

Republic of North Macedonia
Ss. Cyril and Methodius University in Skopje



Faculty of Electrical Engineering & Information Technologies

A graphic of a circuit board with multiple parallel lines and small dots, extending from the top left towards the bottom right.

**65 YEARS OF EDUCATIONAL
& SCIENTIFIC EXCELLENCE**

ISBN 978-608-4999-15-7

Published by:
Faculty of Electrical Engineering and Information Technologies - Skopje

Editors:
Vladimir Atanasovski
Zivko Kokolanski
Marija Kalendar
Aleksandra Krkoleva Mateska

Graphic Design: Idea Plus
Proofreading: Rozita Petrinska Labudovikj

Skopje, May 2024.

CIP - Каталогизација во публикација
Национална и универзитетска библиотека "Св. Климент Охридски", Скопје

378.016:621.3(497.711)"1959/2024"

SIXTY five
65 years of educational and scientific excellence [Електронски извор] : 1959-2024 / [editors Vladimir Atanasovski ... и др.]. – Skopje : Faculty of electrical engineering and information technologies, 2024. -
79 стр. : илустр. ; 21 см

Начин на пристапување (URL): https://feit.ukim.edu.mk/brochure/65_FEIT.pdf. - Текст во ПДФ формат, содржи
78 стр., илустр. - Наслов преземен од екранот. - Опис на изворот на ден 27.05.2024. - Други уредници: Zivko Kokolanski, Marija Kalendar, Aleksandra Krkoleva Mateska

ISBN 978-608-4999-15-7

1. Гл. ств. насл. 2. Додат. на насл.
а) Факултет за електротехника и информациски технологии (Скопје) -- 1959-2024 -- Јубилеи

COBISS.MK-ID 63796997

TABLE OF CONTENTS

STATEMENT FROM THE DEAN.....	4
MISSION VISION STRATEGIC GOALS.....	8
EDUCATIONAL LEADER.....	10
SCIENTIFIC LEADER.....	14
INSTITUTES.....	30
LABORATORIES.....	32
STUDIES.....	34
STATE-OF-THE-ART TEACHING & RESEARCH RESOURCES.....	38
PROJECTS@FEEIT.....	44
ACCREDITATIONS.....	52
INNOFEIT.....	58
FEEIT FABLAB.....	62
STUDENT COMPETITIONS AND CONFERENCES.....	66
SPORTS & FUN.....	72
CENTRES & PROGRAMMES.....	76



●
Faculty of Electrical Engineering & Information Technologies
Rugjer Boshkovikj 18, Skopje 1000, North Macedonia
Coordinates: 42.005349943216736, 21.40827507830385



STATEMENT FROM THE DEAN

The Faculty of Electrical Engineering and Information Technologies (FEEIT) stands as the preeminent engineering faculty in N. Macedonia. Its esteemed reputation is bolstered by the multitude of successful engineers it has produced, the profound expertise ingrained in both local and international communities, the distinguished accolades of its researchers, and the esteemed quality of its diplomas. This revered status, cultivated over generations, is a mantle of responsibility we carry forward.

FEEIT plays a pioneering role in education, research, and industry cooperation within our country, attracting a plethora of exceptional high school

students and serving as a promising partner for numerous foreign universities in collaborative projects. Moreover, it is a trusted collaborator for many local and international companies, facilitating joint endeavours, research initiatives, knowledge exchange, and innovation support.

In terms of education, FEEIT is the sole faculty in N. Macedonia to hold international accreditation from ASIIN. Our students benefit from exceptional practical resources, thanks to substantial investments in laboratory facilities and equipment, both directly and through donations. Over the past six years, the Centre for Transfer of Technologies and Innovations - INNOFEIT has been a driving force in innovation, contract research, and digital transformation in the Western Balkans, establishing itself as the only fully operational Digital Innovation Hub (DIH) in the country.

The inauguration of the FEEIT FabLab in 2023 marks yet another milestone in advancing FEEIT's prominence, offering opportunities for young individuals and prospective students to explore and experiment with cutting-edge technologies.

Additionally, FEEIT takes pride in its esteemed alumni, who serve as pillars in various societies worldwide. Being the alma mater to such distinguished individuals fills us with pride and humility as we continue nurturing creativity to mould the finest engineers for the future.



Once affiliated with FEEIT, one remains tethered to its legacy—Forever FEEIT!

Prof. Vladimir Atanasovski, PhD

A handwritten signature in blue ink, appearing to read 'V. Atanasovski'.



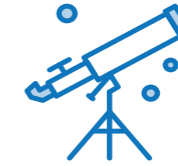
02

MISSION
VISION
STRATEGIC GOALS



Mission

Continuous education for professionals, creatives, and entrepreneurs in electrical engineering and emerging technologies, fostering success and driving the creation of new jobs and opportunities.



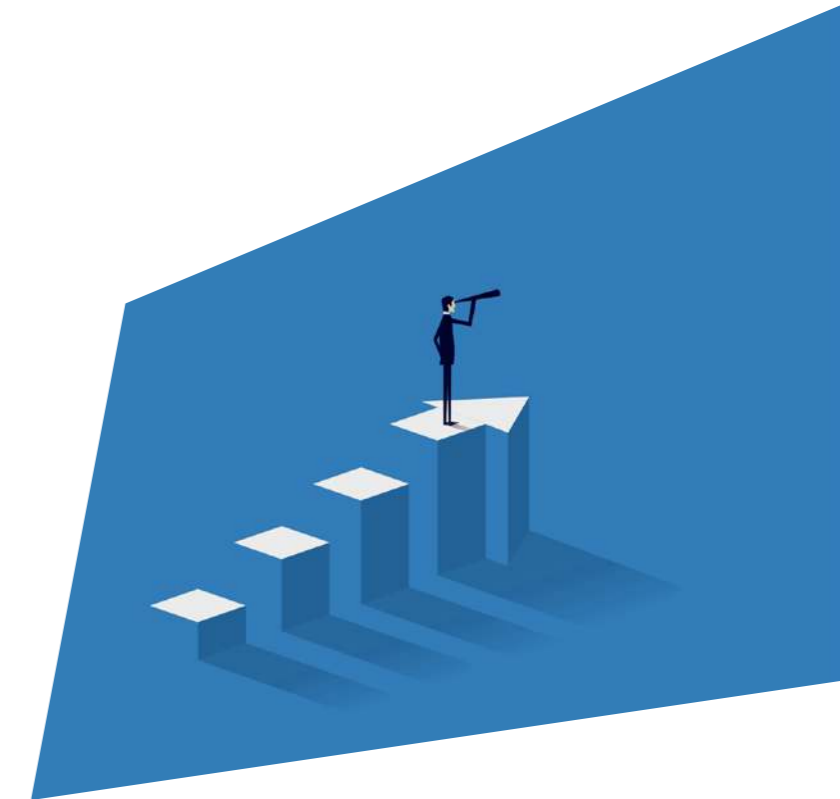
Vision

A modern, globally acknowledged faculty that serves as a robust collaborator in scientific inquiry, a hub for knowledge dissemination, and the nurturing ground for the nation's top students.



