIIГодина

Semester 5

Mandatory courses for Semester 5			
Code	Title	Clases	ECTS
3ФЕИТ053003	**Analog Design**	3+1+1	6
3ФЕИТ103009	**Introduction to Telecommunication**	3+1+1	6
3ФЕИТ023009	**Electric Power Devices**	3+1+1	6
	Elective course 1		6
	Elective course 2		6

Elective courses 1 and 2			
Code	Title	Clases	ECTS
3ФЕИТ053012	**Digital Signal Processing**	3+1+1	6
3ФЕИТ053014	**Electro acoustics**	3+1+1	6
3ФЕИТ053017	**Electromagnetic Waves and Antennas**	3+1+1	6
3ФЕИТ053022	**Power Electronics**	3+1+1	6
3ФЕИТ073022	**Operating Systems**	2+2+1	6
3ФЕИТ103040	**Information Theory**	3+1+1	6

Semester 6

Mandatory courses for Semester 6			
Code	Title	Clases	ECTS
3ФЕИТ05Л009	**Digital CMOS Design**	3+1+1	6
3ФЕИТ05Л026	**Microprocessor Electronics**	3+1+1	6
	Elective course 1		6
	Elective course 2		6
	Elective course 3		6

Elective courses 1, 2 and 3			
Code	Title	Clases	ECTS
3ФЕИТ05Л004	**Antenna Theory**	3+1+1	6
3ФЕИТ05Л011	**Digital Audio Processing**	3+1+1	6
3ФЕИТ05Л021	**Electronic Instrumentation**	3+0+2	6
3ФЕИТ07Л014	**Computer Networks**	2+2+1	6
3ФЕИТ01Л007	**Computer Process Control**	2+2+1	6
3ФЕИТ05Л024	**Microelectronics and Microsystems**	3+1+1	6
3ФЕИТ05Л025	**Microcontrollers**	3+1+2	6
3ФЕИТ05Л029	**Optoelectronics**	3+1+1	6
3ФЕИТ05Л036	**Digital Signal Processing Systems**	3+1+1	6

IV година

Semester 7

Mandatory courses for Semester 7			
Code	Title	Clases	ECTS
	Elective course 1		6
	Elective course 2		6
	Elective course 3		6
	Elective course 4		6
	Elective course 5		6

Elective courses 1, 2, 3, 4 and 5			
Code	Title	Clases	ECTS
3ФЕИТ053001	**VLSI Design with PLD and FPGA Components**	3+1+1	6
3ФЕИТ053006	**Biomedical Engineering**	3+1+1	6
3ФЕИТ053007	**Embedded Computer Systems**	3+1+1	6
3ФЕИТ103011	**Digital Communications 1**	3+1+1	6
3ФЕИТ053013	**Digital Image Processing**	3+1+1	6
3ФЕИТ053016	**Electromagnetic Compatibility**	3+1+1	6
3ФЕИТ013008	**Machine Learning**	2+2+1	6
3ФЕИТ123012	**Introduction to WEB Programming**	2+2+1	6
3ФЕИТ053031	**Switch Mode Power Supplies**	3+1+1	6
3ФЕИТ013015	**Programmable Logic Controllers**	2+2+1	6
3ФЕИТ053033	**RF and Microwave Electronics**	3+1+1	6
3ФЕИТ053034	**Sensors, Conditioners and Acquisition Devices**	3+0+2	6
3ФЕИТ073032	**Modern Processor Architectures**	2+2+1	6
3ФЕИТ053037	**Television and Video Processing**	3+1+1	6

Semester 8

Mandatory courses for Semester 8			
Code	Title	Clases	ECTS
3ФЕИТ12Л007	**Final Thesis**		9
3ФЕИТ12Л016	**Internship**		3
	Elective course 1		6
	Elective course 2		6
	Elective course 3		3
	Elective course 4		3

