



 WYDZIAŁ
INFRASTRUKTURY
I ŚRODOWISKA

73

REKRYTACJA





Faculty of Infrastructure and Environment



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Boiler model for fluidized bed aerodynamic research
– Fluidized Bed Boiler Laboratory



History of the Faculty and its main areas of activity

In 1975, the Institute of Civil Engineering with faculty status was established offering two degree programmes: Civil Engineering and Environmental Engineering. In 1997, the Institute of Environmental Engineering was separated from the Faculty of Civil Engineering and Environmental Engineering as an independent unit with Faculty rights. In the same year, the Institute was transformed into the Faculty of Engineering and Environmental Protection. In 1998, the Faculty was granted the

right to confer a PhD degree in Technical Sciences and in 2002 a DSc degree in Technical Sciences in the discipline of Environmental Engineering. In 2012 the Faculty was also granted the right to confer a PhD degree in Technical Sciences in the discipline of Power Engineering. In 2016 the Faculty changed its name to the Faculty of Infrastructure and Environment. Currently, the Faculty has the right to grant PhD and DSc degrees in Environmental Engineering, Mining and Power Engineering.



Faculty Council for the 2016-2020 term



Thermogravimetric Analyser – Laboratory for Atmosphere Protection and Thermal Process Metrology



Faculty Authorities



*Izabela Majchrzak-Kucęba,
MScEng, PhD, DSc, ProfTit*

➤ **Dean of the Faculty**

Izabela Majchrzak-Kucęba, MScEng, PhD, DSc,
ProfTit



**Director of Scientific Discipline
Environmental Engineering,
Mining and Power Engineering**



Iwona Zawieja, MScEng, PhD, DSc,
CUT Associate Professor



Director of Studies

Rafał Jasiński, MScEng, PhD

Director of Development

Marcin Panowski, MScEng, PhD





Microbial culture facility
– Phytoremediation Laboratory



Tests with the use of a laser particle size analyser
in the Toxicology Laboratory



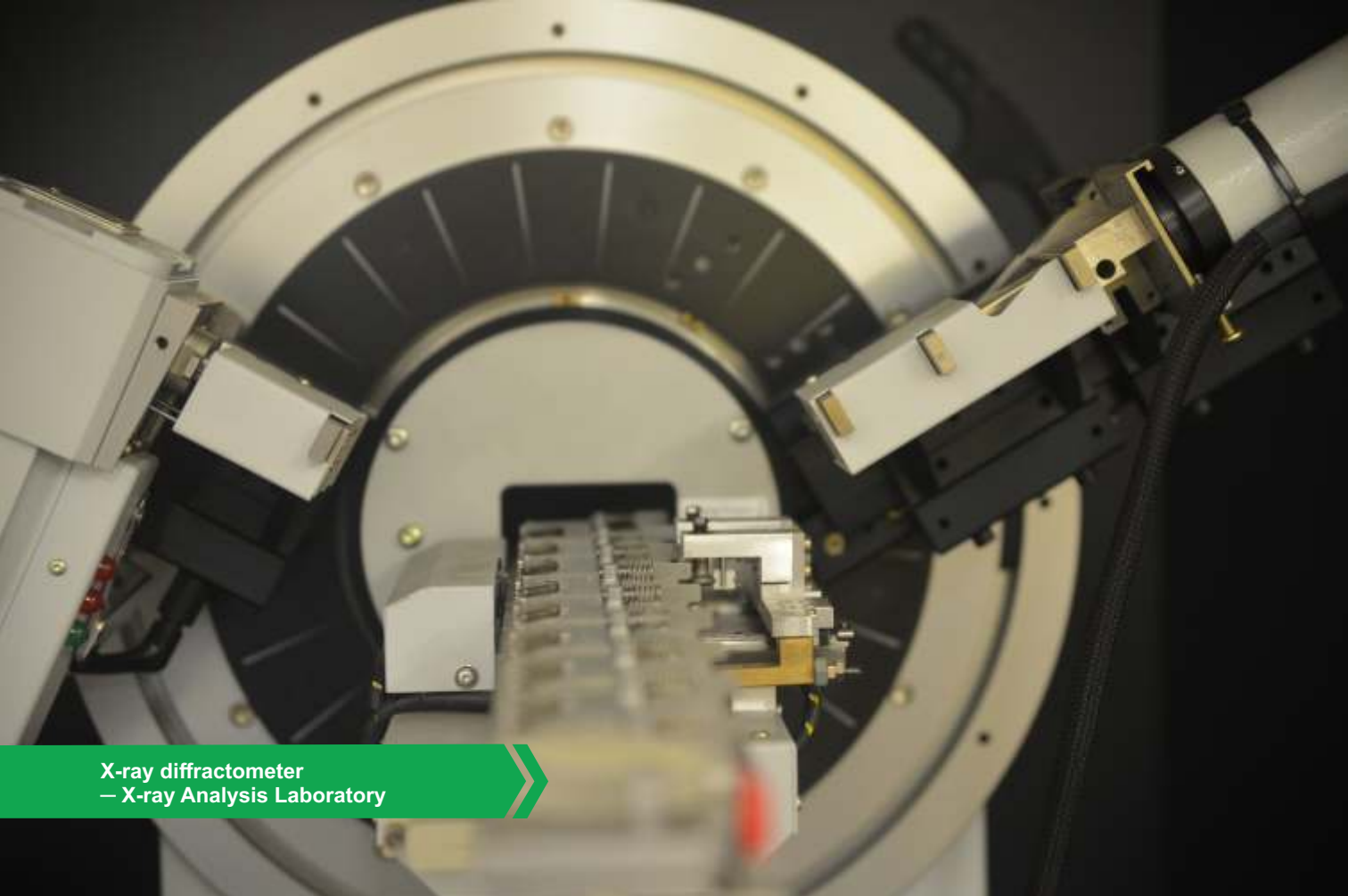
Academic staff and their scientific achievements, research projects

