University POLITEHNICA of Bucharest

Faculty of Energy Engineering

313 Splaiul Independentei, EH Building, District 6

www.energ.upb.ro

Faculty of Energy Engineering was established in 1950, at the initiative of Professor Constantin Dinculescu. It consisted of two chairs:

- Chair of ***Power Plants and Electrical Networks***, chaired by Prof. PhD. Constantin Dinculescu
- ***Hydropower*** Chair, led by Prof. PhD. Dumitru Dumitrescu

Professor Oscar Kreindler was appointed dean of the Faculty of Energy Engineering.

Deans of the Faculty of Energy Engineering

Oscar Kreindler
1950-1956

Ion S. Antoniu
1956-1957

Marius Preda
1957-1963

Gleb Drăgan
1963-1971

Alexandru Diacon
1971-1980

Ion Iordănescu
1980-1984

Julieta Florea
1984-1990

Dumitru Cezar Ionescu
1990-2000

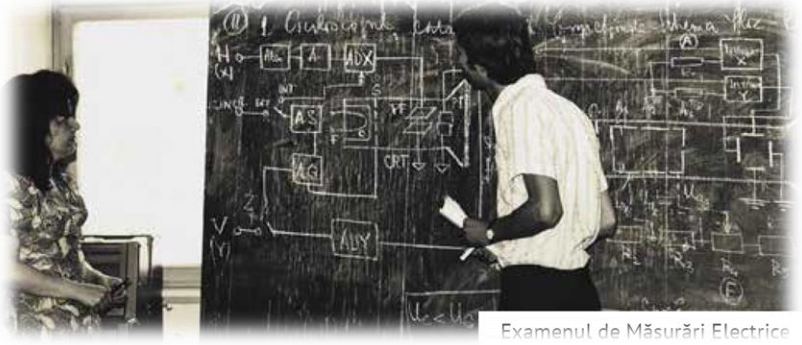
Adrian Badea
2000-2006

Gabriel Bazacliu
2006-2008

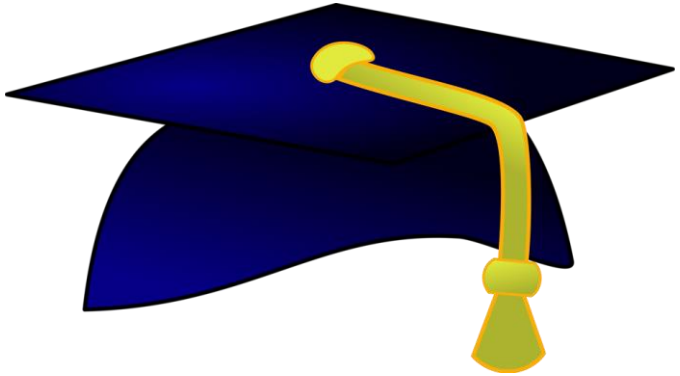
George Darie
2008-2012

Constantin Bulac
2012-2016

Horia Necula
2016-2020



Examenul de Măsurări Electrice



Specializations offered by Faculty of Energy Engineering in 1954

Full time (five years) for specializations:

- Electric Power Engineering
- Hydropower Engineering
- Thermal Power Engineering

Evening classes (six years) for specialization
Electric Power Engineering

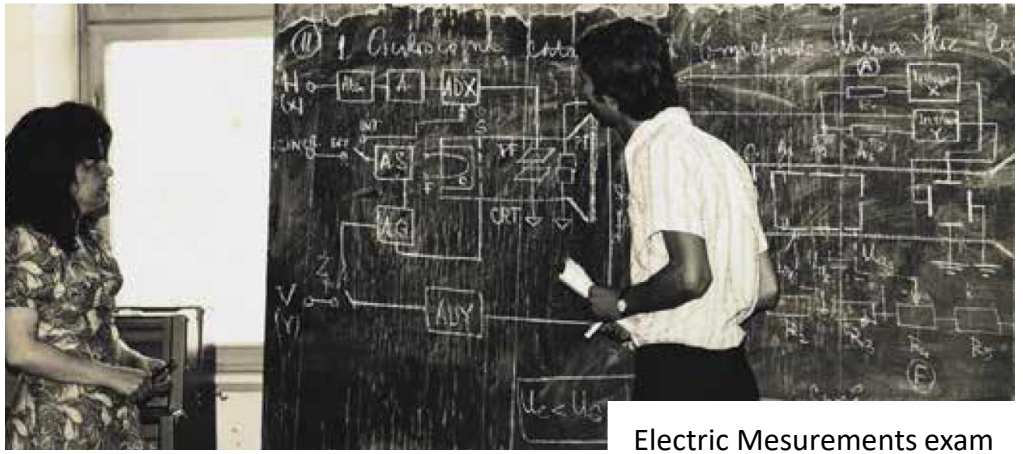
Classes without attendance (six years) for specializations:

- Electric Power Engineering
- Thermal Power Engineering

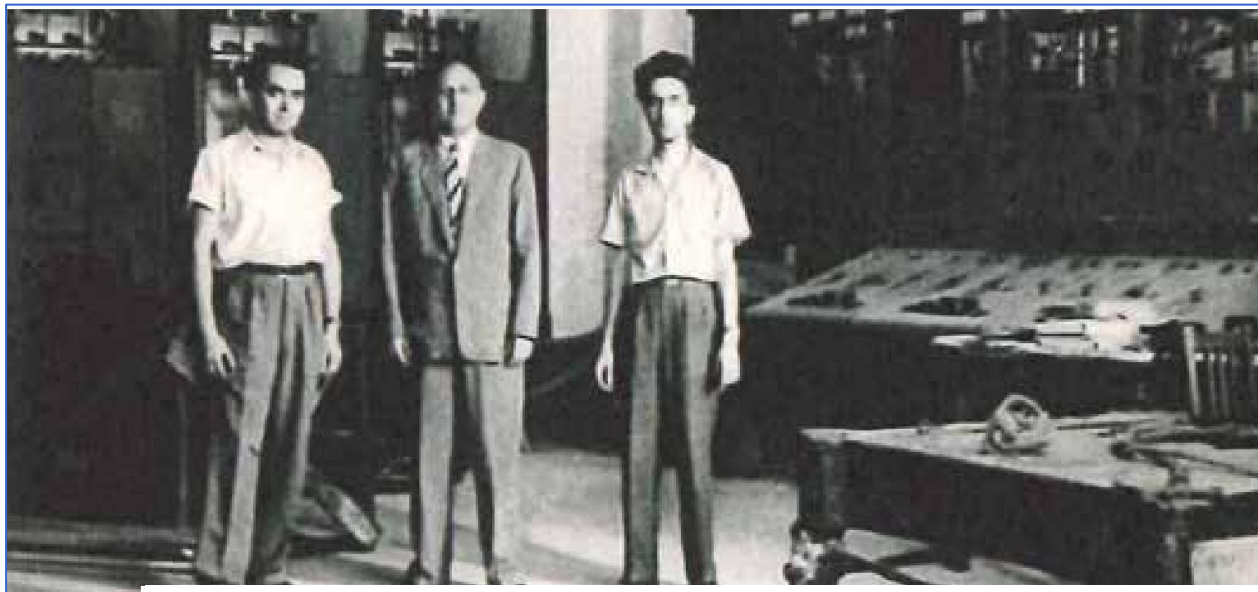
The first energy engineers graduated in 1955.