Elective courses 1 and 2			
Code	Title	Clases	ECTS
3ФЕИТ05Л002	**Automotive Electronics**	3+0+2	6
3ФЕИТ07Л003	**Security and Protection of Computer Communication Systems and Networks**	2+2+1	6
3ФЕИТ05Л005	**Biomedical Electronics**	3+1+1	6
3ФЕИТ05Л008	**Introduction to Nanoelectronics**	3+1+1	6
3ФЕИТ05Л023	**Machine vision**	3+1+1	6
3ФЕИТ07Л018	**Data Modeling and Database Systems**	2+2+1	6
3ФЕИТ05Л028	**Multimedia Systems**	3+1+1	6
3ФЕИТ01Л012	**Operations Research**	2+2+1	6
3ФЕИТ12Л013	**Fundamentals of Mechatronic Systems**	3+1+1	6
3ФЕИТ05Л030	**Electronic Circuits Design Practicum**	0+0+3	3
3ФЕИТ05Л032	**Radio Engineering**	3+1+1	6

Elective courses 3 and 4			
Code	Title	Clases	ECTS
3ФЕИТ09Л008	**Economic Assessment of Investments**	2+1+0	3
3ФЕИТ04Л010	**Communication Skills**	2+1+0	3
3ФЕИТ11Л002	**Entrepreneurship**	2+1+0	3
3ФЕИТ03Л009	**Principles of Quality Management**	2+1+0	3
3ФЕИТ04Л020	**Project Management and Ethics in Engineering**	2+1+0	3
3ФЕИТ09Л021	**Regulation in Electricity Sector**	2+1+0	3
3ФЕИТ08Л015	**Technological Innovations**	2+1+0	3

Study Programme

TELECOMMUNICATION AND INFORMATION ENGINEERING

2019 – 2020

Study Programme	**Telecommunication and Information Engineering (TCIE)**
Degree Programme	First cycle degree programme
Level of qualification	Bachelor of Science in Electrical Engineering and Information Technologies in the area of Telecommunication and Information Engineering
Occupational Profiles of Graduates	Graduated engineers can be employed in the country and abroad in companies and institutions that develop and implement ICTs: telecommunication and mobile operators, software companies, companies that produce telecommunication equipment, research laboratories and top academic institutions.
The Programme Learning Outcomes	The program consists of ICT core and two elective modules. The ICT core covers the basics of telecommunications, digital telecommunications, telecommunication networks, optical networks, Internet technologies and databases. The first optional module focuses on ICT systems and networks: wireless communications and networks, mobile systems, network administration, advanced digital telecommunications, telecommunication engineering, switching and routing, and the development of telecommunications services and applications. The second optional module focuses on ICT services and applications: web design, web applications, applications for mobile devices with android and iOS programming and web services with Java and PHP programming. Additionally, students can choose courses from areas such as: multimedia, security communications, satellite communications, Internet of things, digital currencies.

Year 1

Semester 1

Mandatory courses for Semester 1			
Code	Tile	Classes	ECTS
3ФЕИТ083009	**Mathematics 1**	3+3+0+0	7
3ФЕИТ063005	**Fundamentals of Electrical Engineering**	4+3+0+0	7
3ФЕИТ073027	**Programming and Algorithms**	2+2+2+0	6
3ФЕИТ083016	**Physics 1**	3+2+1	7
	Elective course – Foreign Language		3

Elective courses for Semester 1			
Code	Tile	Classes	ECTS
3ФЕИТ123003	**German**	2+1+0+0	3
3ФЕИТ123006	**French**	2+1+0+0	3
3ФЕИТ123015	**English**	2+1+0+0	3
3ФЕИТ123017	**Russian**	2+1+0+0	3

Semester 2

Mandatory courses for Semester 2			
Code	Tile	Classes	ECTS
3ФЕИТ08Л010	**Mathematics 2**	3+3+0	7
3ФЕИТ06Л004	**Fundamentals of Electric Circuits**	3+2+1	7
3ФЕИТ08Л017	**Physics 2**	3+2+1	7
	Sport	0+2	0
	Elective course 1		6
	Elective course 2		3

Elective course 1			
Code	Tile	Classes	ECTS
3ФЕИТ07Л004	**Libraries and Programming**	2+2+2	6
3ФЕИТ07Л025	**Data Structures and Programming**	2+2+2	6

Elective course 2			
Code	Tile	Classes	ECTS
3ФЕИТ03Л002	**Electrical Materials**	2+0+1	3
3ФЕИТ11Л001	**Practicum on Matlab**	0+1+2	3