Strategic goals

- High-quality education according to FEEIT's international position
- Intensive international and domestic R&D activities
- Technology transfer and increased partnerships with industrial partners
- Contribution towards the country's economic and social welfare through education and innovation
- Support for lifelong learning for individuals of all professional and age categories
- Promoting excellence in electrical engineering and information technologies



With more than 12,000 graduates at all educational levels since 1959, FEEIT has consistently demonstrated its supreme status as a leader in engineering education in the country for 65 years.



The only faculty in N. Macedonia with ASIIN internationally accredited study programmes on undergraduate level.

State-of-the-art laboratory facilities for teaching and students' practical work.



Strong network of industry partners for students' internships and practical thesis work.

FEEIT alumni on prominent positions in top management, research and engineering roles both regionally and globally.



03 EDUCATIONAL LEADER

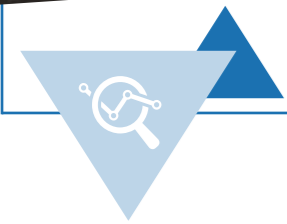




04

SCIENTIFIC
LEADER

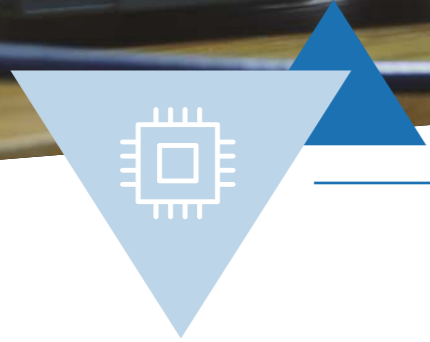




THE HIGHEST NUMBER
OF INTERNATIONAL R&D&I PROJECTS
LED IN NORTH MACEDONIA



AT LEAST 10 NEW
RESEARCH CONTRACTS
SECURED ANNUALLY



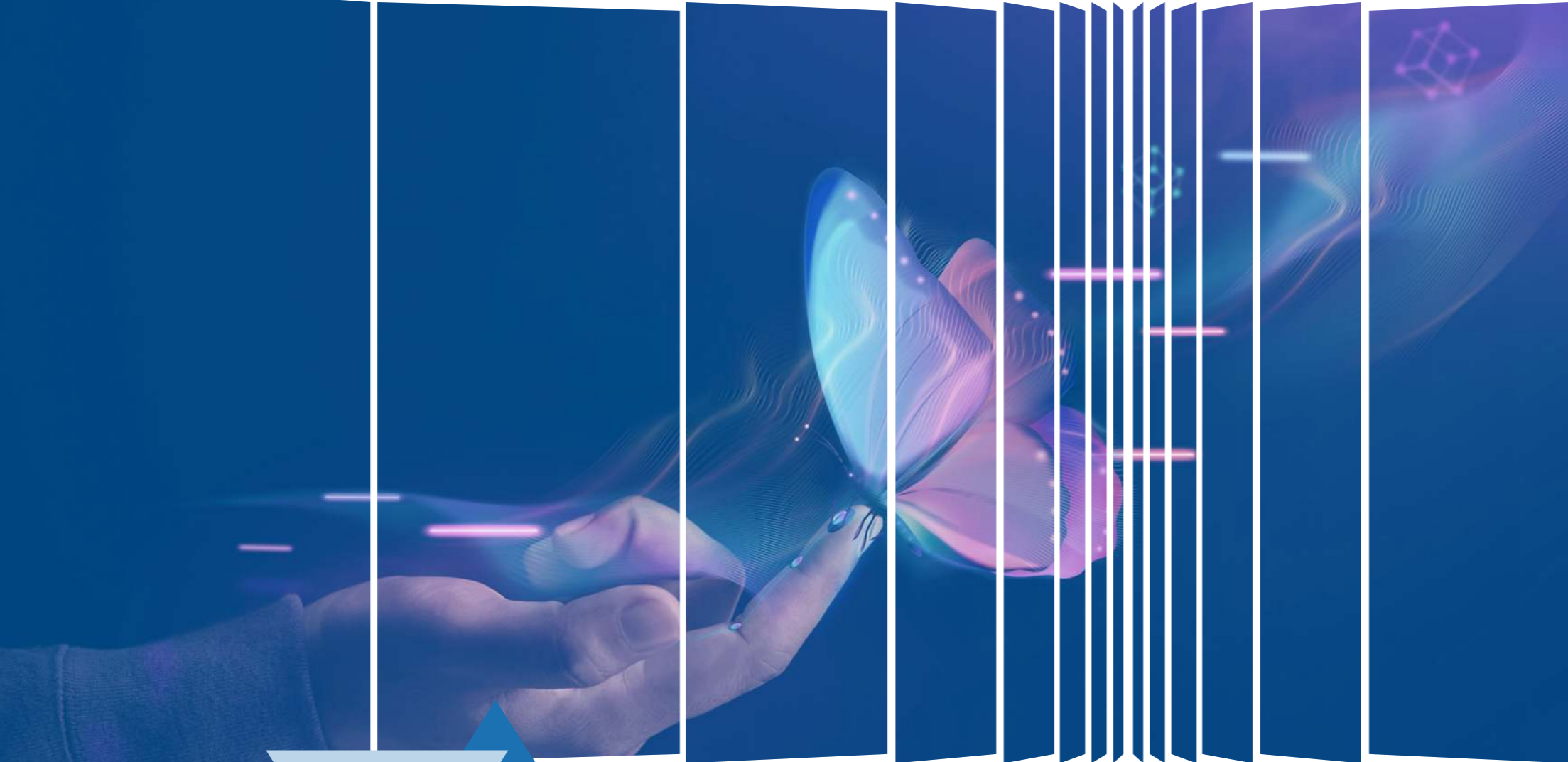
APPROXIMATELY 2 MILLION EUROS WORTH
OF LABORATORY EQUIPMENT PURCHASED
THROUGH INTERNATIONAL PROJECTS



MORE THAN 100 PAPERS
PUBLISHED ANNUALLY



7 PATENTS
CO-AUTHORED BY FEEIT STAFF



IEEE MILESTONE

First Robotic Control from Human Brain Signals, 1988

In 1988, in the Laboratory of Intelligent Machines and Bioinformation Systems, human brain signals controlled the movement of a physical object (a robot) for the first time worldwide. This linked electroencephalogram (EEG) signals collected from a brain with robotics research, opening a new channel for communication between humans and machines. EEG-controlled devices (wheelchairs, exoskeletons, etc.) have benefitted numerous users and expanded technology's role in modern society.