In 1954, the first laboratories were developed in Polizu, the old university's campus:

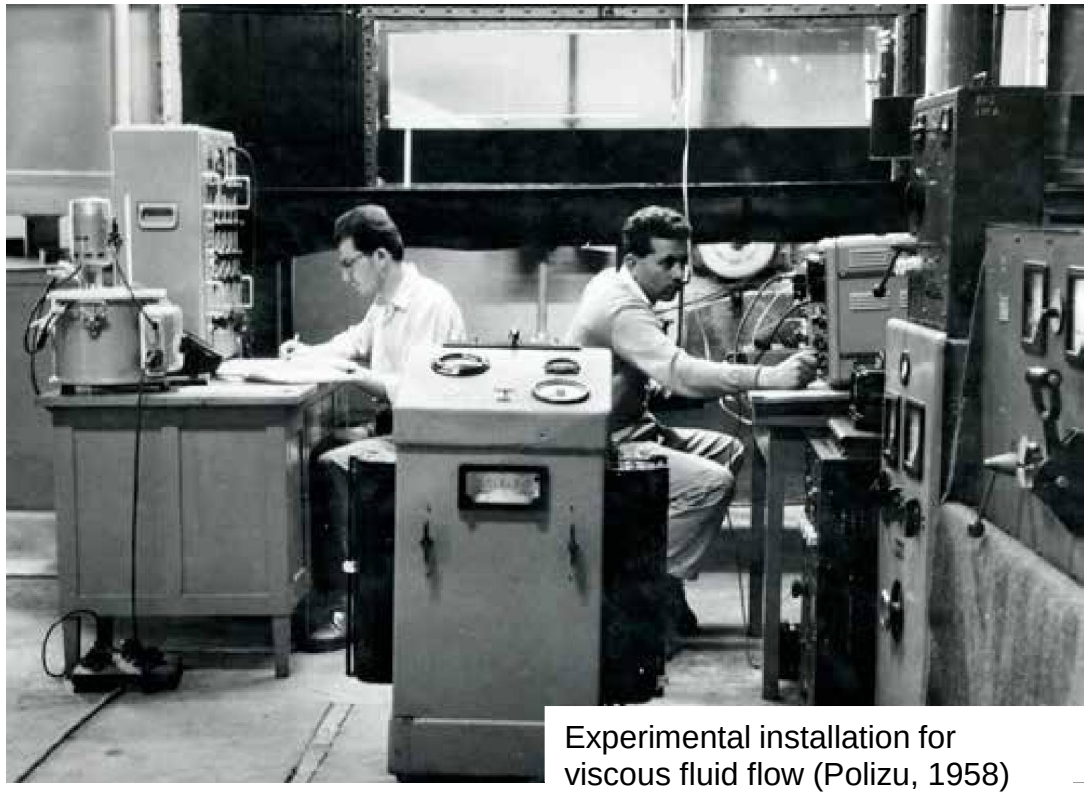
- ***Electrical Part of Power Plants and Substations***
- ***Electrical Networks and Systems***
- ***High Voltage Technique***
- ***Thermal Networks and Pipes***
- ***Hydraulics and Hydraulic Machinery***



Electric Mesurements exam



Professor Constantin Dinculescu in the *Laboratory of electrical Part of Power Plants and Substations*, during the commissioning works (1960)



Experimental installation for viscous fluid flow (Polizu, 1958)

In 1962, the first practical works of students began in the *High Voltage Technique Laboratory* in the M building of the old university's campus.

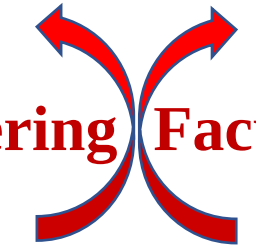
Rector Constantin Dinculescu on the construction site of the *High Voltage Technique Laboratory* in Polizu, 1960

Laboratory of the Electrical Part of Power Plants and Substations - a dynamic model of a unique power system at national and European level, built on an industrial scale, but with teaching facilities.

Laboratory of the Electrical Substations and Transformer Stations – Polizu campus

In 1967, ***Nuclear Power Plants*** specialization was established within the Faculty of Energy Engineering.

Faculty of Energy Engineering



Faculty of Electrical Engineering

In 1956, the Faculties of Electrical Engineering and Energy Engineering merged into a single faculty called the Faculty of Electrical Engineering and Energy, in order to ensure a better correlation in the training of specialists for the design and construction of equipment for the energy sector.

In 1959 the two faculties splitted.

In 1986 the two faculties reunited.

In 1990 they splitted again.

Faculty of Energy Engineering

In 1962, the specialization in Automatic Control was approved within the Faculty of Energy Engineering.