II Година

SemesterIII семестар

Втора година			
Mandatory courses for Semester 3			
Code	**Title**	Clases	ECTS
3ФЕИТ103018	**Internet Technologies**	3+1+1	6
3ФЕИТ083011	**Mathematics 3**	3+3+0	6
3ФЕИТ053035	**Signals and Systems**	3+2+0	6
3ФЕИТ103040	**Information Theory**	3+1+1	6
	Elective course		6

Elective course			
Code	Title	Clases	ECTS
3ФЕИТ053018	**Electronics**	3+1+1	6
3ФЕИТ053019	**Electronics 1**	3+1+1	6

Semester 4

Mandatory courses for Semester 4			
Code	Title	Clases	ECTS
3ФЕИТ07Л018	**Data Modeling and Database Systems**	2+2+1	6
3ФЕИТ10Л026	**Fundamentals of Telecommunications**	3+1+1	6
3ФЕИТ01Л020	**Control Systems**	2+2+1	6
	Elective course 1		3
	Elective course 2		3
	Elective course 3		6

Elective courses 1 и 2			
Code	Title	Clases	ECTS
ЗФЕИТ08Л001	**Probability**	2+1+0	3
ЗФЕИТ08Л003	**Discrete Mathematics 1**	2+1+0	3
ЗФЕИТ08Л008	**Complex Analysis**	2+1+0	3
ЗФЕИТ08Л012	**Numerical Methods**	2+0+1	3

Elective course 3			
Code	Title	Clases	ECTS
ЗФЕИТ10Л021	**Switching and Routing**	3+1+1	6
ЗФЕИТ07Л024	**Data Structures and Algorithm Analysis**	2+2+1	6

Year 3

Semester 5

Mandatory courses for Semester 5			
Code	Title	Clases	ECTS
ЗФЕИТ103011	**Digital Communications 1**	3+1+1	6
	Elective course 1		6
	Elective course 2		6
	Elective course 3		6
	Elective course 4		6

Elective course 1			
Code	Title	Clases	ECTS
ЗФЕИТ093004	**Introduction to Power Systems**	3+2+0	6
ЗФЕИТ023009	**Electric Power Devices**	3+1+1	6
ЗФЕИТ043017	**Fundamentals of Energetics**	3+2+0	6

Elective courses 2, 3 and 4			
Code	Title	Clases	ECTS
ЗФЕИТ123004	**Android Programming**	2+2+1	6
ЗФЕИТ103005	**Wireless Channels**	3+1+1	6
ЗФЕИТ123011	**Network Programming**	2+2+1	6
ЗФЕИТ123012	**Introduction to WEB Programming**	2+2+1	6
ЗФЕИТ103027	**Applied Operating Systems in Telecommunications**	3+1+1	6
ЗФЕИТ103037	**Communication Systems**	3+1+1	6

Semester6

Mandatory courses for Semester 6			
Code	Title	Clases	ECTS
ЗФЕИТ10Л025	**Optical Networks**	3+1+1	6
ЗФЕИТ10Л036	**Telecommunication Networks**	3+1+1	6
	Elective course 1		6
	Elective course 2		6
	Elective course 3		6

Elective courses 1, 2 and 3			
Code	Title	Clases	ECTS
ЗФЕИТ12Л001	**WEB Applications**	2+2+1	6
ЗФЕИТ10Л006	**Wireless Communications**	3+1+1	6
ЗФЕИТ10Л012	**Digital Communications 2**	3+1+1	6
ЗФЕИТ12Л010	**Mobile Services with Android programming**	2+2+1	6
ЗФЕИТ12Л014	**Development of Server-Based WEB Applications**	2+2+1	6
ЗФЕИТ10Л039	**Teletraffic Engineering**	3+1+1	6

Year 4

Semester 7

Mandatory courses for Semester 7			
Code	Title	Clases	ECTS
Student chooses one of two modules (VII-1 or VII-2)			
Module VII-1 courses			
3ФЕИТ103007	Wireless Networks and Mobile Systems	3+1+1	6
3ФЕИТ103031	Design of Communications Services and Applications	3+1+1	6
	Elective course 1		6
Module VII-2 courses			
3ФЕИТ123002	WEB Services	2+2+1	6
3ФЕИТ123005	Mobile Applications	2+2+1	6
3ФЕИТ103034	Software Defined Networking	3+1+1	6
	Elective course 2		6
	Elective course 3		6