October 2023



ESTEEMED IEEE MILESTONE AWARDED



FEEIT'S STAFF
REGULARLY AMONG UKIM'S
TOP SCIENTISTS



FEEIT'S STAFF
INCLUDED IN MACEDONIAN
ACADEMY OF SCIENCE AND ARTS

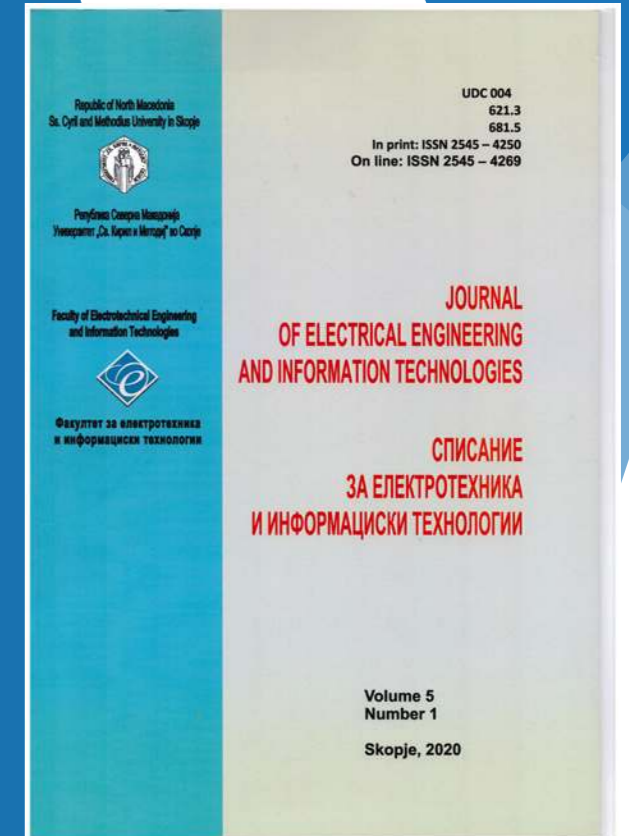


INTERNATIONAL CONFERENCES
CONSISTENTLY HOSTED AND
ORGANISED BY THE FACULTY



Journal of Electrical Engineering and Information Technologies (JEEIT)

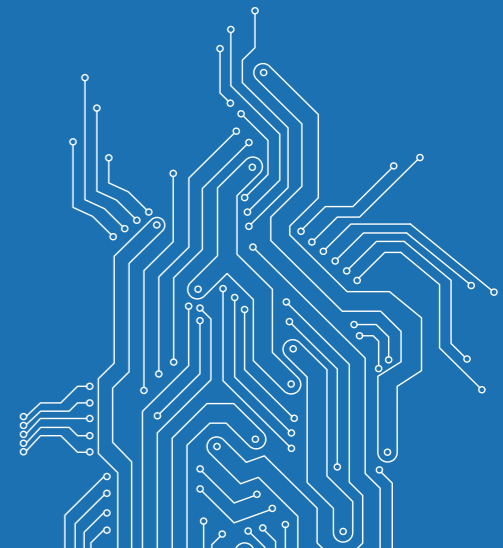
- Established in 2016
- International editorial board
- Biannually published





05 INSTITUTES

1. Automation and System Engineering
2. Electronics
3. Electrical Measurements and Materials
4. Electrical Machines, Transformers, and Apparatuses
5. Electroheat, Electrical Welding, and Electrical Traction
6. Power Plants and Substations
7. Computer Technologies and Engineering
8. Mathematics and Physics
9. Power Transmission Systems
10. Telecommunications

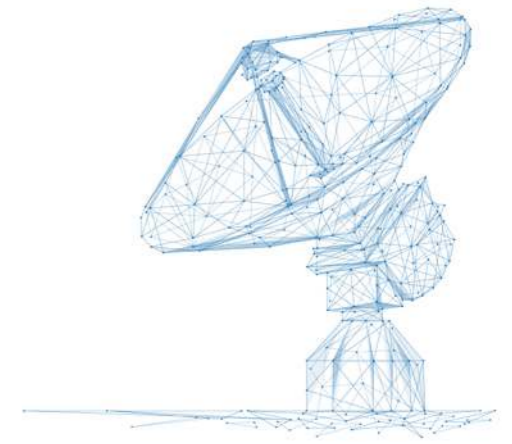




06

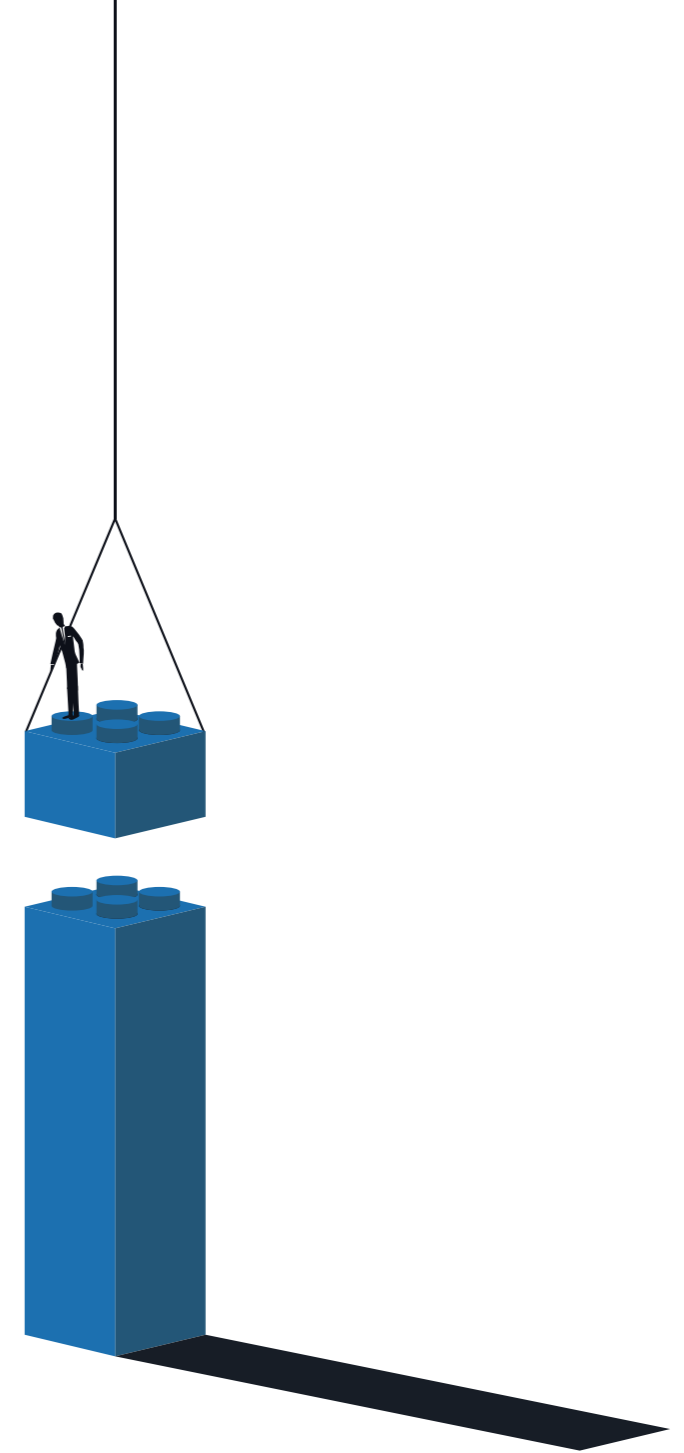
LABORATORIES

1. Automation and System Engineering
2. Electronics
3. Electronic Measurements
4. Signal Processing
5. Electrical Measurements
6. Electrical Machines, Transformers, and Apparatuses
7. Electric Drives
8. Fundamentals of Electrical Engineering
9. Relay Protection
10. Solar Energy
11. Computer Technologies and Engineering
12. Physics
13. High Voltage
14. Power Markets
15. Telecommunications
16. Wireless and Mobile Networks
17. Optical Communications
18. Signal Processing for Communications