Currently, the Faculty has an academic category A and employs 68 academic staff: 8 Professors, 21 Associate Professors, 3 Assistant Professors with a DSc degree, 32 Assistant Professors, 1 Senior Lecturer, 1 Assistant Lecturer, and 2 Research Assistants. The Faculty pursues the following research directions: circular economy – water, wastewater, waste; modern biotechnologies in environmental protection; increasing the efficiency of water and wastewater systems; efficient district heating and HVAC systems with energy and environmental verification; innovative energy and fuel conversion

technologies, reducing the environmental impact of energy technologies. In 2015-2019, academic staff published 727 papers, including 20 books and monographs, 500 academic journal articles, 167 chapters in monographs, and 40 articles in conference proceedings indexed in the WoS (Web of Science) database. Between 2017 and 2020, the staff obtained 23 patents and implemented NCN (National Science Centre), NCBR (National Centre for Research and Development) projects, international and under the NAWA (National Agency of Academic Exchange) programme.



Research and teaching station for testing heat pumps – Laboratory for Conventional and Renewable Energy



X-ray diffractometer
— X-ray Analysis Laboratory



ASAP 2020 Plus specific surface area and porosity analyser
— X-ray Analysis Laboratory



Facilities

The Faculty consists of three Departments: Environmental Engineering and Biotechnology, Sanitary Networks and Installations, and Advanced Energy Technologies. The research facilities are designed to enable scientific research and development work on topics related to the profile of the Departments. 40 faculty laboratories are equipped with over 100 devices and analysers. The research facilities of the Faculty include: Olympus bx41 microscope with AxioCamERc5s Zeiss microscope camera,

MOTIC binocular stereoscopic microscope, A8 ADVANCE X-ray diffractometer, UV-VIS spectrophotometer, gas chromatograph with Fisons GC-MS MD800/GC8000 mass spectrometer, Analytik Jena novAA 400 atomic absorption spectrophotometer (AAS) with graphite furnace and autosampler and hydride generator, Quantachrome PoreMaster 33 mercury porosimeter, IKA C2000 Basic automatic isoperibol calorimeter, LECO TruSpec CHN/S automatic elemental analyser.



