



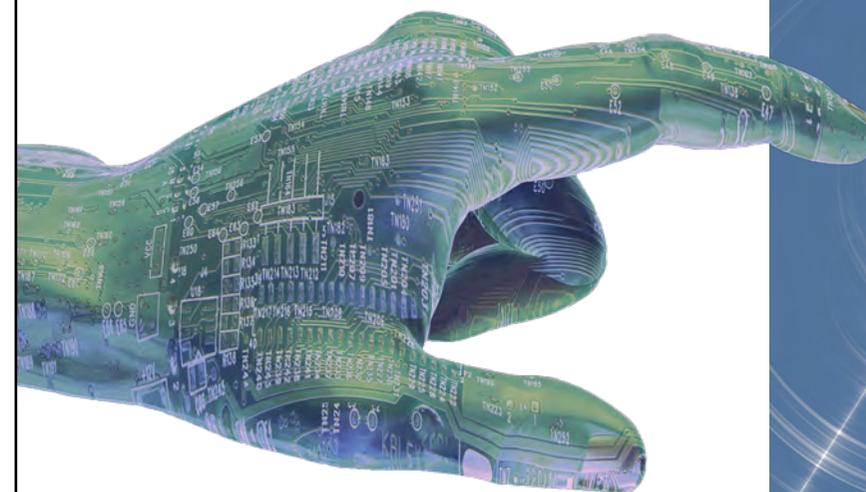
AGH

university
of the future

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Foreword from the AGH UST Rector

Dear Readers,

The traditional model of a university based on the authority of a scientist and general education is evolving. This change has been brought about by the galloping processes of globalisation and commercialisation of science and research in general. Therefore, since the beginning of this term of office, we have been implementing the programme titled *Our AGH UST – University of the Future*. As far as the economy based on technology and innovation is concerned, the leading roles are played by practical, technical, organisational, and social knowledge. These aspects become the basis for growth in innovation and competitiveness of the economy. We might be tempted to say that a university is quite an intricate entrepreneurship because of its multifaceted activity, the sense of mission, and the fact that, ultimately, the walls of a higher education institution bring forth a person on the verge of their professional life and a representative of a certain social group who will be responsible for shaping this country and eventually the world.

Since its inception in 1919, the AGH UST has been developing as a university with a mission to educate and conduct research in close cooperation with the economic and industrial circles. This social aspect of our university activity has an impact on the creation of fields of study and study programmes, but also influences the development of research fields and implementations. The shape of the AGH UST has always been dependent on the socioeconomic environment and its needs surrounding the academy.

For our university, the most important activity in the sphere of science and education in the years to

come will be to focus on selected fields of research and indicate the scientific disciplines that will constitute a driving force for scientific development of the university and act as our pride and joy. The AGH UST has been thriving as a university of the future, based on a more than 100-year-old tradition of accepting scientific challenges, creating technological solutions for the benefit of the economy, and fulfilling tasks derived from the needs of the country or economic entities. At the same time, as a research university, we have been fortifying knowledge in the fields of technical, exact, and social sciences, as well as in the humanities, by implementing research projects that meet the highest international standards of scientific cognition.

Enjoy the read



Professor Jerzy Lis

Rector of the AGH University of Science
and Technology in Krakow

KNOWLEDGE

PASSION

BOND

AGH UST authorities in the years 2020-2024

16 faculties
66 fields of study
20 500 students
750 professors
800 laboratories



Rector of AGH UST
Professor
JERZY LIS



AGH UST Vice-Rector
for Science
Professor
MAREK GORGOŃ



AGH UST Vice-Rector
for Cooperation
Professor
RAFAŁ WIŚNIEWSKI



AGH UST Vice-Rector
for Education
Professor
WOJCIECH ŁUŻNY



AGH UST Vice-Rector
for Student Affairs
Professor
RAFAŁ DAŃKO



AGH UST Vice-Rector
for General Affairs
Professor
TADEUSZ TELEJKO



From the pages of history

LABORE CREATA,
LABORI ET SCIENTIAE SERVIO

[Created in labour,
I serve labour and science].

from the Statute of the AGH University
of Science and Technology in Krakow

1913 – Establishment

The Mining Academy was established as a result of the efforts of many generations of Polish people.