07 STUDIES



UNDERGRADUATE STUDIES



Power Engineering, Automation, and Renewable Energy Sources



Power Systems



Power Engineering and Project Management



Computer System Engineering, Automation, and Robotics



Computer Technologies and Engineering



Computer Hardware Engineering and Electronics



Telecommunication and Information Engineering

MASTER STUDIES

25 programmes covering all aspects of modern electrical engineering and information technologies (IT)

Double Degree with Anhalt University



Find out more

PhD STUDIES

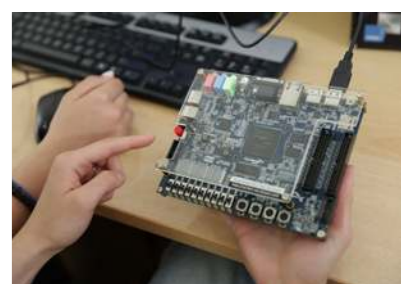
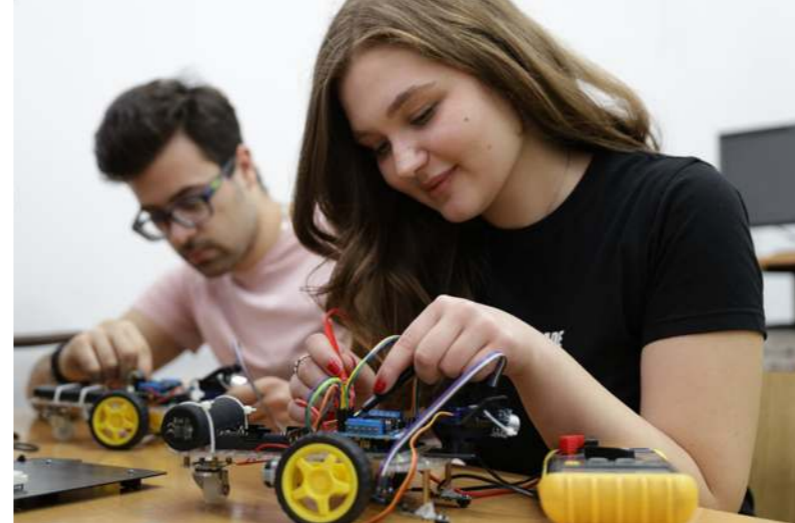
Electrical Engineering and Information Technologies

Metrology



08

STATE-OF-THE-ART
TEACHING & RESEARCH
RESOURCES



LATEST TECHNOLOGICAL TRENDS IN PRACTICE

- Robotics
- Edge computing and embedded systems
- Energy efficiency and sustainable development
- Internet of Things (IoT), Industrial IoT, Artificial Intelligence of Things (AIoT)
- Artificial Intelligence (AI)/Machine Learning
- 5G testbed
- Smart Grids

ACADEMIES

LabVIEW



Palo Alto



Oracle Academy



ICDL/ECDL ACCREDITED TEST CENTER





PHOTOVOLTAIC (PV) INSTALLATION

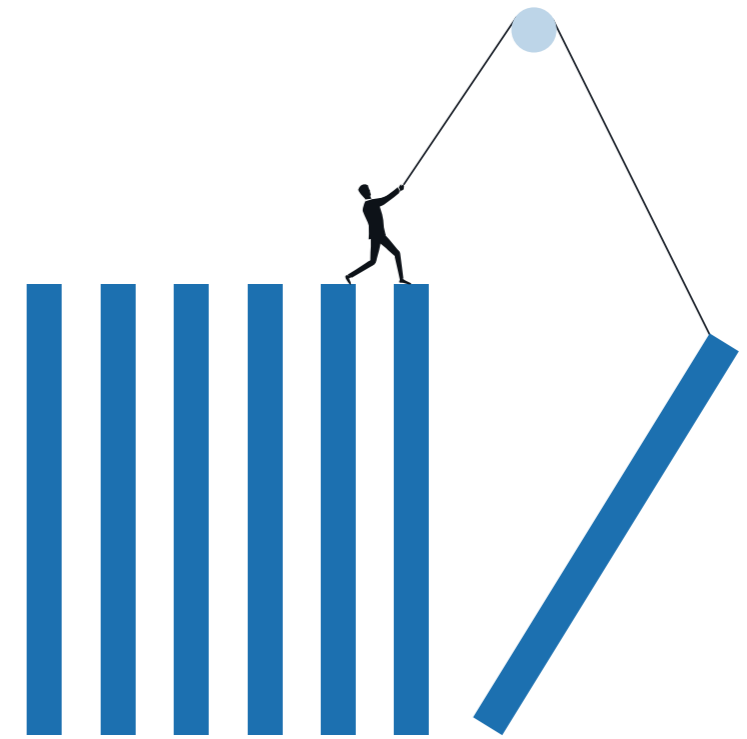
- 28kW for testing and experimentation
- Smart PV with integrated batteries and battery management system (developed in-house)
- Electrical vehicles charger





09

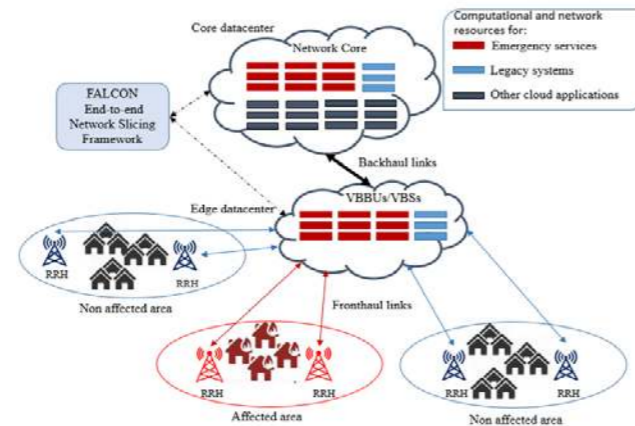
PROJECTS@FEEIT



Browse

FALCON

FALCON considers delivery of wireless communication and server-based (i.e. web-based) services using state-of-the-art concepts in modern communication networks. Specifically, the project aims to develop an agile management system that meets high-level reliability, availability, and service requirements by adapting the communication network in terms of allocation of computing resources (i.e. processor load, RAM memory, etc.) and networking resources (i.e. throughput, number of served users, etc.) based on the underlying conditions. Thus, the resulting communication system/platform will be able to adapt not only to surges in demand (large number of users), but also to emergency scenarios, such as disasters or terrorist attacks.