Elective courses 1, 2 and 3			
Code	Title	Clases	ECTS
3ФЕИТ103002	ICT Ecosystem Analysis	3+1+1	6
3ФЕИТ103013	Design and Modeling of Telecommunication Networks	3+1+1	6
3ФЕИТ103001	Machine-to-Machine Communications	3+1+1	6
3ФЕИТ033005	Measurements in Electrical Engineering	3+1+1	6
3ФЕИТ103022	Delay-Tolerant Networks	3+1+1	6
3ФЕИТ083013	Basics of Convex Optimization with Application	3+2+0	6
3ФЕИТ103028	Signal Processing for Communications and Radar	3+1+1	6
3ФЕИТ103029	Radio and Satellite Communications	3+1+1	6
3ФЕИТ103030	Radio Navigation	3+1+1	6

3ФЕИТ103032	**Secure Communications**	3+1+1	6
3ФЕИТ103035	**Standardization and Regulation**	3+1+1	6
3ФЕИТ103038	**Telecommunication Software**	3+1+1	6
3ФЕИТ103042	**Network Forensics**	3+1+1	6

Semester 8

Mandatory courses for Semester 8			
Code	Title	Clases	ECTS
3ФЕИТ12Л007	**Final Thesis**		9
3ФЕИТ12Л016	**Internship**		3
	Elective course 1		6
	Elective course 2		6
	Elective course 3		3
	Elective course 4		3

Elective courses 1 and 2			
Code	Title	Clases	ECTS
3ФЕИТ10Л003	**Antennas for Wireless Communications**	3+1+1	6
3ФЕИТ10Л004	**Wireless IP Networks**	3+1+1	6
3ФЕИТ10Л008	**Embedded Communications Systems**	3+1+1	6
3ФЕИТ10Л010	**Digital Currencies**	3+1+1	6
3ФЕИТ10Л014	**Design and Simulation in Radio Communications**	3+1+1	6
3ФЕИТ10Л015	**e – Health**	3+1+1	6
3ФЕИТ10Л016	**ICT for Energy Efficiency and Sustainable Development**	3+1+1	6
3ФЕИТ10Л017	**Intelligent ICT Infrastructures**	3+1+1	6
3ФЕИТ07Л009	**Information Systems and Big Data**	2+2+1	6
3ФЕИТ10Л019	**Compression and Transmission of Multimedia Signals**	3+1+1	6
3ФЕИТ03Л006	**Measurement in Telecommunication**	3+1+1	6
3ФЕИТ10Л023	**Network Planning and Optimization**	3+1+1	6
3ФЕИТ10Л024	**Multimedia Networks and Services**	3+1+1	6
3ФЕИТ07Л026	**Introduction to Linux Administration – Laboratory**	1+0+2	6

3ФЕИТ10Л033	**Simulation Methods in Telecommunications**	3+1+1	6
3ФЕИТ07Л030	**Internet of Things Systems**	2+2+1	6
3ФЕИТ10Л041	**Telecommunications Network Management**	3+1+1	6

Elective courses 2, 3 and 4			
Code	Title	Clases	ECTS
3ФЕИТ09Л008	**Economic Assessment of Investments**	2+1+0+0	3
3ФЕИТ04Л010	**Communication Skills**	2+1+0+0	3
3ФЕИТ11Л002	**Entrepreneurship**	2+1+0+0	3
3ФЕИТ03Л009	**Principles of Quality Management**	2+1+0+0	3
3ФЕИТ04Л020	**Project Management and Ethics in Engineering**	2+1+0+0	3
3ФЕИТ09Л021	**Regulation in Electricity Sector**	2+1+0+0	3
3ФЕИТ08Л015	**Technological Innovations**	2+1+0+0	3

17. ACADEMIC STAFF

Full Professors

Arnautovski - Tosheva Vesna, PhD, group of subjects in the field of fundamentals of electrical engineering, tel. 30-99-168, atvesna@feit.ukim.edu.mk

Borozan Vesna, PhD, group of subjects in the field of power transmission systems, tel. 30-99-122, vesnab@feit.ukim.edu.mk