In 1913, as a result of multiyear efforts, Polish engineers – miners and metallurgists, the Galician members of parliament, and Krakow authorities led to the establishment of a mining school of higher education in Krakow.

However, the outbreak of World War I made it impossible to begin the academic year.

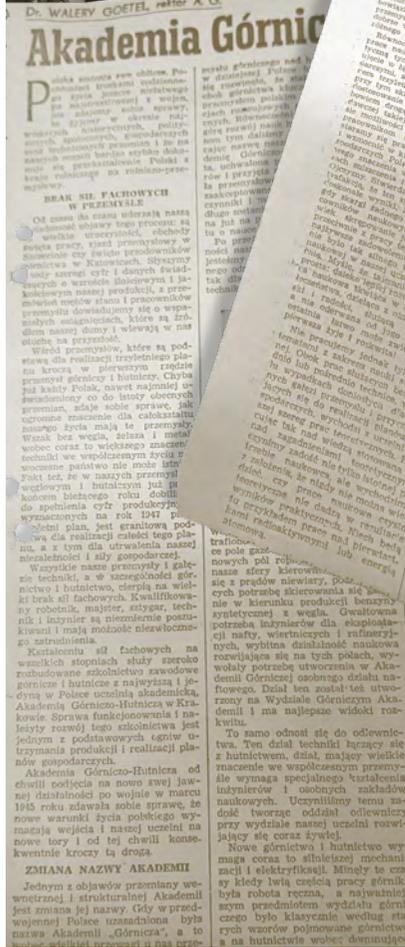
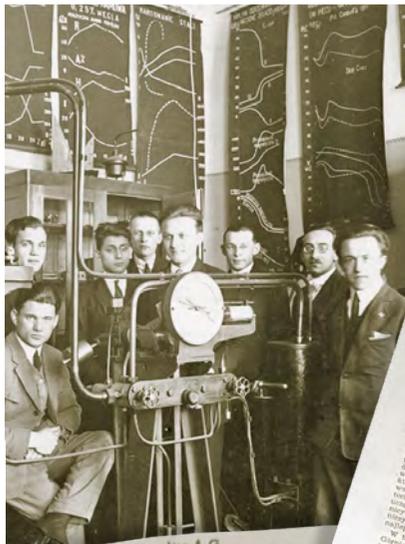
1919 – Opening

When Poland regained its independence in 1918, the Organising Committee recommenced its work.

On April 8, 1919, the Council of Ministers passed a resolution to establish and open the Mining Academy in Krakow. The first professors were nominated on May 1, 1919.

In October 20, 1919, Marshal Józef Piłsudski, Head of State, inaugurated the Mining Academy in the main hall of the Jagiellonian University.





Key dates

- 1913 Establishment of the Mining Academy
- 1919: **October 20** Opening of the university
- 1923: **June 15** The cornerstone for the future university building was laid.
- 1935 In front of the entrance to the main building of the Academy, the monuments of miners and metallurgists were unveiled; they were made by the sculptor Jan Raszka (dismantled in 1954 due to extensive damage).
- 1939: **August 24** The sculpture of St. Barbara, traditionally regarded as the patroness of miners, made by Stefan Zbigniewicz, was placed on the main building (only to be removed soon after the Nazi German invasion in 1939).
- 1939–1945 The main building of the Academy was occupied by the German General Government. The Academy started to function in conspiracy, and the authorities tried to regain or create provisional teaching facilities.
- 1939: **November 6** Among 184 professors of Krakow universities, arrested by the Gestapo during the “Sonderaktion Krakau”, there were 18 professors and 3 assistant professors, who constituted nearly the entire academic staff of the Mining Academy. The science and research elite were deported to the Nazi Germany's concentration camps in Sachsenhausen–Oranienburg and Dachau.
- 1945 At the beginning of 1945, the Mining Academy in Krakow was the only organised technical university in the country.

- 1947 An internal decision was made to rename the university the Academy of Mining and Metallurgy. However, formal approval of the decision by superior authorities took place only in 1949.
- 1969 The Academy of Mining and Metallurgy received the name of Stanisław Staszic, a banner (flag), and a centrally–imposed institute–based structure.
- 1979 The monuments of miners, by Bogusz Salwiński, and metallurgists, by Jan Siek, were placed in front of the entrance to the main building.
- 1981: **December 14** The AGH UST academic community, under the banner of “Solidarity”, protested courageously against suppressing – by an act of imposing Martial Law – the retrieved feeling of freedom and solidarity. The Independent Self–Governing Trade Union “Solidarność” at the AGH UST was a university organisation, the only one in Krakow and one of three in Poland, which organised sit–down strikes in the first days of Martial Law.
- 1999 The reconstructed sculpture of St Barbara, made by Jan Siek, was placed on the AGH UST Main Building.