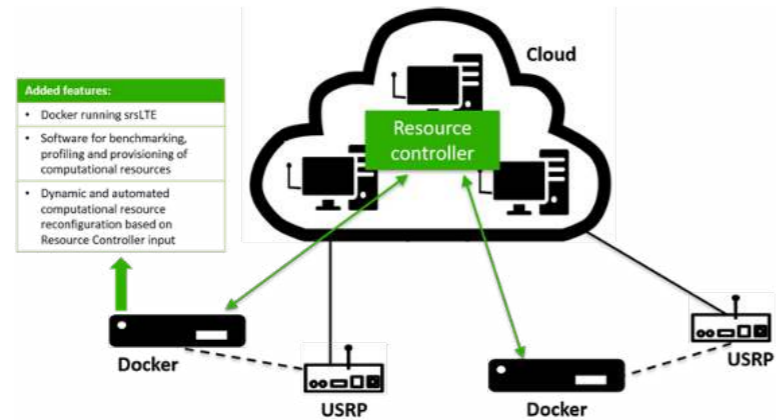
IOT SOLTRACK

The goal of the Project was development and testing of a prototype for a foldable and mobile photovoltaic battery system, designed to be applicable for supplying electrically autonomous systems. The potential application of the product is in the agricultural sector, especially in areas where farmers have no access to the power distribution network needed to supply electric water pumps and other electricity demands.



MAGNUM

MAGNUM focuses on dynamic optimization and computational resource allocation for virtualised container-based 4G deployment. Specifically, it evaluates the effects and topology of a Resource Controller that dynamically allocates the optimal computational resources (CPU and memory), based on the underlying communication resource requirements, in a multi-user, multi-cell, and multi-tenant 4G deployment. The results clearly show the benefits and advantages of virtualised C-RAN compared to conventional RAN, providing valuable insights for future practical deployment.



GROUND PENETRATING RADAR (GPR)

Ground Penetrating Radar (GPR) Integrated to Unmanned Aerial Vehicle (UAV) for Automatic Mine Detection: The project was financed within the NATO Science for Peace and Security Programme. This project investigated methods and strategies for land mine detection using radar technology and UAV. The goal was to develop a low-cost and lightweight GPR using standard radio frequency components and integrate it with a commercially available UAV. Advanced signal processing and machine learning algorithms were developed to detect, localize, and classify underground objects (such as land mines).



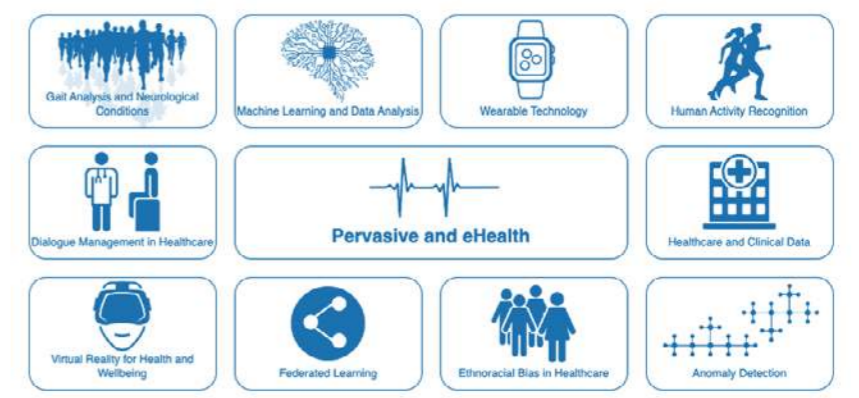
CROSSBOW

The main objective of the project was to propose the shared use of resources to foster cross-border management of variable renewable energies (RES) and storage units, enabling a higher penetration of clean energies whilst reducing network operational costs and improving economic benefits of RES and storage units. Nine products were designed to contribute to the project objective.



WIDEHEALTH

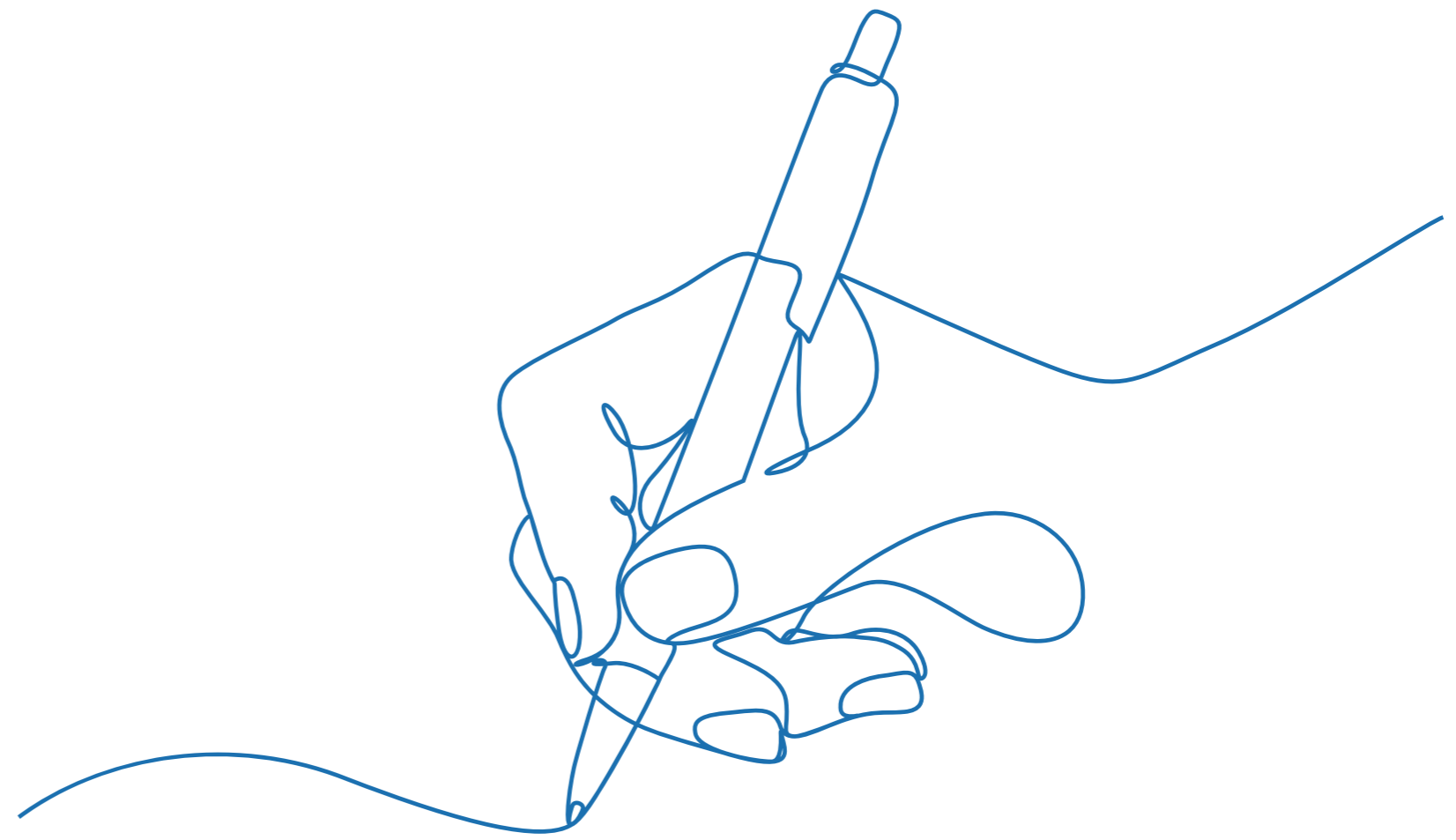
WideHealth is a H2020 TWINNING project. The main goal is to enable a new generation of young researchers in the field of e-health, who will research and find new technological solutions with the help of the latest technologies and artificial intelligence. Within the framework of the 30-month project, 3 international schools, 4 e-health courses (which are publicly available and young people can be educated about e-health), about 20 seminars on topics and about 20 scientific papers were organized. The research and scientific topics covered by the numerous activities of the project include: Machine Learning and Artificial Intelligence, Human Behavior Analysis, Virtual Reality, Sensors, Medical Data Processing, etc.





