





## Faculty of Production Engineering and Materials Technology



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Foundry Art Gallery at the Faculty of Production Engineering and Materials Technology

„PAZ”  
wyrób nadreński ok. 1890 r.  
dar dr inż. Leopolda Sikory  
Instytutu Politechniki Czestochowskiej



## History of the Faculty and its main areas of activity

The Faculty is one of the oldest at Czestochowa University of Technology, with over 70 years of tradition in scientific research and educational activities. Currently, the Faculty has full academic rights, i.e. the right to confer a DSc degree and a PhD degree in the discipline of Materials Engineering. The main areas

of scientific and educational activities of the Faculty are focused on new materials and technologies in the field of materials engineering, intelligent industry, metallurgy, plastic working, technical physics, chemical engineering as well as production management, quality management and human resource management.



Materials Engineering Laboratory





Atomic Force Microscope (AFM)



## Faculty Authorities



*Agata Dudek, MScEng, PhD, DSc,  
CUT Associate Professor*

› **Dean of the Faculty**

Agata Dudek, MScEng, PhD, DSc,  
CUT Associate Professor

› **Director of Scientific Discipline  
Materials Engineering**

Rafał Prusak, MScEng, PhD, DSc,  
CUT Associate Professor

› **Director of Studies**

Katarzyna Pawlik, PhD

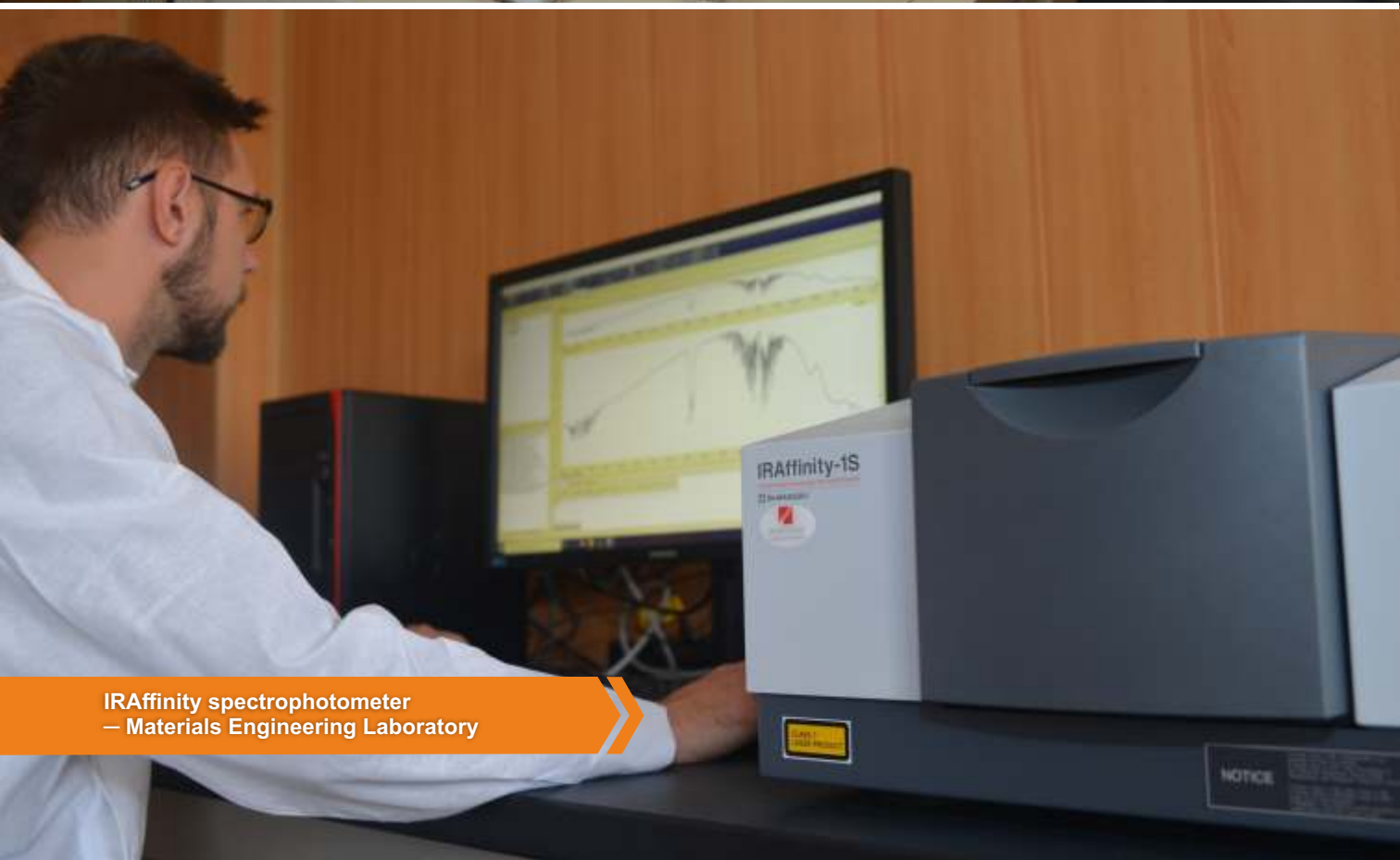
› **Director of Development**

Sebastian Mróz, MScEng, PhD, DSc, ProfTit





Scanning microscope  
— Materials Engineering Laboratory



IRAffinity spectrophotometer  
— Materials Engineering Laboratory



## Academic staff and their scientific achievements, research projects

The Faculty employs 91 academic staff, including 49 with a PhD degree, 35 with a DSc degree and 6 with the academic title of Full Professor. All employees take an active part in conducting scientific research, cooperating with business entities and publishing scientific papers in the highest ranked scientific journals (a score of 140 and 200 according to the Ministry of Education and Science list) including: Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science,