AGH UST Main Building

Architect: Sławomir Odrzywołski
Cooperation: Adam Ballenstedt, Waclaw Krzyżanowski

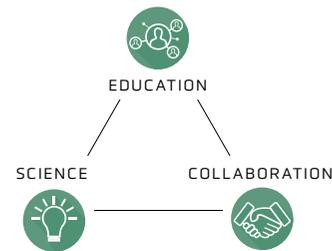
The AGH UST Main Building was erected between 1923 and 1935. The design of the building was chosen through a competition in 1913 won by Sławomir Odrzywołski, a renowned architect from Krakow. After World War I, the project was used as a starting point, and Waclaw Krzyżanowski was invited to design the façade and the interior. The monumental building of 110,000 m³ was finished in 1935, and at that time, it was one of the largest buildings in Poland.

university of values

Modern research university with social mission

The AGH UST provides education and carries out research in line with the contemporary needs of the economy. This social side of the university's activity has an influence on the development of research areas and the creation of new fields of study.

Our goal is to act in accordance with a triangle that combines **SCIENCE** – producing knowledge, **EDUCATION** – internal transfer of knowledge according to the “mentor–mentee” model, and **COLLABORATION WITH THE SURROUNDINGS** – external transfer of knowledge.



As a university, we develop timeless values: fundamental and applied knowledge and the ethos of an employee, student, and graduate. We also improve their practical and soft skills. It is also important for the university to encourage patriotic and pro-social attitudes.

At the same time, we create tangible things: publications, research projects, contracts for the economy, study programmes, buildings, laboratories, patents, etc.

In the concept of a university of values, both areas are particularly important, and they complement each other.

The AGH UST conducts research and provides education, taking into account the priorities of the market and the national economy, in the following areas:

- Digitalisation
- Energy transformation and zero emissions
- Climate change
- Circular economy
- Industry 4.0.

Research university

The AGH UST is one of 10 Polish higher education institutions distinguished in a ministerial programme titled *Excellence Initiative – Research University (IDUB)*.

The status of a research university comes with additional funds that can be spent on:

- Study visits and internships at international research centres
- University grants
- Awards for scientific achievements
- Purchase of research equipment
- Visits of scientists and researchers from all over the world
- Funding the open-access feature and publications in commercial scientific journals.

The money allows academic staff to focus more extensively on scientific activity and improve the quality of education.

The IDUB programme supports academic career at each stage, offering:

- Substantial scholarships for the best students in the AGH UST Doctoral School
- Minigrants to support research for doctoral students and young scientists
- Postdoctoral packages including financing of research costs and trips, internships in Poland and abroad, translation and publication processes, as well as possible teaching load reductions and periodic bonuses to compensation
- Grants to employees with postdoctoral qualifications for assembling a research team
- The *sabbatical* programme for experienced scientists.

The additional subsidy provides the opportunity to cooperate with universities from the top of international rankings, as well as to strengthen research-related collaboration with scientific institutions that enjoy a high reputation on the international arena.

The beneficiaries of additional funds are, in the first place, research teams that work in the fields of the so-called “Priority Research Areas”.

Priority Research Areas at the AGH UST

-  Sustainable energy technologies, renewable sources of energy, and energy storage
-  New technologies for the circular economy
-  Water-energy-climate: interdisciplinary approach to sustainable development
-  Technical solutions: from fundamental research, through modelling and design, to prototypes
-  Materials, technologies, and processes inspired by nature
-  Intelligent information, telecommunication, computer, and control and operation technologies
-  Design, production, and testing of modern materials and the technologies of the future
-  Crossing boundaries: experimental high energy physics, extreme states of matter, advanced radiation detection technologies, transdisciplinary research and applications



The IDUB programme means additional benefits to student development. These include:

- Research path of education
- Individual tutors
- Assortment of innovative courses
- Rector's grants
- Additional funds for projects carried out by student research clubs.

space university

Since 2020, the AGH UST has been a member of the UNIVERSEH project (European Space University for Earth and Humanity), carried out in cooperation with Université de Toulouse (France), Heinrich-Heine-Universität (Germany), the Luleå University of Technology (Sweden), and the University of Luxembourg (Luxembourg).