10

ACCREDITATIONS



ACCREDITED INSPECTION BODY (IT-074)

for electrical devices, installations, and equipment, according to
MKS EN ISO / IEC 17020: 2012

Areas of inspections:

- Low voltage electrical installations, lightning protection systems, and grounding
- Grounding of electrical power systems with rated voltage over 1000 V
- Resources for safety work in power stations
- High voltage equipment: electric generators, motors, power transformers
- High voltage equipment: measurement transformers
- Electrical protection of power equipment
- Measurement of electromagnetic fields
- Telecommunications
- Fiscal devices and systems, electronic information, and communication equipment
- Examination of electromagnetic interference of electrical equipment.



Accreditation document

FEEIT ACCREDITED LABORATORIES

according to MKS EN ISO/IEC 17025:2018

Laboratory for Electrical Measurements (LEM)

Accredited laboratory for calibration of instruments for electrical quantities, energy, and power (accreditation no. LK-012)

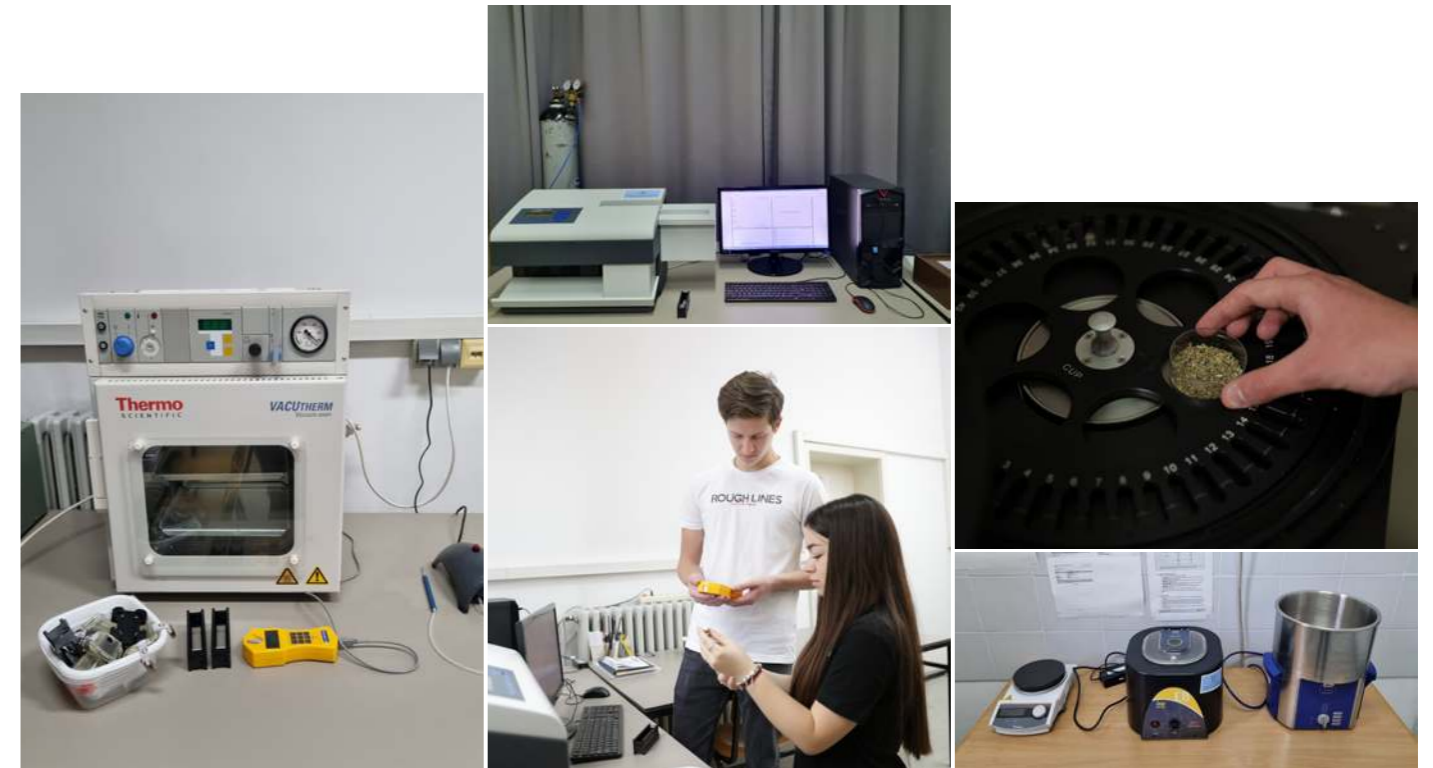
Find out more



Radiation Physics Laboratory (RAD-LAB)

Accredited laboratory for detection of irradiated food, assessment of personal dose equivalent of ionizing radiation, and measurement of ambient dose equivalent of ionizing radiation (accreditation no. LT - 099)

Find out more





11 INNOFEIT

INNOFEIT



- Autonomous legal entity under UKIM/FEEIT's ownership, established and opened in 2018
- Central point for technology transfer and research hub for FEEIT's R&D
- Improve, enhance, and stimulate knowledge transfer from academia to existing and new innovative companies
- Facilitates the commercialisation of developed technology
- The only fully operational Digital Innovation Hub in N. Macedonia specialising in AIoT and energy efficiency
- The only regional candidate for becoming a Centre of Excellence – a roadmap developed by European Investment Bank in 2018