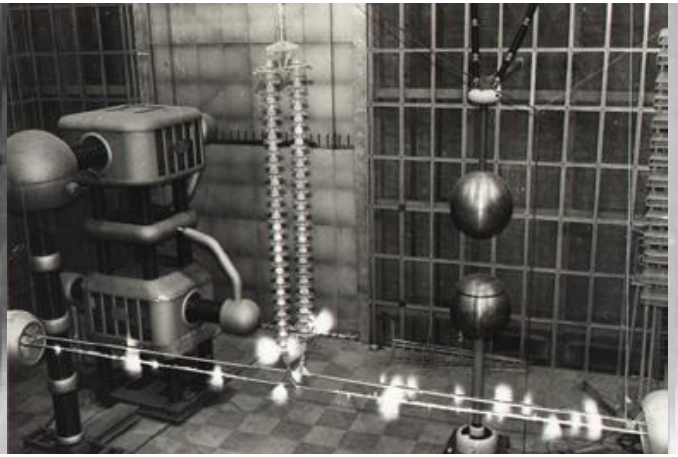
Faculty of Automatic Control and Computer Science

In the academic year 1966-1967 it was decided to establish the 10th faculty of the Polytechnic Institute of Bucharest - Faculty of Automatic Control and Computer Science, by taking over the specialization of Automatic Control from the Faculty of Energy Engineering and a chair from the Faculty of Electronics and Telecommunications.

Through the efforts of the rector Constantin Dinculescu, the final approval for the construction of the New Campus of the Polytechnic Institute of Bucharest was obtained.

On June 28, 1965, it opened in Splaiul Independenței, no. 313, the construction site for the construction of the largest higher education campus in the country, the new headquarter of the Polytechnic Institute of Bucharest.

In the academic year 1969-1970, the move to the new headquarter and the organization of activities in the new conditions began .



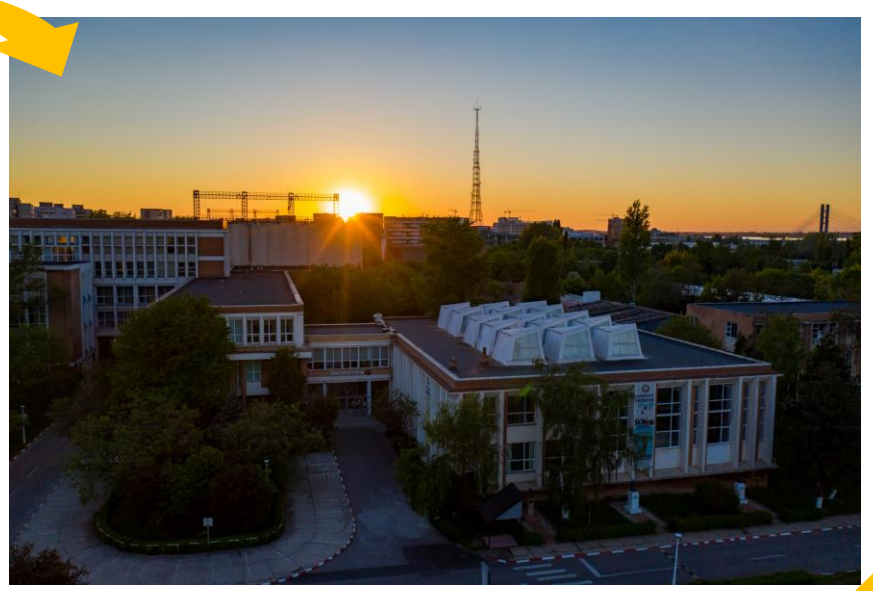
Tests on 400 kV electric lines

1967 – university's collaboration with PNUD UNESCO

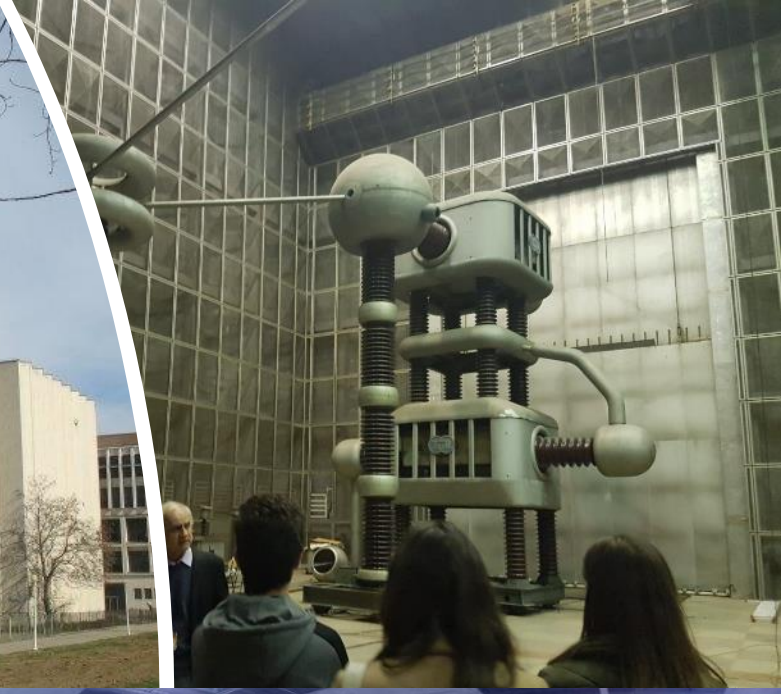
- partial financial support for the realization of the *High Voltage Technique Laboratory*
- the deployment in Bucharest, for consulting, of some recognized specialists in the field of high voltage technique
- awarding scholarships to young professors for one year at universities or research units specializing in high voltage technique in Europe

Training courses for young teachers, as well as the presence of valuable specialists from the universities of Zurich, Aachen, Lausanne, Bangalore have contributed not only to the development of HVT knowledge but also to the beginning of important scientific collaborations with Western European research centers, such as EdF and the University of Leeds.

In 1973, through the efforts of Professor Alexandru Diacon, the design works of the ELa building began, which included the laboratories of the Department of Hydraulics and Hydraulic Machinery, but also laboratories of the Nuclear Power Plant specialization.



High Voltage Technique Laboratory



- It is the largest university laboratory in the country in this area of specialization, grouping industrial type test facilities, used for teaching, research and industrial testing purposes.
- For beneficiaries in the country and abroad, dielectric tests were performed for insulator chains, switching equipment, protection equipment.

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Laboratory for Producing Electric and Thermal Energy

(Thermal Power Plant UPB - CET Laboratory)

- CET – UPB it was originally put into operation in 1975 and has been operating in cogeneration since 2010.
- It is a set of industrial facilities for educational, research and production purposes.
- The laboratory is equipped with all the representative installations of a modern thermal power plant, including: the control room, the boiler room and the engine room.
- The delivered electrical and thermal energy covers the needs of the University POLITEHNICA of Bucharest.