ASAP 2020 Plus specific surface area and porosity analyser.
Physical and chemical sorption analysis – X-ray Analysis Laboratory





Educational offer

The Faculty's students study full-time and part-time on four degree programmes: Environmental Engineering, Power Engineering, Biotechnology and Environmental Management. Graduates can continue their

education at the Doctoral School. Moreover, under the Erasmus+ programme, students of any level of study can apply for study visits and work placements in countries participating in the programme.



PhD student of the Faculty of Infrastructure and Environment



Research conducted by a student of the Faculty



Student Research Clubs and other student activities

There are two student research clubs at the Faculty: 'GeneInUse' and 'EkoPraktyczni'. The main objective of the 'GeneInUse' Research Club is to broaden and popularise the knowledge of biotechnological and environmental issues. The club's activities involve organizing workshops and conferences, conducting research and helping students in planning their professional careers. The aim of the 'EkoPraktyczni' Research Club is to deepen the theoretical and experimental knowledge of conventional and renewable energy sources, as well as engineering and environmental protection. Moreover, the club

focuses on strengthening contacts with companies that operate in commercial power industry and water and wastewater management. Members of the 'EkoPraktyczni' Research Club organize lectures, meetings, and give scientific presentations. Participation in the club's activities provides students with an opportunity to establish contacts with representatives of the largest power generating companies in the country. In addition, it enables students to learn about the latest technological developments and obtain access to the most modern scientific and research equipment.



Continuous-flow mixing reactor tests



Installation of air supply to the cyclone
– Laboratory for Fluid Boilers



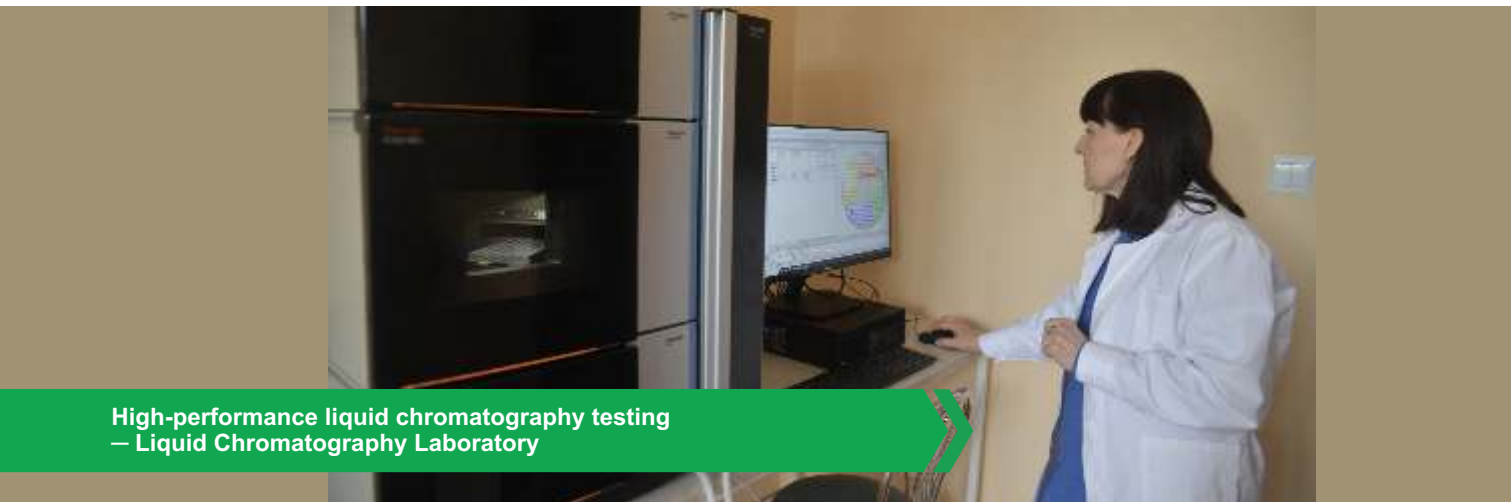
Woodlice larvae eating polystyrene waste