Buchkovska Aneta, PhD, group of subjects in the field of mathematics, tel. 30-99-116, anbuc@feit.ukim.edu.mk

Gavrilovska Liljana, PhD, group of subjects in the field of telecommunications, tel. 30-99-114, liljana@feit.ukim.edu.mk

Gegovska-Zajkova Sonja, PhD, group of subjects in the field of mathematics, tel. 30-99-179, szajkova@feit.ukim.edu.mk

Georgieva Verka, PhD, group of subjects in the field of physics, tel. 30-99-174, vera@feit.ukim.edu.mk

Ginovska Margarita, PhD, group of subjects in the field of physics, tel. 30-99-174, margag@feit.ukim.edu.mk

Dimchev Vladimir, PhD, group of subjects in the field of electrical measurements and materials, tel. 30-99-161, vladim@feit.ukim.edu.mk

Ivanovski Zoran, PhD, group of subjects in the field of electronics, tel. 30-99-103, mars@feit.ukim.edu.mk

Iliev Atanas, PhD, group of subjects in the field of power plants and systems, tel. 30-99-132, ailiev@feit.ukim.edu.mk

Janevski Toni, PhD, group of subjects in the field of telecommunications, tel. 30-99-119, tonij@feit.ukim.edu.mk

Jolevska-Tuneska Biljana, PhD, group of subjects in the field of mathematics, tel. 30-99-172, biljanaj@feit.ukim.edu.mk

Karadzinov Ljupcho, PhD, group of subjects in the field of electronics, tel. 30-99-170, karadza@feit.ukim.edu.mk

Kafedziski Venceslav PhD, group of subjects in the field of telecommunications, tel. 30-99-120, kafedzi@feit.ukim.edu.mk

Kacarska Marija, PhD, group of subjects in the field of fundamentals in electrical engineering, tel. 30-99-168, mkacar@feit.ukim.edu.mk

Lazarevska Elizabeta, PhD, group of subjects in the field of automation and system engineering, tel. 30-99-163, betil@feit.ukim.edu.mk

Najdenkoski Krste, PhD, group of subjects in the field of electrical machines, transformers and apparatuses, tel. 30-99-144, krste@feit.ukim.edu.mk

Ololoska-Gagoska Lidija, PhD, group of subjects in the field of electromagnetics, tel. 30-99-108, lideo@feit.ukim.edu.mk

Popovski Borislav, PhD, group of subjects in the field of telecommunications, tel. 30-99-117, borop@feit.ukim.edu.mk

Rafajlovski Goran, PhD, group of subjects in the field of electrical machines, transformers and apparatuses, tel. 30-99-140, goran@feit.ukim.edu.mk

Risteski Aleksandar, PhD, group of subjects in the field of telecommunications, tel. 30-99-115, acerist@feit.ukim.edu.mk

Spasevska Hristina, PhD, group of subjects in the field of physics, tel. 30-99-174, hristina@feit.ukim.edu.mk

Stankovski Mile PhD, group of subjects in the field of automation and system engineering, tel. 30-99-173, milestk@feit.ukim.edu.mk

Stoilkov Vlatko, PhD, group of subjects in the field of electrical machines, transformers and apparatuses, tel. 30-99-144, stoilkov@feit.ukim.edu.mk

Taleski Rubin, PhD, group of subjects in the field of power transmission systems, tel. 30-99-126,rubint@feit.ukim.edu.mk

Tashkovski Dimitar, PhD, group of subjects in the field of digital signal processing, tel. 30-99-107, dtaskov@feit.ukim.edu.mk

Tentov Aristotel, PhD, group of subjects in the field of computer science and computer engineering , tel. 30-99-158, toto@feit.ukim.edu.mk

Todorovski Mirko, PhD, group of subjects in the field of power transmission systems, tel. 30-99-124, mirko@feit.ukim.edu.mk

Kjosev Josif, PhD, group of subjects in the field of electronics, tel. 30-99-151, 30-99-103, josif@feit.ukim.edu.mk

Fustic Vangel, PhD, group of subjects in the field of power plants and systems, tel. 30-99-132, vfustic@feit.ukim.edu.mk