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Platform „Renewable Energy Sources and Sustainable Development”

Opened in 2008, the laboratory is intended for teaching and research activities related to:

- Thermal-physical-chemical characterization of solid and liquid fuels and thermogravimetric analysis of solid fuels
- Production of bio-oils for biofuels
- Combustion / Pyrolysis / (Vapor) - Gasification experiments in continuous and batch reactors and determination of flue gas composition
- CO2 capture processes with different types of solvents and under different process conditions, including modeling and simulation

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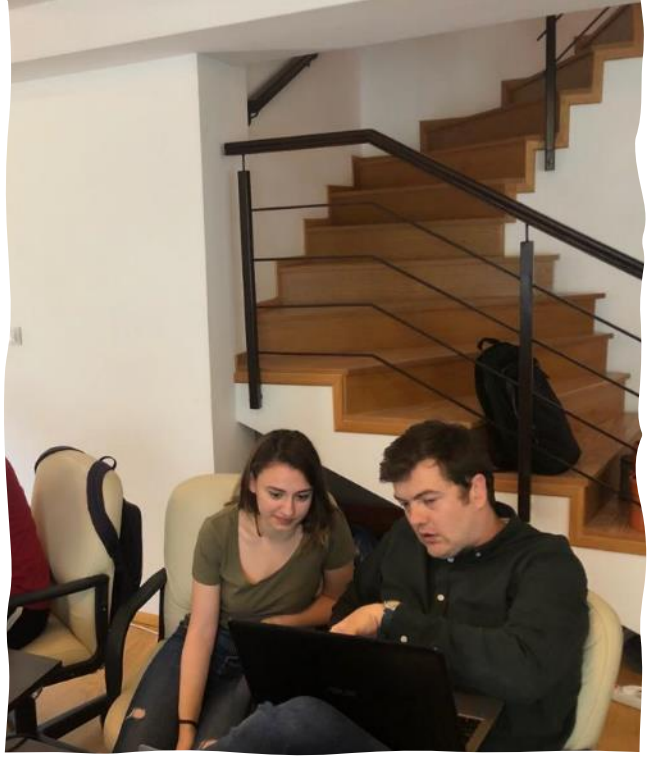

Passive House

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- inaugurated in 2010 - project of the Faculty of Energy Engineering that aimed at building two houses in the mirror, which meet the standards of passive houses
- The East Passive House Laboratory has an HVAC system consisting of an air-to-air heat recovery system and a ground-to-air heat exchanger. In addition, the laboratory is equipped with a solar thermal panel and an off-grid solution composed of 13 photovoltaic panels.
- The East Passive Laboratory is equipped with a monitoring system consisting of 25 wired and wireless sensors, which monitor the parameters of environment, energy, air quality and comfort.
- In addition to understanding how a monitoring system works and testing each component, students will use ML algorithms to process data and gain new knowledge.

Laboratorul Electrical Part of Power Plants and Substations (ABB, Siemens sponsorships)

- This laboratory is a dynamic model of a unique power system at national and European level; on the design and construction of the laboratory, as well as subsequent developments, have contributed, along with professors of the Faculty of Energy Engineering, many specialists in the design and operation of the National System of Electric Power.
- The system consists of: 5 power sources (4 synchronous generators of 15-20kVA and a connection to National Power System) and 29 medium voltage cells of different types, grouped in 5 power stations.

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Renewable Sources Laboratory (EM building)

The laboratory is intended for teaching and research activities related to:

- capture and conversion of energy from renewable sources, mainly wind, solar, hydraulic and wave and geothermal respectively
- the use of hydrogen energy obtained by non-polluting processes, unconventional energies such as vibration, bioenergy or energy recovery systems.

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SCADA Laboratory (Transelectrica, Siemens Energy Romania, Siemens Romania, Eneroptim sponsorships)

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- The laboratory is equipped with control equipment and with numerical protections typical for the high voltage power stations of the National Energy System (SEN).
- The protection equipment is connected to the BCU type command-control equipment, virtually creating a mini-electrical station "UPB" with two voltage levels: 220 and 110 kV

Laboratorul de Optimization and Energy Market

(Crystal System sponsorships)

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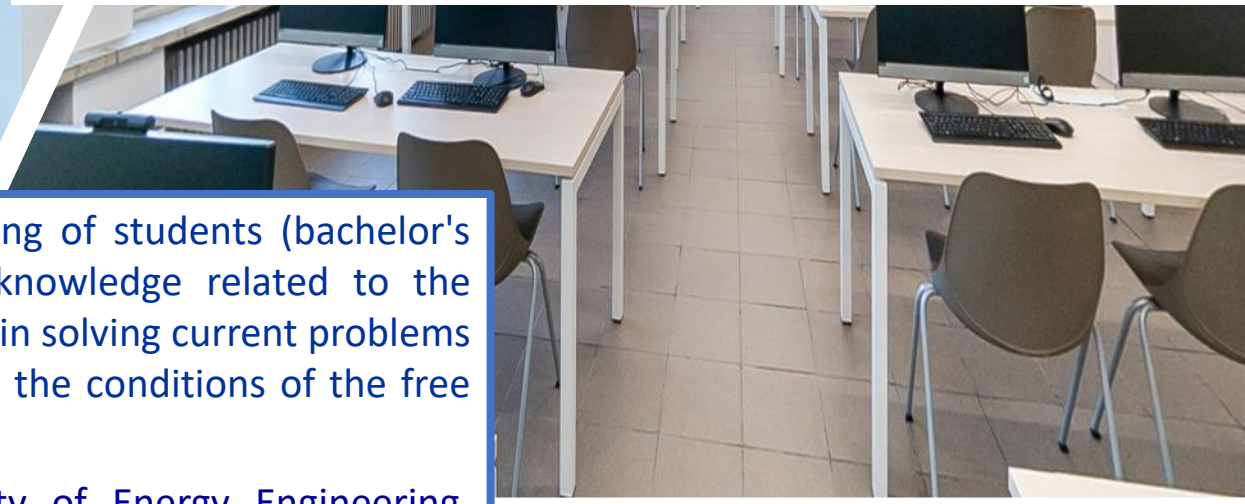

- The laboratory is used in the training of students (bachelor's and master's studies) to acquire knowledge related to the application of optimization methods in solving current problems of the national power system under the conditions of the free energy market.
- In its cooperation with the Faculty of Energy Engineering, Crystal System has trained over 2000 students in digital technologies free of charge: «IT FOR NON-IT», «Building Information Modelling: Introduction and Practice», «DATA SCIENCE», «IT for All»

Crystal System will always support students in the Faculty of Energy Engineering on their path to a digital career or, as Albus Dumbledore put it in the famous Harry Potter movies: "Help will always be given by Crystal to those who ask for it."