Journal of Cleaner Production, Materials, AUTEX Research Journal, Archives of Civil and Mechanical Engineering. Research work of the Faculty's staff is also focused on national and international research projects in the following programmes: HORIZON 2020, OPUS, SONATA and MINIATURA (NCN – the National Science Centre), BIOSTRATEG 1, TECHMATSTRATEG 2, Application Projects, Fast Track, POWR (NCBR – the National Centre for Research and Development).



Transmission electron microscope





Universal Testing Machines – Mechanical Testing Laboratory



## Facilities

The Faculty has modern research equipment. More than 70 laboratories enable conducting research and commissioned work strictly focused on new materials and technologies. The Faculty's research facilities include the following equipment and devices: SPS 10-4 furnace by Thermal Technology LCC, HIP high-temperature isostatic press, DIL805A/D dilatometer, ZWICK and INSTRON testing

machines, STD812 plastomer – Thermoanalyse GmbH, Gleeble 3800 simulator, semi-industrial rolling line equipped with a duo D300 rolling mill with the roll peripheral speed asymmetry function, X-ray diffractometers – Seifert XRD and Bruker D8 Advance, JSM 5400 Jeol scanning microscope, TEM electron microscope, AFM atomic force microscope, IRAffinity spectrophotometer and light microscopes.



Robot – Automatic Control Laboratory

Kształcimy inżynierów przyszłości, przygotowanych do wymagań nowej technologii.

Nasz Wydział oferuje perspektywistyczne kierunki, w tym:

- metalurgia
- inżynieria
- fizyka techniczna
- zarządzanie produkcją
- inżynieria materiałowa
- inżynieria





## Educational offer

The Faculty offers full-time and part-time, first-cycle and second-cycle programmes. The educational offer corresponds to the demand of the job market, thus the Faculty's graduates meet the expectations of modern industry. The following degree programmes are offered: Intelligent Industry, Chemical and Process Engineering, Materials Engineering, Technical Physics, Management and Production