12 FEEIT FABLAB

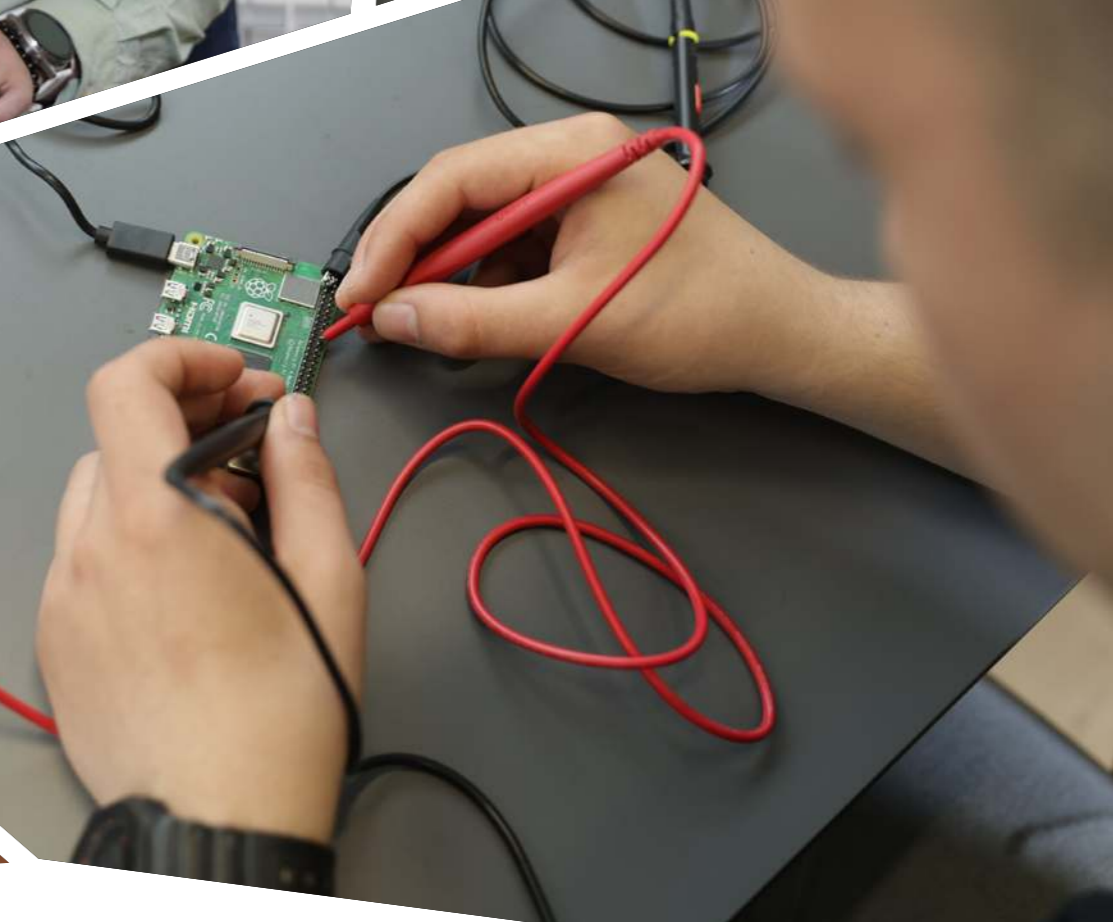
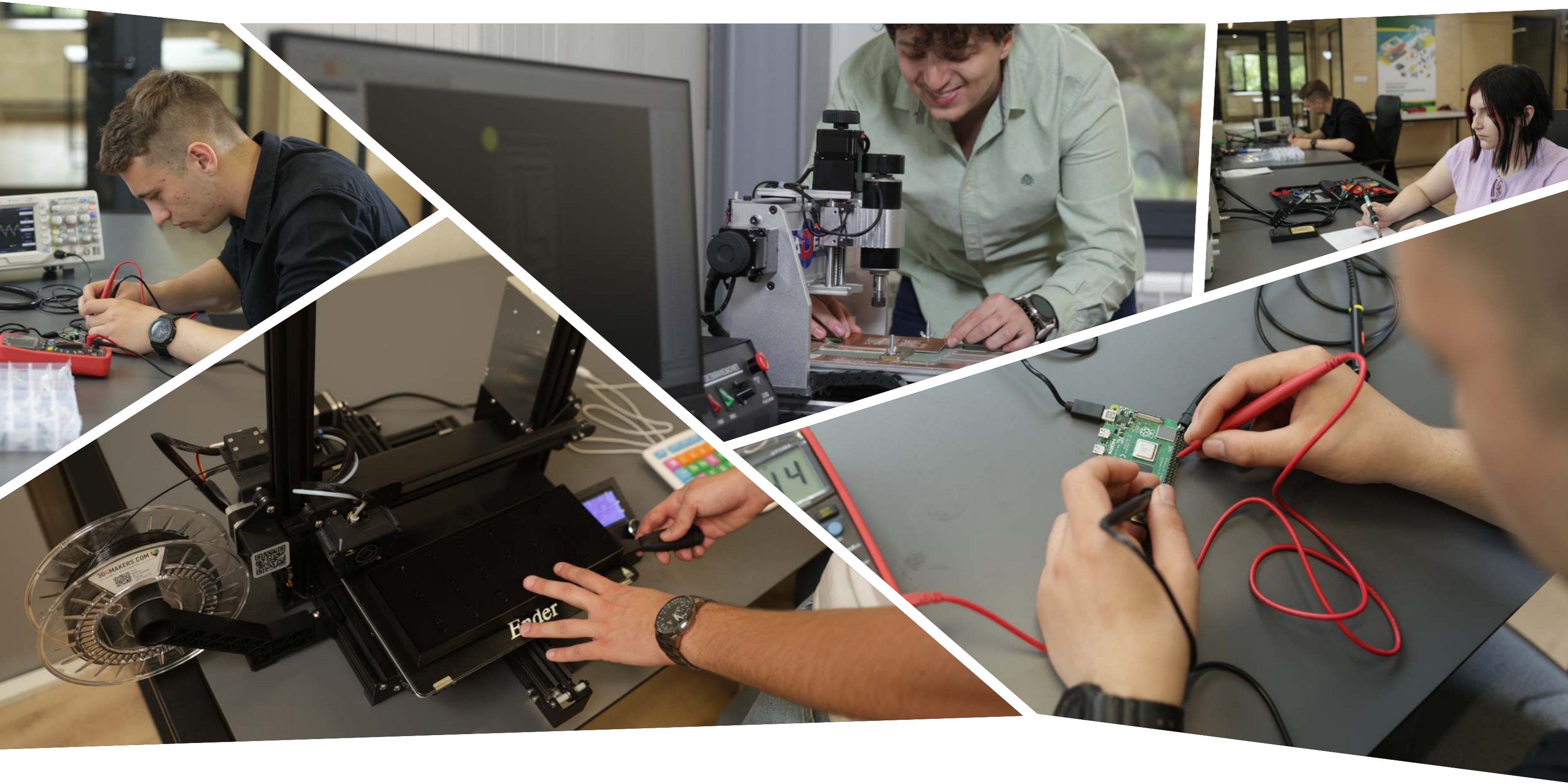
FEEIT FabLab



FEEIT FabLab

Our mission is to foster a culture of hands-on learning, collaboration, and innovation in the fields of engineering and technology. We aim to empower individuals, especially young people, with the skills and tools they need to bring their ideas to life, while also bridging the gap between academia and industry.