Laboratory of Microprocessors and Electronic Circuits
(Honeywell, Optic SWD, Compuware Systems sponsorships)

The main purpose of the laboratory is to teach fundamental concepts that underlie the use of microprocessor systems. Thus, the laboratory focuses both on the development of software programs and on the understanding of current architectures based on microprocessors and microcontrollers.

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Laboratory of Electrical Energy Use and Power Quality

- This laboratory is intended for teaching and research activities as well as industrial (or residential) testing required by various companies involved in the fields of energy efficiency and electricity quality.
- The laboratory is equipped with micro-models that represent on a small scale industrial type equipment, capable of producing electrical regimes specific to industrial (or residential) receivers, used to test the behavior of the electrical network in the presence of disruptive electrical equipment.

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Hydraulic machines are extremly important in almost every field of engineering. They use the energy of the fluid to produce electricity or to perform various actions.
The Hydraulic Machinery Laboratory carries out teaching and scientific research activities in the field of energy engineering for the study of the energetic and cavitation operation of the different types of pumps for clean water and wastewater, as well as the operation of the hydraulic turbines.

Laboratory of Hydraulic Machinery

(WILO Romania, Multigama Service, Valrom, RAJA Constanta sponsorships)

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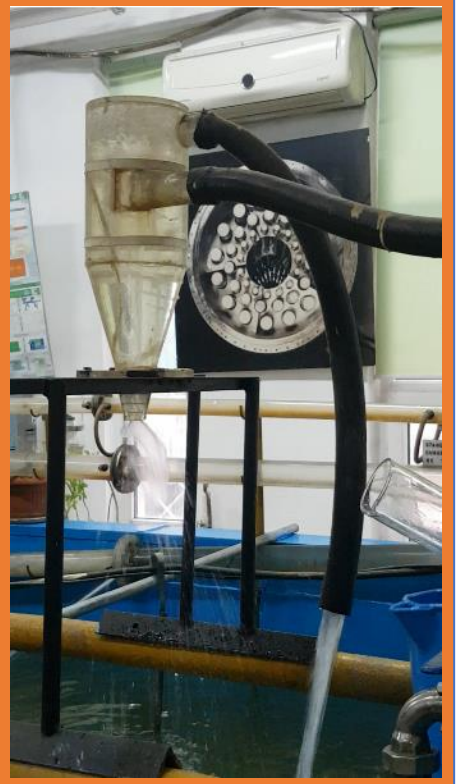

The laboratory is intended for teaching and research activities related to:

- water and wastewater treatment: automatic optimization and control of processes, energy efficiency in the urban water cycle, reuse of gray wastewater, capture and use of rainwater, energy recovery from wastewater and sludge
- study of gas-solid and liquid-gas multiphase fluid flow
- software for Python programming, modeling and simulation of water and wastewater treatment processes and multiphase flows with FlexPDE, EPANET, STOAT, CapdetWorks and BioWin

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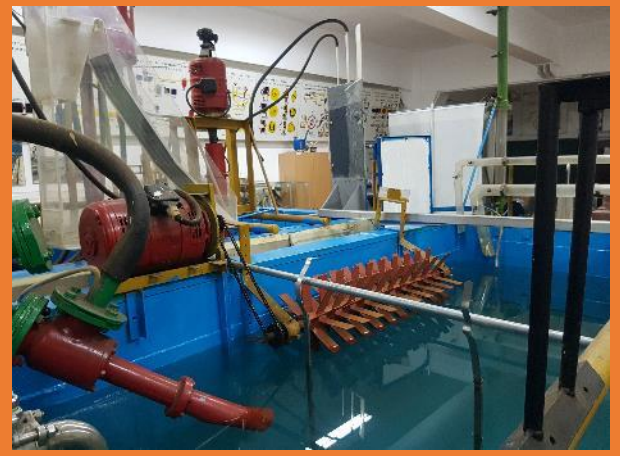
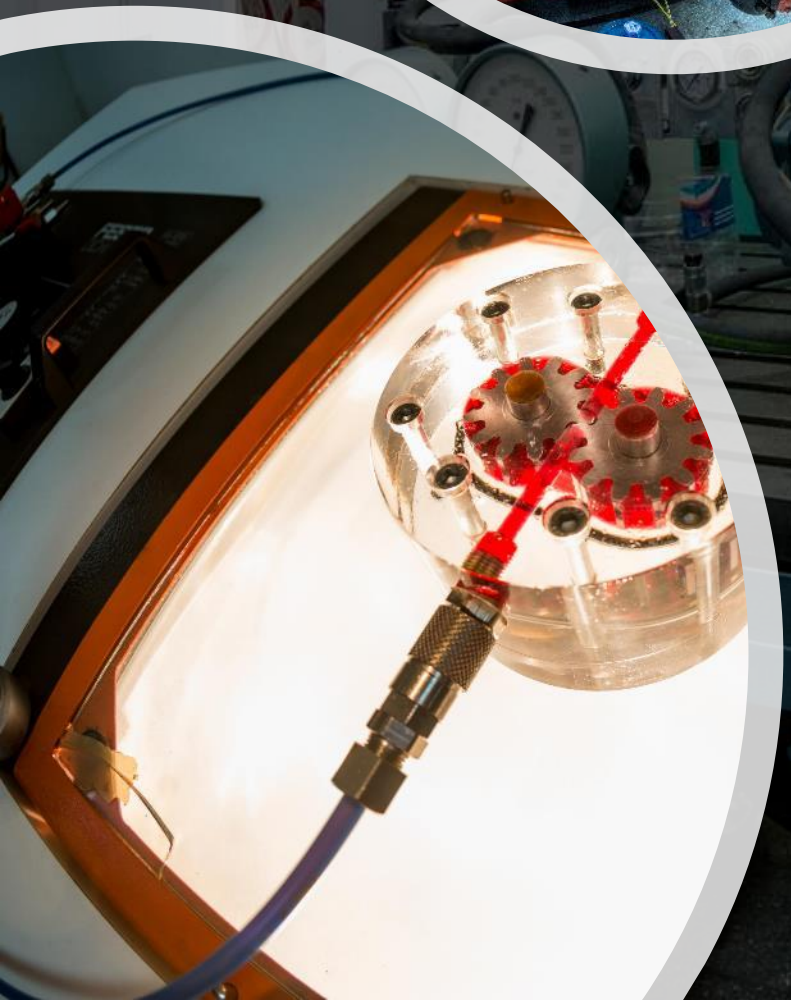