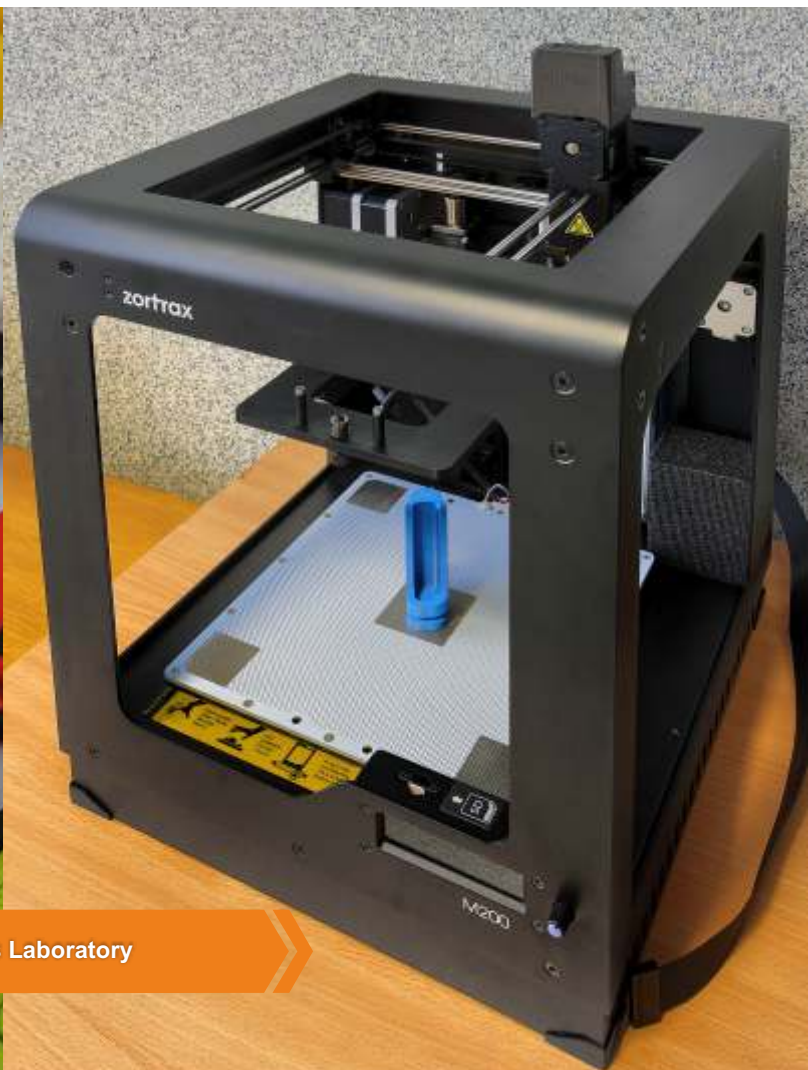
Engineering, Metallurgy. Graduates can continue their education at the Doctoral School in the discipline of Materials Engineering. The Faculty's students have the opportunity to undergo internships and work placements in leading companies in Poland. The Faculty participates in the ERASMUS+ educational programme, which enables students to undertake studies at universities abroad.



Demonstration of physical experiments



Spark Plasma Sintering (SPS) Furnace



3D printer and printouts – Incremental Technologies Laboratory



## Student Research Clubs and other student activities

Student's research work is organised within 12 research clubs existing at the Faculty. This enables students to participate in the faculty's research work. It should be emphasized that the oldest research clubs were established at the turn of the 1960s and 1970s. These are as follows: the Foundry Scientists' Research Club (the oldest research club), the Furnace Scientists' Research Club, the Metal Scientists' Research Club, and the Plastic Working

Research Club. The expansion of the Faculty's educational offer with new degree programmes has contributed to the formation of new research clubs, such as: the 'INFOMET' Research Club, the 'Plus.Minus' Research Club, the 'QUBIT' Research Club, the 'IRIS' Optics and Optometry Research Club, 'Mecatoo' Research Club, 'Safe Club' Research Club, 'Materials Engineering' Research Club and 'BeHaP' Research Club.



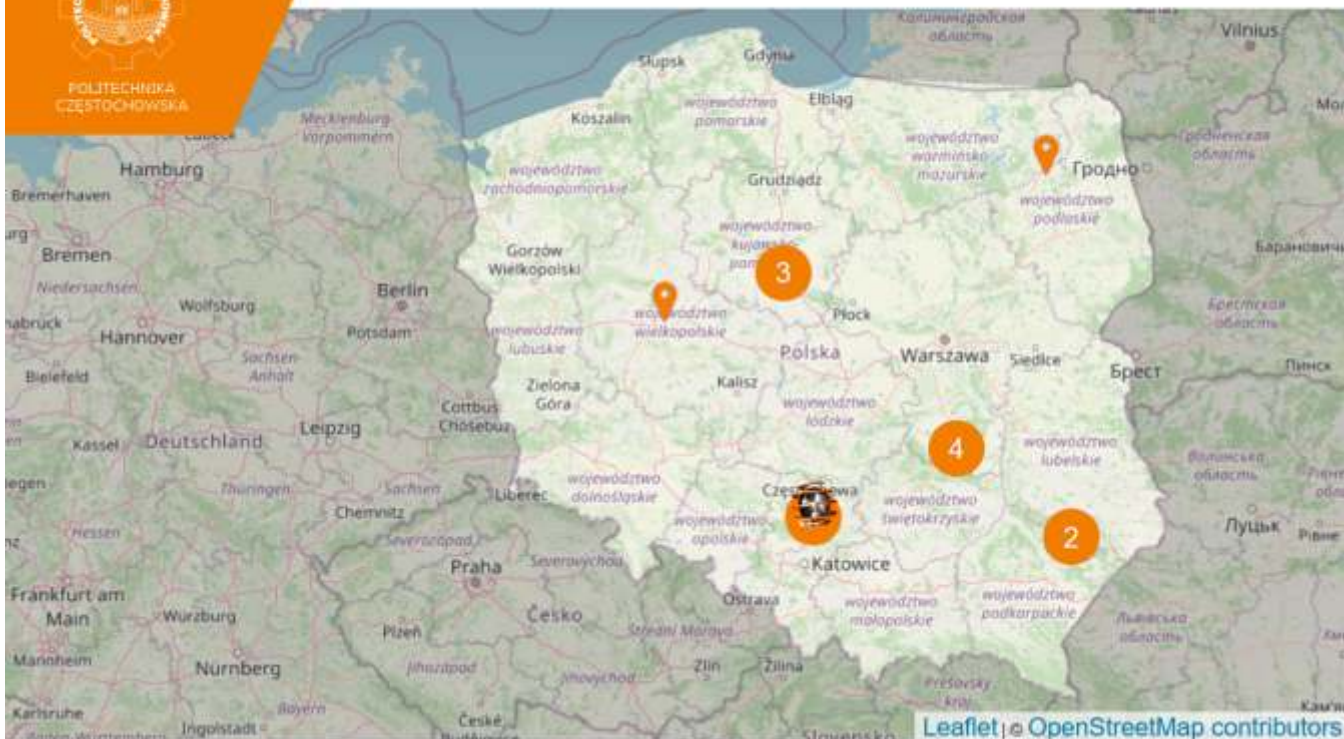
Faculty's students participating in 'Crossing 19' crisis management exercise. 'BeHaP' Research Club