Hadzi-Velkov Zoran, PhD, group of subjects in the field of telecommunications, tel. 30-99-118,zoranhv@feit.ukim.edu.mk

Cvetkovski Goga, PhD, group of subjects in the field of electrical machines, transformers and apparatuses, tel. 30-99-143, gogacvet@feit.ukim.edu.mk

Chaushevski Anton, PhD, group of subjects in the field of power plants and systems, tel. 30-99-135, caus@feit.ukim.edu.mk

Chundeva-Blaer Marija, PhD, group of subjects in the field of electrical measurements and materials, tel. 30-99-162, mcundeva@feit.ukim.edu.mk

Chundeva Snezhana, PhD, group of subjects in the field of electroheat, electrical welding and electric traction, tel. 30-99-166, scundeva@feit.ukim.edu.mk

Associate Professors

Atanasovski Vladimir, PhD, group of subjects in the field of telecommunications, tel. 30-99-113, vladimir@feit.ukim.edu.mk

Andova Vesna, PhD, group of subjects in the field of mathematics, tel. 30-99-170, vesnaa@feit.ukim.edu.mk

Dimitrov Dimitar, PhD, group of subjects in the field of power plants and systems, tel. 30-99-141, ddimitar@feit.ukim.edu.mk

Kalendar Marija, PhD, group of subjects in the field of computer science and computer engineering , tel. 30-99-153, marijaka@feit.ukim.edu.mk

Kokolanski Zhivko, PhD, group of subjects in the field of electrical measurements and materials, zivko.kokolanski@feit.ukim.edu.mk

Krkoleva Mateska Aleksandra, PhD, group of subjects in the field of power transmission systems, tel. 30-99-124, krkoleva@feit.ukim.edu.mk

Latkoski d-r Pero, PhD, group of subjects in the field of telecommunications, tel. 30-99-113, pero@feit.ukim.edu.mk

Nachevska-Nastevska Biljana, PhD, group of subjects in the field of mathematics, tel. 30-99-179,biljanan@feit.ukim.edu.mk

Nikolova Poceva Sofija, PhD, group of subjects in the field of power plants and systems, tel. 30-99-132, nsofija@feit.ukim.edu.mk

Porjazoski Marko, PhD, group of subjects in the field of telecommunications, tel. 30-99-118, markop@feit.ukim.edu.mk

Raleva Katerina, PhD, group of subjects in the field of electronics, tel. 30-99-103, catherin@etf.ukim.edu.mk

Stojanovska-Georgievska Lihnida, PhD, group of subjects in the field of physics, tel. 30-99-178, lihnida@feit.ukim.edu.mk

Hadzi-Velkova Saneva Katerina, PhD, group of subjects in the field of mathematics, tel. 30-99-171, saneva@feit.ukim.edu.mk

Assistant Professors

Angelov Jordancho, PhD, group of subjects in the field of power transmission systems, tel. 30-99-125, jordanco@feit.ukim.edu.mk

Vuletic Jovica, PhD, group of subjects in the field of power transmission systems, tel. 30-99-125, jovicav@feit.ukim.edu.mk

Gerazov Branislav, PhD, group of subjects in the field of electronics, tel. 30-99-102, gerazov@feit.ukim.edu.mk

Denkovski Daniel, PhD, group of subjects in the field of computer science and computer engineering, tel. 30-99-177,danield@feit.ukim.edu.mk

Gjoreski Hristijan, PhD, group of subjects in the field of computer science and computer engineering, tel. 30-99-177, hristijang@feit.ukim.edu.mk

Efnusheva Danijela, PhD, group of subjects in the field of computer science and computer engineering, tel. 30-99-177, danijela@feit.ukim.edu.mk

Jakimovski Goran, PhD, group of subjects in the field of computer science and computer engineering, tel. 30-99-183, goranj@feit.ukim.edu.mk

Kartalov Tomislav, PhD, group of subjects in the field of electronics, tel. 30-99-102, kartalov@feit.ukim.edu.mk

Kuhar Adrijana, PhD, group of subjects in the field of electromagnetics, tel. 30-99-108, kuhar@feit.ukim.edu.mk

Krstevski Petar, PhD, group of subjects in the field of power transmission systems, tel. 30-99-122, petar.k@feit.ukim.edu.mk