Laboratory for Multiphase Fluid Dynamics. Water and Wastewater Treatment



Laboratory of Fluid Power Systems

The laboratory has modern experimental data acquisition systems that allow the testing and simulation in real time of complex automatic electrohydraulic systems, testing of electrohydraulic equipment included in the control systems of hydro units, wind turbines, steam turbines, road vehicles, aircraft, being associated with SIEMENS profile laboratories.

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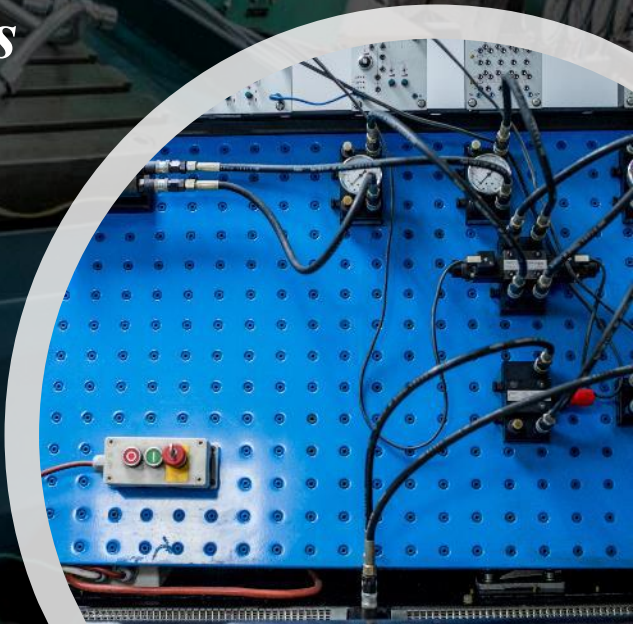

Laboratory of Fluid Mechanics

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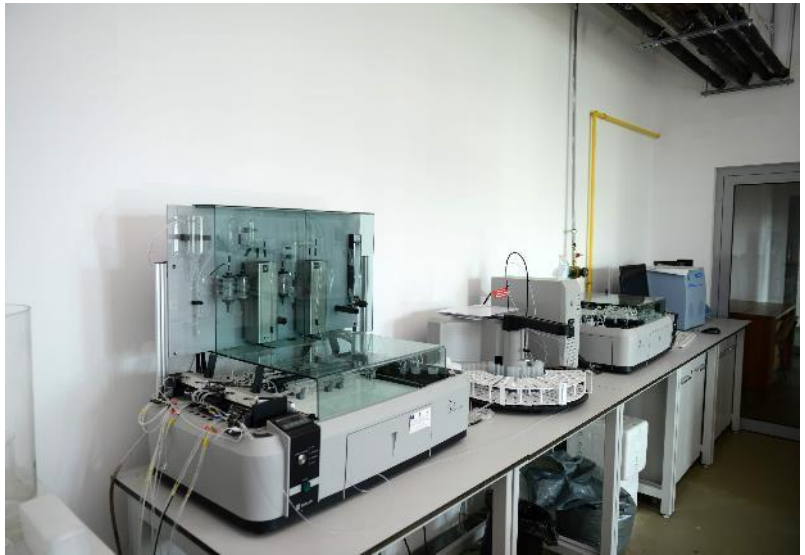
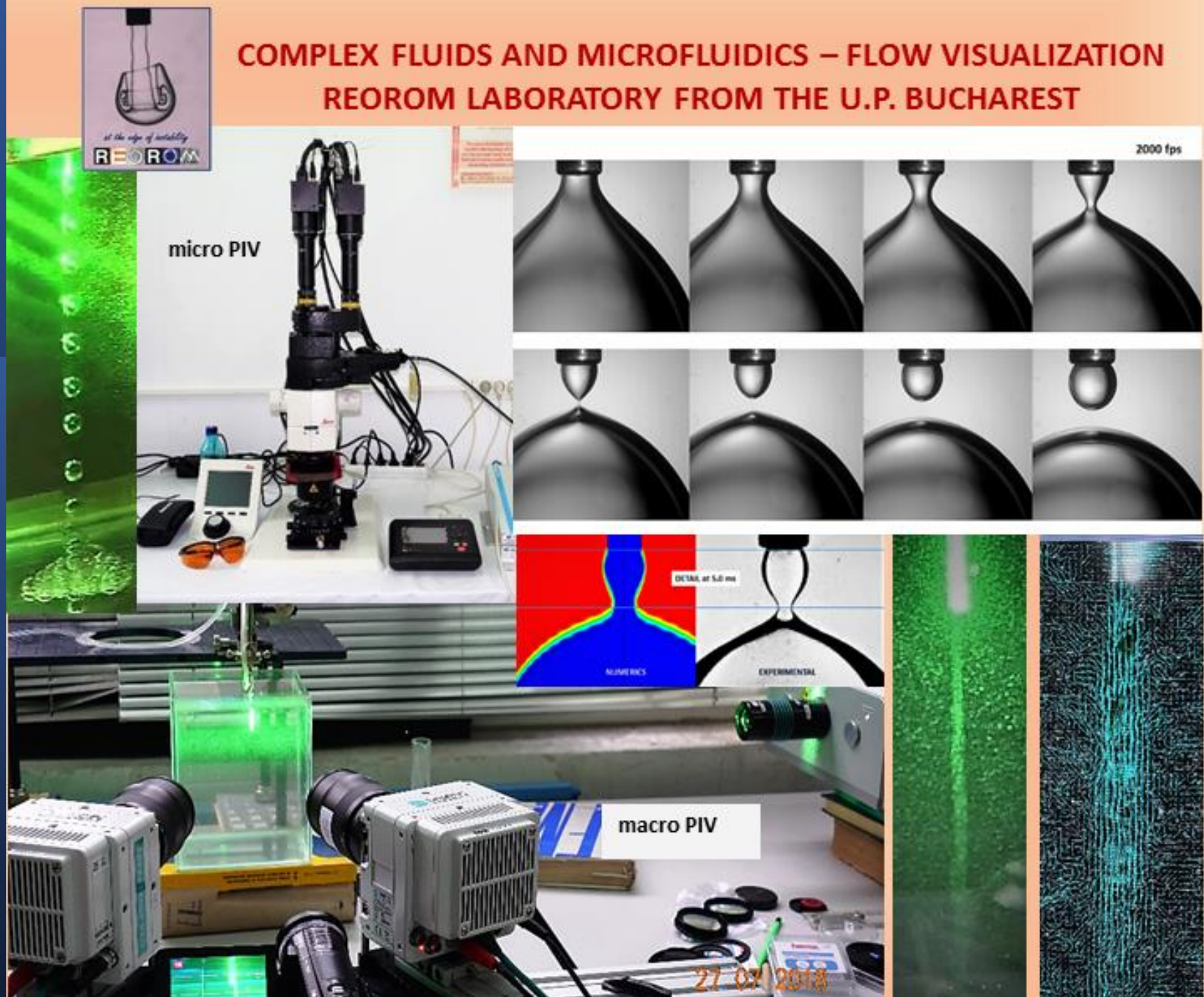
This laboratory is used for the students' teaching courses of Fluid Mechanics, respectively Fluid Mechanics and Hydraulic Machinery (second and third years of undergraduate studies), as well as the scientific research activity, with the participation of master's and doctoral students.