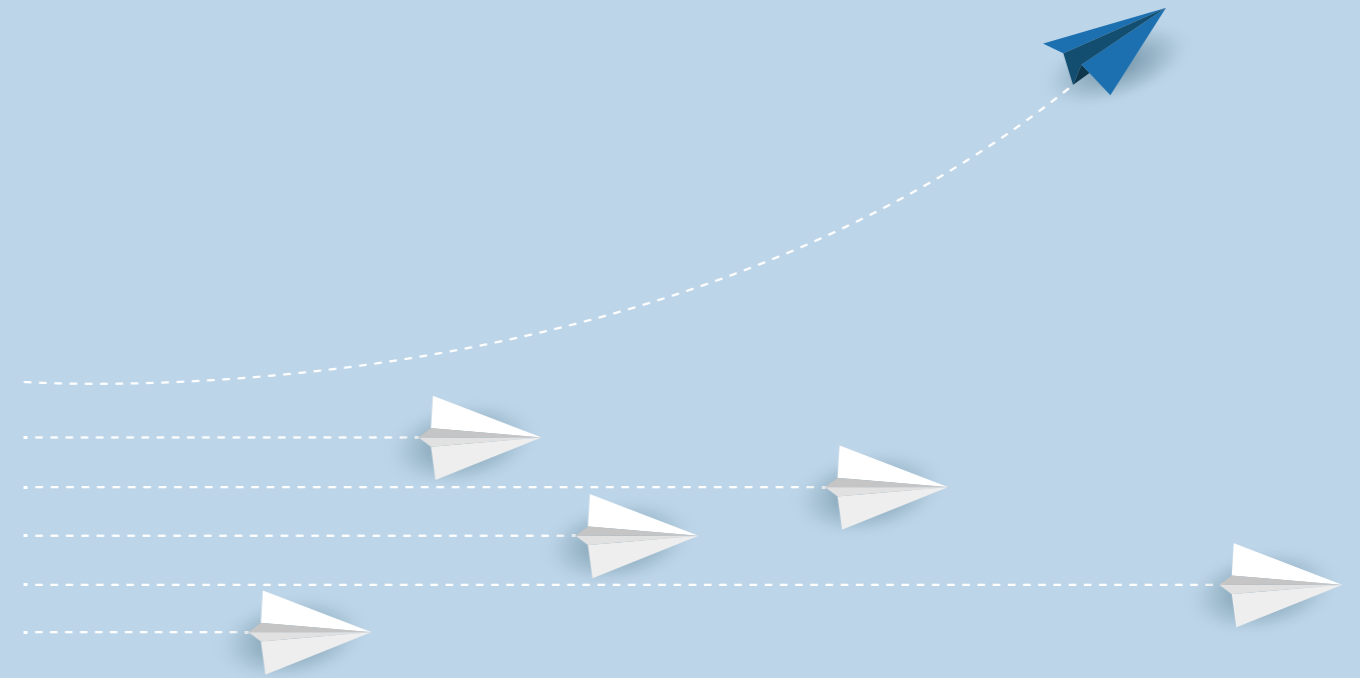
- Access to professional mentoring from experts in their respective fields
- Organisation of a wide range of schools and workshops covering cutting-edge topics and technologies, designed to enhance skills, competences, and experiences with the latest hardware and software tools
- Hosting of competitions that challenge individuals and teams to create original solutions
- Access to state-of-the-art hardware and software resources
- Fostering collaborations with industry





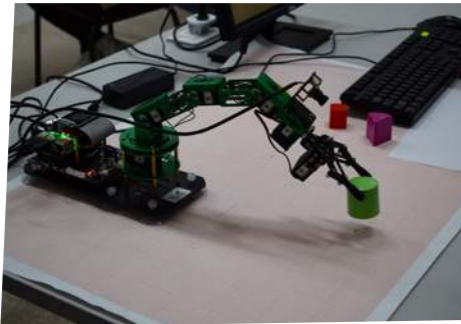
13

**STUDENT COMPETITIONS
AND CONFERENCES**



RoboMac

RoboMac is the premier student competition in N. Macedonia for robotics, automation, electronics, and AI. Co-organised by FEEIT, it has already established itself as a well-known brand in the region, attracting more than 100 participants each year from the country and abroad.



Tech4You

Tech4You is a competition co-organised by FEEIT targeting high-school students. It focuses on boosting their potential to study electrical engineering and information technologies.



SCEESD

SCEESD is a student conference in energy efficiency and sustainable development, established more than 10 years ago. It serves as a platform for students to showcase their scientific potential in the development of "green" solutions.



Science@FEEIT

Science@FEEIT is a student conference organised on various topics that attracts participants from the region. Organised by FEEIT's Students Assembly, it showcases the students' inherent potential for STEM disciplines.



14 SPORTS & FUN



Sport@FEEIT

Peak2Peak is FEEIT's informal group of sport enthusiasts who regularly run, hike, and cycle. The group gathers professors, assistants, students, and alumni members and participates in all major recreational sport events in the country.



Fun@FEEIT

Freshmen party. FEEIT students know how to have fun. Their party each October is known country-wide for being the best freshmen party.



15 CENTERS & PROGRAMS

Centre for lifelong learning

- Provision of short-term courses on topics of interest
- Testing centre for computer literacy
- Organisation of summer/winter schools for students and experienced professionals to gain additional knowledge

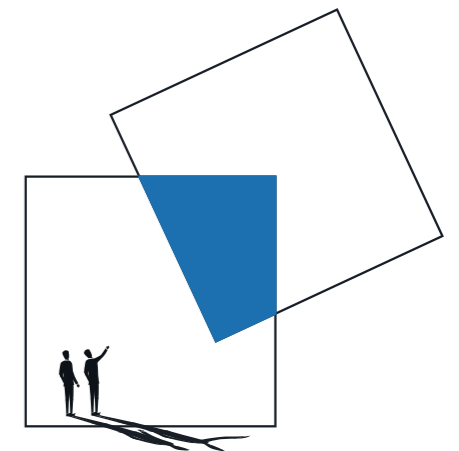
Career centre

- Career guidance for current and prospective students
- Helping students transition from an academic to professional environment
- Nurturing permanent bonds between the students and the business community
- Promoting the faculty in the wider community

Partnership programme

- Recognition of the faculty's partners and donors
- Close relations with industrial partners in terms of curricula development, students' internships, and theses definition
- Support in mutual activities and events

Find out more



65 YEARS

OF EDUCATIONAL & SCIENTIFIC EXCELLENCE





visit us at:



feit.ukim.edu.mk



facebook.com/feit.ukim.edu.mk



contact@feit.ukim.edu.mk