The institutions composing UNIVERSEH have obtained the status of a European University, awarded by the European Commission to international partnerships of higher education institutions across the EU. The AGH UST tasks in the project focus on education and conducting scientific and technological research related to the exploration and use of space.

UNIVERSEH means:

- € 5,000,000 budget
- 144,000 students and employees in partner universities
- 60 supporting companies.

The implementation of the project helps its participants tailor their offers to the current need of the market. The opportunity to exchange experiences and network with the space industry contributes to the creation of pioneering fields of study.

Space Technology Centre

The establishment of the Space Technology Centre in 2020 was one of the first endeavours of the AGH UST within UNIVERSEH. Its objectives include the coordination of AGH UST-based research projects related to space technologies, as well as carrying out fundamental and applied research, especially in the fields of science of signature (transformation of

information into knowledge), materials and structures designed to be used in space, and space resources (in the area of minerals). The Centre also focuses on educational and informational activities. The Space Technology Centre is also planning to launch a Polish scientific satellite into LEO (Low Earth Orbit) to conduct observations of the Earth.

Main tasks of the Space Technology Centre

- 🚀 Carrying out research in the field of space technologies (resources, infrastructure, establishment of interdisciplinary research teams)
- 🚀 Development of equipment and laboratories
- 🚀 Extending the AGH UST's research and implementation offer in the area of space technologies in cooperation with space-related industries
- 🚀 Cooperation with other AGH UST units and research institutions in Poland and abroad
- 🚀 Initiating and developing collaboration with industry, as well as space institutions and agencies
- 🚀 Developing specialised education programmes in the field of space technologies
- 🚀 Education and promotion of knowledge related to outer space

Beyond UNIVERSEH

is an initiative that was born out of necessity to continue the UNIVERSEH project for the years to come. Its aim is to establish a lasting community of scientists and stakeholders of various environments, which will be suitably equipped to face the social challenges related to space. The initiative's main aspiration is to chart out a map that will guide the next generation of space explorers and innovators.



The highest level of education

Education at the AGH UST is closely related to research practice. We involve and encourage students to take active part in research projects. We believe in innovation and cooperation in the area of technology exchange, and we actively collaborate with renowned Polish and international companies, which appreciate our graduates.

The AGH UST offers unique, often interdisciplinary programmes of study. Every year, the university launches new fields of study whose programmes take into account the needs of the labour market that arise from the economic transformations and the demand for highly-qualified specialists. We also try to tailor our offer to the changing expectations of the next generations, which prioritises the possibility of individual development. Our students can gain knowledge as part of the “research education path”, as well as within the framework of “dual studies”, offered jointly with industry.

The AGH UST offers study programmes at three cycles (levels) of education:

- 1st cycle – leads to obtaining a bachelor’s degree
- 2nd cycle – leads to obtaining a master’s degree
- Doctoral schools – lead to obtaining a doctor’s degree.

Education at the AGH UST in numbers:

- 65** fields of study in the 1st cycle
- 68** fields of study in the 2nd cycle
- 16** scientific disciplines in the AGH UST Doctoral School
- 90** postgraduate programmes



Receiving education at the highest level is possible thanks to:

- | | | | |
|---|---|---|--|
|  | Intensive foreign languages courses |  | Individual course of studies |
|  | Research education path |  | Double degree programmes (at the AGH UST and a foreign university) |
|  | Classes in modern laboratories |  | Possibility to do practical trainings and internships in Poland and abroad |
|  | Extensive use of e-learning platforms for conducting and supporting classes |  | Possibility to obtain teaching qualifications |



Top-quality scientific activity

As a result of the evaluation of scientific activity between 2017 and 2022, carried out by the Polish Ministry of Education and Science, the AGH UST received high scores and has the right to confer academic degrees in 17 disciplines.

Accreditations

Fields of study offered by the AGH UST have obtained the accreditation of the European Network for Accreditation of Engineering Education (ENAE) and the accreditation of the American organisation ABET (Accreditation Board for Engineering and Technology).