Laboratory for Air and Soil Quality Modeling for Risk and Impact Assessment

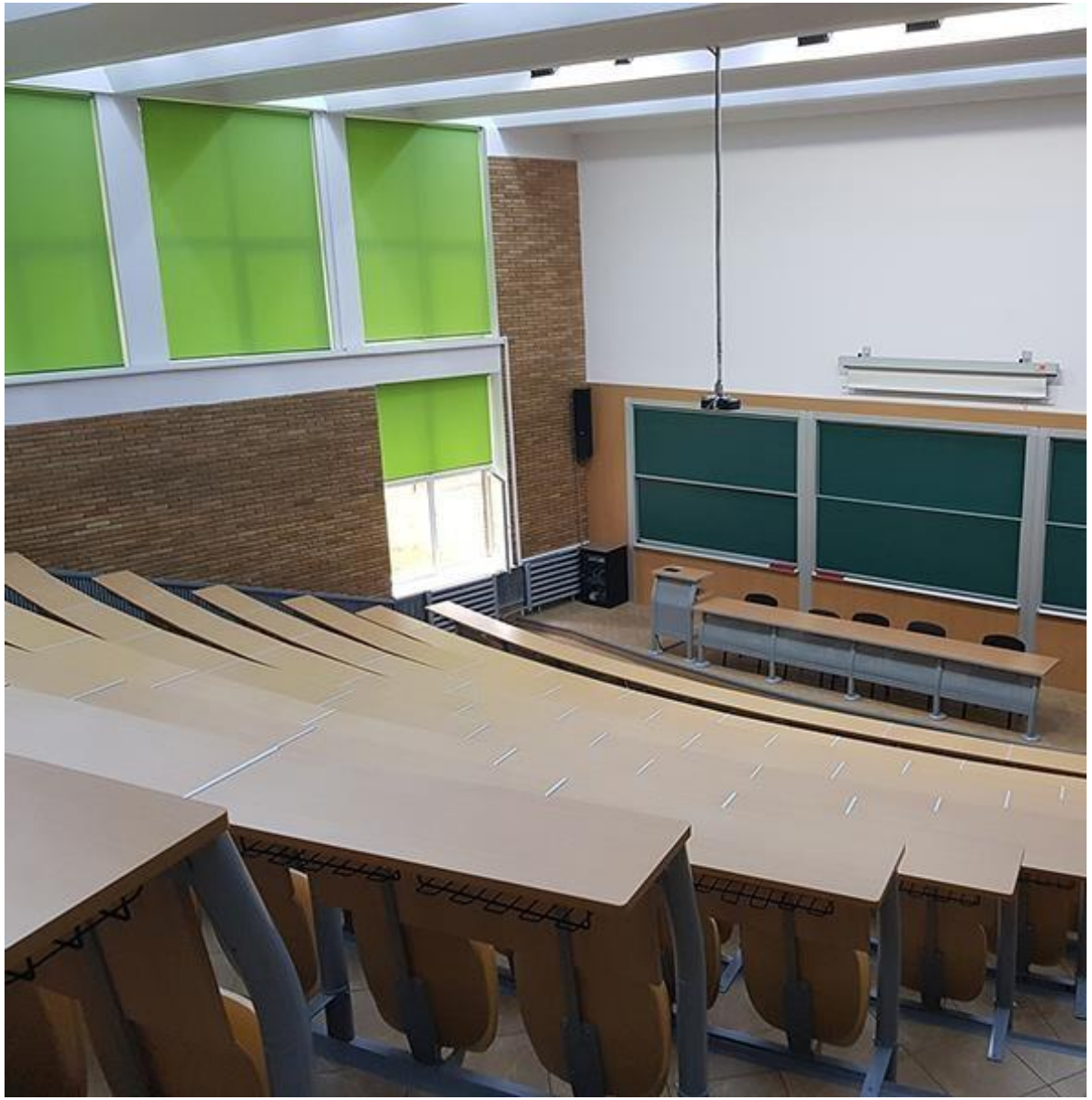
http://campus.pub.ro/website/soil-contamination-analysis-control-and-remediation

REOROM Laboratory – Complex Fluids and Microfluidics



Faculty Council Room, EH 017

Amfitheater EC 104



University studies in the Faculty of Energy Engineering are organized in three-cycle system:

BACHELOR - 7 specializations, all in Energy Engineering domain, 8 semesters, minimum 240 ECTS

MASTER - 11 programe (9 in Energy Engineering domain, 1 in Environmental Engineering domain and 1 in Engineering and Management domain), 4 semesters, minimum 120 ECTS