CooperStandard employees during regular meetings with students entitled 'Student meetings with industry representatives'



**WYDZIAŁ INŻYNIERII PRODUKCJI  
I TECHNOLOGII MATERIAŁÓW**



Poland's first Interactive Map of Cooperation between the Industry and the Faculty's students  
[www.mapa.wip.pcz.pl](http://www.mapa.wip.pcz.pl)



## Cooperation with business

Research work carried out at the Faculty is closely related to the industry. Cooperation with over 130 business entities is carried out in the form of implemented projects, commissioned research and consultations. The Faculty has signed several dozen cooperation agreements with the industrial sector, mainly related to metal, glass, and ceramics manufacturing and processing, as well as in the field of production management and logistics. The recipients

of research work concerning innovative materials and technologies are large, medium and small enterprises. Among them are the following companies: Arcelor Mittal Poland S.A., CMC Poland Sp. z o.o., Liberty Częstochowa Sp. z o.o., Guardian Częstochowa Sp. z o.o., ZF Automotive Systems Poland Sp. z o.o., Press Glass S.A., Wkręt-met Klimas Sp. z o.o., Pro Novum Sp. z o.o., PGO Castings Pioma Odlewnia.



The signing of a cooperation agreement between the Faculty and Huta Liberty Częstochowa Sp. z o.o. (Liberty Czestochowa Steelworks Limited Liability Company) (2021)

*foto. Liberty Częstochowa*





Erasmus+ students in front of the Faculty building



## International cooperation

The Faculty has a strong and well-established scientific standing both in Poland and abroad. This is evidenced by an intensive cooperation with many academic centres and scientific and research institutes, which has resulted in the signing of approximately 30 international

agreements with research centres from the Czech Republic, Germany, China, Ukraine, Belarus and Russia. Owing to these activities, academic staff, students and PhD students can take part in scientific internships and conduct research in these centres.



Students' visit to the Whirlpool company



fot. Urząd Miasta Częstochowa

Awarding the Prize for the Best Master's Thesis to a Faculty's student



Humanitarian action co-organised by the Faculty's graduate, thanks to which the inhabitants of Africa received 1500 pairs of corrective glasses free of charge



## Significant accomplishments

The conducted research has contributed to receiving by the Faculty's academic staff numerous awards and distinctions at international innovation fairs: International Trade Fair Ideas-Inventions-New Products (iENA), Germany; Bangkok International Intellectual Property, Invention, Innovation and Technology Exposition IPITEX, Thailand; International Exhibition of Technical Innovations, Patents and Inventions Invent Arena 2018, the Czech Republic; GENEVA INVENTIONS –

The International Exhibition of Inventions of Geneva, Switzerland; EURO INVENT – European Exhibition of Creativity and Innovations, Romania; International Salon of Research, Innovation and Technological Property; Exhibition INVENTIONS – TRANSFER – INNOVATIONS, Bulgaria; International Exhibition of Inventions & World and Innovation Forum, China; Intelligent Development Forum Award in the Scientist of the Future category.