Research education path

is one of the forms of education dedicated for the most gifted students within the framework of the *Excellence Initiative – Research University* programme, which makes it possible to flexibly combine studies with scientific research work. For example, students can be awarded a portion of the ECTS credits based on their participation in projects carried out as part of the “Rector’s Grant”, the grants of their tutors, or through participation in the activities of student research clubs.

Wide choice of elective courses

The AGH UST Database of Electives comprises more than 340 courses divided by field into three blocks: international courses, humanities and social courses, and innovation courses. Students have the opportunity to choose from obligatory modules within their programmes of study and take additional courses, all according to their personal interests and passions.

Education in foreign languages

The AGH UST offers 20 programmes of study taught in English. Furthermore, thanks to the AGH UST International Courses, our students can master technical vocabulary in foreign languages.

Education of doctoral students

The AGH UST Doctoral School offers education in all disciplines in which the university is entitled to award the doctor’s degree:

IN THE FIELD OF ENGINEERING AND TECHNOLOGY

- Automation, electronic, and electrical engineering
- Information and communication technology
- Biomedical engineering
- Chemical engineering
- Civil engineering and transport
- Materials engineering
- Mechanical engineering
- Environmental engineering, mining, and energy

IN THE FIELD OF NATURAL SCIENCES

- Computer and information sciences
- Mathematics
- Chemical sciences
- Physical sciences
- Earth and related environmental sciences

IN THE FIELD OF SOCIAL SCIENCES

- Management and quality studies
- Sociology

IN THE FIELD OF HUMANITIES

- Culture and religion studies.

Postgraduate programmes

The AGH UST offers nearly 90 postgraduate courses aimed at both professional engineers (programmes in the field of ceramics, electrical engineering, drilling, gas engineering, geology, geophysics, geodesy, mining, computer science, telecommunications, robotics, and power engineering), as well as people who are interested in obtaining a new specialisation, for example, in the field of digital marketing, employers branding, social media, talent management, computer graphics, cybersecurity, environmental engineering, accountancy, occupational health and safety (OHS), property management, project management, sales management, and management in the HR and IT sectors.



Degree programmes in English

FIRST-CYCLE DEGREE PROGRAMMES

- **Computer Physics**
Faculty of Physics and Applied Computer Science
- **Computer Science**
Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering
- **Electronics and Telecommunications**
Faculty of Computer Science, Electronics and Telecommunications
- **Mechatronic Engineering**
Faculty of Mechanical Engineering and Robotics

SECOND-CYCLE DEGREE PROGRAMMES

- **Applied Geology: Economic Geology**
Faculty of Geology, Geophysics and Environmental Protection
- **Automatics and Robotics: Cyber-Physical Systems**
Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering
- **Chemical Technology: Chemical Technologies in Energy Sector**
Faculty of Energy and Fuels
- **Computer Science and Intelligent Systems: Artificial Intelligence and Data Analysis**
Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering
- **Electrotechnics: Smart Grids Technology Platform**
Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering
- **Energy and Environmental Engineering**
Faculty of Energy and Fuels
- **Energy Engineering: Energy Transition**
Faculty of Energy and Fuels
- **Geophysics: Applied Geophysics**
Faculty of Geology, Geophysics and Environmental Protection
- **Geospatial Computer Science: Remote Sensing and GIS**
Faculty of Geo-Data Science, Geodesy and Environmental Engineering
- **Management: International Management**
Faculty of Management
- **Materials Science: Functional Materials**
Faculty of Materials Science and Ceramics
- **Mechatronic Engineering: Mechatronic Design**
Faculty of Mechanical Engineering and Robotics
- **Metallurgical Engineering**
Faculty of Metals Engineering and Industrial Computer Science
- **Mining Engineering: Mining Engineering**
Faculty of Civil Engineering and Resource Management
- **Modern Materials, Design, and Application**
Faculty of Non-Ferrous Metals
- **Oil and Gas Engineering: Petroleum Engineering**
Faculty of Drilling, Oil and Gas
- **Renewable Energy and Energy Management: Sustainable Energy Systems**
Faculty of Energy and Fuels