Kiteva Rogleva Nevenka, PhD, group of subjects in the field of power plants and systems, tel. 30-99-132, nkiteva@feit.ukim.edu.mk

Markovska Marija, PhD, group of subjects in the field of digital signal processing, tel. 30-99-107, marijam@feit.ukim.edu.mk

Markovski Blagoja, PhD, group of subjects in the field of fundamentals in electrical engineering, tel. 30-99-168, bmarkovski@feit.ukim.edu.mk

Nadzinski Gorjan, PhD, group of subjects in the field of automation and system engineering, tel. 30-99- 173, gorjan@feit.ukim.edu.mk

Rakovic Valentin, PhD, group of subjects in the field of telecommunications, tel. 30-99-112, valentin@feit.ukim.edu.mk

Sandeva Ivana, PhD, group of subjects in the field of physics, tel 30-99-174, ivana@feit.ukim.edu.mk

Celeska Krstevska Maja, PhD, group of subjects in the field of electrical machines, transformers and apparatuses, tel. 30-99-146, celeska@feit.ukim.edu.mk

Shuminoski Tomislav, PhD, group of subjects in the field of telecommunications, tel. 30-99-112, tomish@feit.ukim.edu.mk

Assistants Doctorands

Jovanovski Nikola, MSc, group of subjects in the field of electronics, tel. 30-99-103, jnikola@feit.ukim.edu.mk

Stavrov Dushko, MSc, group of subjects in the field of automation and system engineering, tel. 30-99-152, dushko.stavrov@feit.ukim.edu.mk

Cholakoska Ana, MSc, group of subjects in the field of computer science and computer engineering, tel. 30-99-183, acholak@feit.ukim.edu.mk

18. ADMINISTRATIVE AND TECHNICAL STAFF

Senior technical associates

Karajanovski Ljupcho, MSc, Laboratory of Fundamentals of Electrical Engineering, tel. 30-99-134, bubac@feit.ukim.edu.mk

Makraduli Mario, MSc, Laboratory of Electronic and Laboratory of Electronic Measurements, tel. 30-99-103, mario@feit.ukim.edu.mk

Computer operator

Bogatinovski Vitomir, tel. 30-99-183, vite@feit.ukim.edu.mk

Administrative and technical staff

Andonov-Acev Dragan, MSc, advisor for master's and doctoral studies, tel. 30-99-199, dan@feit.ukim.edu.mk

Andreevska Ljiljana, librarian, tel. 30-99-188, ljilja@feit.ukim.edu.mk

Angjelkoska Zhaklina, associate for financing affaires, tel. 30-99-195, zaklinaa@feit.ukim.edu.mk

Apostolovska Biljana, senior associate for human resources , tel. 30-99-197, apostolovskab@feit.ukim.edu.mk

Vasileva Jasminkaf head of financial affairs office, tel. 30-99-195, jasminv@feit.ukim.edu.mk

Dimovska-Anchevska Trajka, student affairs advisor, tel. 30-99-199, trajkada@feit.ukim.edu.mk

Dimovska Sashka, archivist, tel. 30-99-196, sasska@feit.ukim.edu.mk

Drenkovska Jagoda, secretary, tel. 30-99-192, jagoda@feit.ukim.edu.mk

Jovanovska Aneta, administrator, tel. 30-99-197, anetaj@feit.ukim.edu.mk

Velkova Nada, engineer for software applications,
tel. 30-99-197, nada.karamanova@feit.ukim.edu.mk

Karanfilovska Biljana, cashier, tel. 30-99-195, kbiljana@feit.ukim.edu.mk

Miliskovic Srecko, housekeeper, tel. 30-99-133

Nikodinov Maja, Dean's Office Assistant,
tel. 30-99-191, teh.sekretar@feit.ukim.edu.mk

Panajotov Zoran, house master, tel. 30-99-133

Petrinska-Labudovic Rozita, MSc, head of the library,
tel. 30-99-187, rozitepe@feit.ukim.edu.mk

Stoilkova Marija, head of student affairs office,
tel. 30-99-199, ssluzba@feit.ukim.edu.mk

Hristov Zoran, courier, tel. 30-99-133

*

* *