Cooperation with business

The Faculty has long-standing cooperation with, among others, the following social and economic institutions: Tauron Wytwarzanie S.A. (Tauron Generation joint stock company), Tauron Dystrybucja S.A. Oddz. Częstochowa (Tauron Distribution joint stock company Częstochowa Branch), PGE Górnictwo i Energetyka Konwencjonalna S.A. (PGE Mining and Conventional Energy joint stock company), Fortum Power and Heat Polska Sp. z o.o., Elsen S.A., Enea Elektrownia Połaniec Spółka Akcyjna (Enea Połaniec Power Station joint stock company), Sumitomo SHI FW Energia Polska Sp. z o.o., PGE Polska Grupa Energetyczna S.A. Warszawa (PGE Polish Energy Group joint stock company Warsaw), RAFAKO S.A., Energotechnika-Energorozruch S.A., Fabryka Kotłów SEFAKO S.A. (SEFAKO Boiler Factory joint stock company), Agencja Rozwoju Regionalnego w Częstochowie S.A. (Regional Development Agency in Częstochowa joint

stock company), Przedsiębiorstwo Wodociągów i Kanalizacji Okręgu Częstochowskiego S.A. w Częstochowie (The Water Supply and Sewerage joint stock company of the Częstochowa District in Częstochowa), Oczyszczalnia Ścieków „Warta” S.A. ('Warta' Waste Treatment Plant joint stock company), Częstochowskie Przedsiębiorstwo Komunalne Sp. z o.o. (Częstochowa Municipal Company limited liability company). The cooperation with the business community involves, among others, implementation of numerous national and international projects with industrial partners, commissioned works for the industry in the form of expert opinions and development works. Moreover, it includes cooperation in completing engineering, master's and doctoral theses, as well as practical education of students through the implementation of work placements in these companies.



High-performance liquid chromatography testing
– Liquid Chromatography Laboratory

TQ H18
FRANCIS TURBINE



100%



International cooperation

In the area of international scientific and research cooperation, the Faculty, together with foreign research centres, carries out EU-funded research and scientific projects and actively participates in international academic exchange programmes. The cooperation is conducted, among others, under the HORIZON, NAWA (National Agency for Academic Exchange) and INTERREG programmes, and thanks to the funding from these programmes, the following projects are implemented: 'Network of Service Providers for Eco-innovations in Manufacturing SMEs' - Interreg Baltic Sea Region Programme 2014-2020, 'Environmental Safety of Biowaste in Circular Economy' (EnviSafeBioC),

'Pathways to Phaseout Contentious Inputs from Organic Agriculture in Europe' (Organic PLUS), 'Transition towards a More Carbon and Nutrient Efficient Agriculture in Europe' (Nutri2Cycle), as well as 'Eliminating problematic materials from organic agriculture in Europe'. Furthermore, international cooperation is implemented in the teaching area and it is based on the Erasmus+ programme. Within the framework of this programme, students of each of the three levels of study can study at over 80 universities from the European Union countries and Turkey and do work placements, while foreign students attend courses at the Faculty.



Erasmus+ students during laboratory tests



Micro-Oxymax – Waste Thermal Conversion Laboratory



Significant accomplishments

The Institute of Advanced Energy Technologies won the 'Innovator of Silesia 2012' contest in the category of 'Research and Development Sector Institution'. The Power Engineering degree programme has been granted an accreditation certificate in the 4th edition of the Polish National Study Accreditation Programme – 'Course with a Future'. In recent years, the Faculty's staff have received, among others, a gold medal for the innovative solution 'Methods of silicon carbide recovering from post-

grinding effluent' and a special prize during the promotion of inventions at the International Intellectual Property, Inventions and Innovation Exhibition IPITEX 2018, a gold medal at the 2nd International Inventors Exhibition of Technical Innovation, Patents and Inventions 'INVENT ARENA 2018', a silver medal at the international exhibition 'EUROINVENT 2018', and a gold medal at the 17th International Environmental Protection and Waste Management Expo EKOTECH 2016.



The Innovator of Silesia 2012 Award for the Faculty in the category of Research and Development Sector Institution and a gold medal received at 'INVENT ARENA 2018' international exhibition