AGH UST Faculties

Faculty of Civil Engineering and Resource Management
Faculty of Metals Engineering and Industrial Computer Science
Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering
Faculty of Computer Science, Electronics and Telecommunications
Faculty of Mechanical Engineering and Robotics
Faculty of Geology, Geophysics and Environmental Protection
Faculty of Geo-Data Science, Geodesy, and Environmental Engineering
Faculty of Materials Science and Ceramics
Faculty of Foundry Engineering
Faculty of Non-Ferrous Metals
Faculty of Drilling, Oil and Gas
Faculty of Management
Faculty of Energy and Fuels
Faculty of Physics and Applied Computer Science
Faculty of Applied Mathematics
Faculty of Humanities

unlimited opportunities

The AGH UST is home to nearly 140 student research clubs and almost 30 organisations. Members of the clubs gain practical knowledge, fulfil their passions, and work towards ambitious goals. Their projects – in the fields of space engineering, robotics, and construction – win recognition that extends far beyond the walls of our university.

'Student Research Clubs are an excellent place for students who wish to foster their passions, practical skills, and social bonds, while simultaneously exploring theoretical knowledge. They are a school of talents and a forge of elite research and engineering staff in our country', says Professor Rafał Dańko, AGH UST Vice-Rector for Student Affairs.

The AGH UST supports the clubs by funding the most innovative and interdisciplinary construction and research projects that are selected in the "Rector's Grant" competition. The money for the projects comes from a special ministerial fund. On top of that, a new construction project – the Student Construction Centre – has been designed exclusively to accommodate the needs of our research clubs, giving them the space to be creative.

Student organisations attract enthusiasts of physical activity, artistic expression, and journalism, as well as academic community activists and science quality and popularisation aficionados. The AGH UST is home to the local branches of the following international organizations: BEST (Board of European Students of Technology), EESTEC (Electrical Engineering Students' European Association), ESTIEM (European Students of Industrial Engineering and Management), and IAESTE (International Association for the Exchange of Students for Technical Experience).

AGH UST in rankings

Academic Ranking of World Universities (Shanghai Ranking) | edition 2022

1st place among Polish technical universities
601–700 rank range in general classification

CWTS Leiden Ranking | edition 2022

1st place among Polish technical universities
3rd place among Polish universities
167th place in Europe

CWTS Leiden Ranking by field | edition 2022

1st place among Polish universities
in the Physical Sciences and Engineering discipline.

The Center for World University Rankings (CWUR) edition 2022–2023

1st place among Polish technical universities
590th place in general classification

Ranking Web of Universities (Webometrics) edition 2022.2 beta

1st place among Polish technical universities
572nd place in general classification

University Ranking by Academic Performance (URAP) edition 2021–2022

1st place among Polish technical universities
633rd place in general classification



The activities of student research clubs include interdisciplinary projects that find application in various areas of life, for example:

- ◆ Personalised foot prosthesis for indoor climbing
- ◆ Implementation of artificial intelligence to control mobile drones and hybrid drones
- ◆ Rocket systems – research on innovative fuels for hybrid propulsion systems and solutions in disciplines related to space engineering
- ◆ Construction and testing of a high-voltage Li-ion battery for motorsport applications
- ◆ Autonomous module for an electric car
- ◆ Mathematical model for the economic assessment of an innovative heating system based on a subsurface heat exchanger on the example of the AGH UST Campus
- ◆ Models of impression trays and nasal stents used in perisurgical care of children with cleft lip and palate
- ◆ Prototypical biodegradable packaging dedicated to the storage of milk and other foods with a short expiry date
- ◆ Method of capturing space rubbish from the Earth's orbit
- ◆ Prediction of the seasonality of seismic activity



Research - Foundation for development

Searching for new technologies that can be applied in industry and developing innovative solutions – these are the priorities of the AGH UST that lead to the implementation of a number of projects funded by the Ministry of Education and Science, the European Commission, the National Science Centre, the National Centre for Research and Development, and the Polish National Agency for Academic Exchange.

The university carries out national research projects, research and development projects for industry, as well as projects conducted jointly with international partners within the framework of the following programmes: EU HORIZON 2020, KIC InnoEnergy, KIC RawMaterials, POLONEZ, HARMONIA, MOTOROLA grants, International Visegrad Fund, Research Fund for Coal and Steel, ERA, bilateral cooperation programmes, Erasmus+, and Structural Funds.