Medals received by the Faculty's staff at the INTERNATIONAL WARSAW INVENTION SHOW

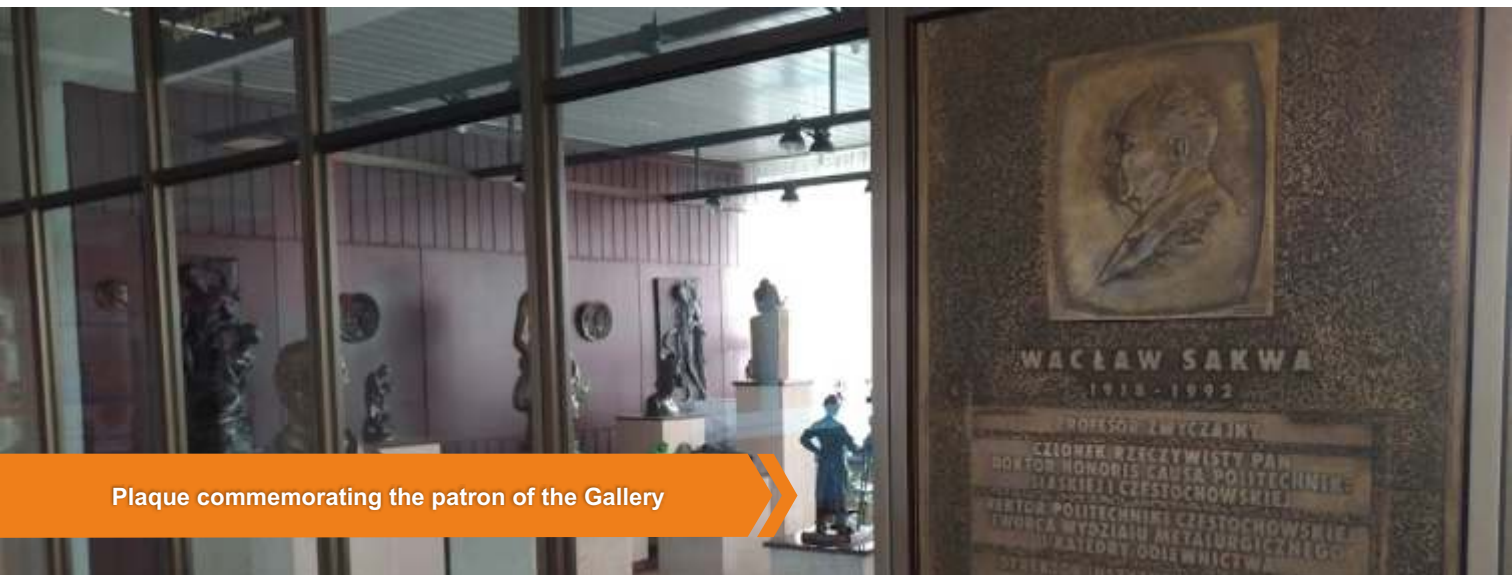




## Professor Waclaw Sakwa Foundry Art Gallery

Professor Waclaw Sakwa Foundry Art, established in 1989 on the initiative of its patron, is a unique unit within the structure of the Faculty of Production Engineering and Materials Technology. It serves as a museum of technology as well as a teaching laboratory with specific functions in the study programme. The exposition is enriched with substantive commentary by the staff of the Department of Metallurgy and Metal Technology concerning the historical development of the foundry industry and its current technological capabilities. The exhibited works provide an opportunity to learn about manufacturing techniques, to make comparisons and assessments, to appraise professional achievements as well as thematic and technical solutions. Currently, the collection comprises over 320 exhibits displayed in the main

exhibition hall and the numismatic room. The numerous exhibits include small sculptural forms, cabinet sculpture, portrait sculpture, decorative utility items, foundry products manufactured by pewterers and bell-founders, with the oldest gothic bell 'Maria' dating from 1482 at the top of the collection. An integral part of the Gallery is also a thematic library comprising 18 items. The Gallery also presents the prize-winning works of students in the field of artistic casting and conservation of national heritage. The works include an equestrian statue according to Leonardo da Vinci's sketches, casts made with the use of the life casting technique, in which the model is the human body, and a cast of the bust of Ignacy Domeyko made in a self-supporting ceramic mould which was made of mass reinforced with ceramic fibres.



Plaque commemorating the patron of the Gallery