DOCTORAL studies - within the Doctoral School of Energy Engineering

Bachelor studies

1950
- *Electric Power Engineering*
- *Hydropower Engineering*
- *Termal Power Engineering*

1967
- *Nuclear Power Plants*

1972
- *Industrial Energy Engineering*

1990
- *Engineering and Environmental Protection in Industry*
- *Applied Informatics in Energy Engineering*
- *Economic Engineering*

2005
- *Electrical Power Systems Engineering*
- *Energy Management*
- *Energy and Nuclear Technology*
- *Industrial Informatics*
- *Engineering and Environmental Protection in Industry*
- *Economic Engineering in the Electrical, Energy and Electronic Fields*

2017
- Energy and Environmental Engineering

2018
- Energy and Informatic Technologies

2021
- Energy and Fluid Engineering
- Energy and Informatic Technologies
- Energy and Environmental Engineering
- Energy and Nuclear Technology
- Electrical Power Systems Engineering
- Energy Management
- Thermal Power Engineering

Master's studies

Energy Engineering

- Energy Efficiency
- Energy for Smart Cities
- Hidro-informatics and Fluid Engineering
- Applied Informatics in Power Engineering
- Nuclear Engineering
- Monitoring and Control of Electrical Power Systems
- Energy Services
- Renewable Energy Sources
- Energy engineering (in English, in collaboration with the Faculty for Teaching in Foreign Languages)

Environmental Engineering

- Environmental Management and Sustainable Development

Engineering and Management

- Energy Systems Management

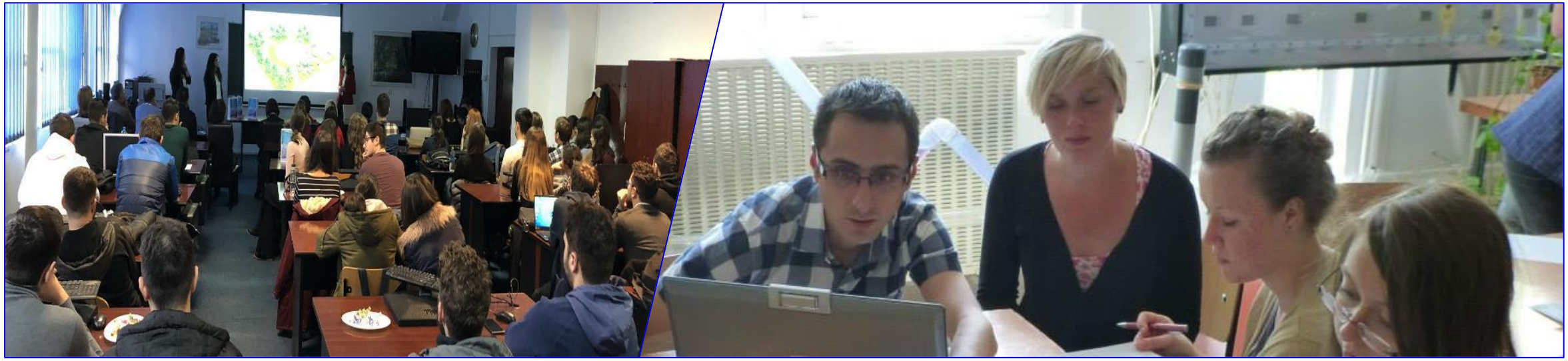
Doctoral studies

Energy Engineering

Meetings with employers in energy field

Student Scientific Communication Sessions

Student competition



Faculty of Energy Engineering provides accommodation in the Regie Complex, in rehabilitated dormitories (P8 dormitory for girls; P17 and P26 dormitories for boys)

Did you get to faculty and find everything difficult?

You feel like you have no free time, and the subjects are too complicated?

- **The faculty implements the ACE-ENERGY project especially for first year students, in which students receive support both from teachers, in an interactive way, and from tutor students.**

- This project aims to help students develop their skills through workshops, to enrich their knowledge through technical visits and easier-to-understand materials for overly complicated subjects.

Study trips

Sport competitions

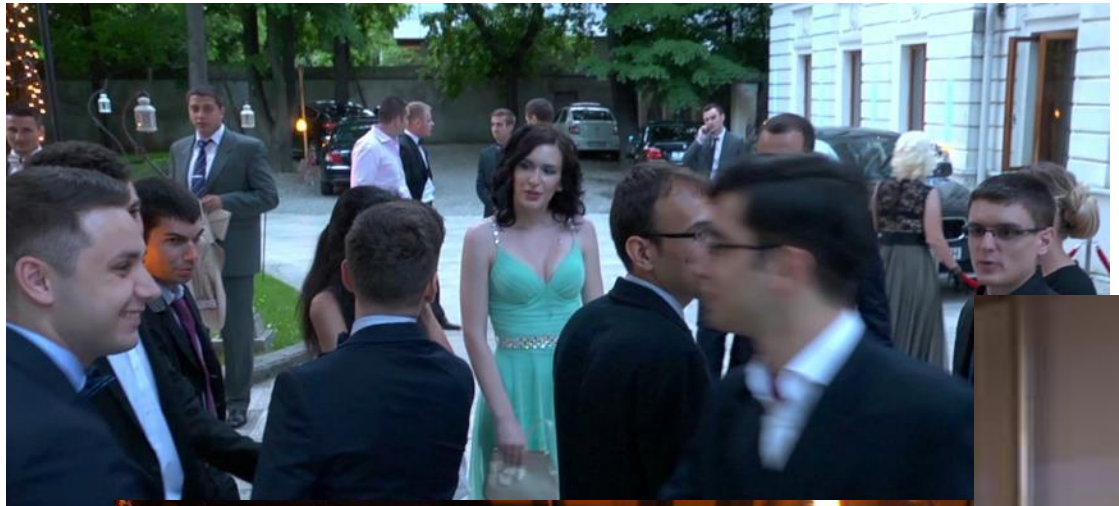
Excursions and camps

Faculty of Energy Engineering - the best choice!

The joy of graduation

Faculty of Energy Engineering – the best choice!

Graduate Ball



UNIVERSITY POLITEHNICA OF BUCHAREST
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- facebook/Facultatea.Energetica

Energize your Future!

Be part of Energy Engineering!