In 2021, the AGH UST carried out
594 research projects:

- 422 national projects, including 48 funded by the Structural Funds
- 172 international projects, including 45 within the HORIZON 2020 programme

81 education projects:

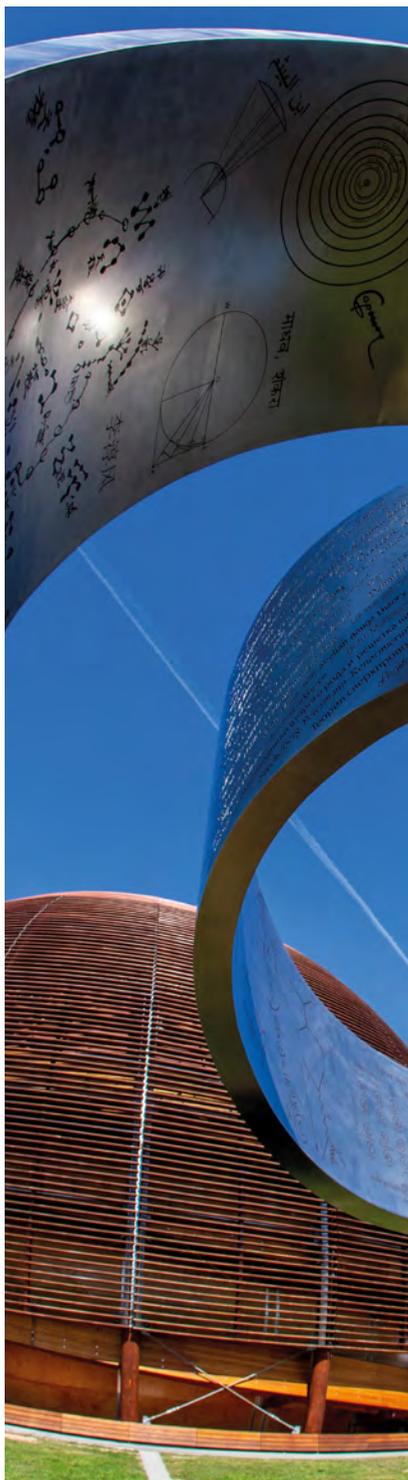
- 42 projects funded by the Structural Funds
- 39 international projects.

A strategy to increase the research potential of the AGH UST includes establishing and joining networks of associated universities and research institutes.

800 laboratories

Modern equipment constitutes a huge support for any research activity. We have one of the most powerful microscopes in the world – Titan Cubed G-2 60-300, measuring equipment, including cleanroom devices with apparatus for nanotechnology and materials nano-diagnostics, and a specialised CT scanner used to examine building materials. Moreover, the AGH UST has one of the quietest places in Poland – an anechoic chamber. Our laboratories are equipped with top-notch apparatus; here are but a few examples of our finest research facilities: Laboratory of Energy Efficiency and Building Automation – AutBudNet, RWE AGH Solar Lab, LTE Laboratory, AGH-KGHM Polska Miedź SA Laboratory of Critical Elements, AGH-Aktiv Laboratory of Autonomous Vehicles, and Industry 4.0 Laboratory.





Research for CERN

For more than two decades, the AGH UST scientists have been participating in projects within the framework of LHC (Large Hadron Collider) experiments and other programmes related to fundamental research carried out at CERN or the European Organization for Nuclear Research. 9 AGH UST employees and 5 doctoral students are part of a group that works on the ATLAS experiment. The team works on physical analyses, and one of its greatest achievements was to carry out measurements of an extremely rare phenomenon of photon-photon scattering or an infrequent decay of the Higgs boson into leptons and a photon. Another team that participates actively in experiments at CERN works on the LHCb experiment that seeks the so-called “new physics”, that is, effects transcending beyond the description offered by the Standard Model of particle physics, trying to explain the asymmetry between matter and antimatter that brought about the era of matter after the Big Bang. The members of the LHCb AGH group perform physical analyses, contributing significantly to the preparation of the software and hardware of the experiment. Scientists and students from the AGH UST have also participated in IT work supporting the TOTEM experiment. In 2021, the research team working on the project announced the discovery of the odderon – a quasi-particle made up of an odd number of gluons. In addition to developing and ensuring a good quality of the software for data reconstruction and detector response simulations, the AGH UST team also focuses on multifarious aspects of parallel computing used to process large data collections. The AGH UST employees and doctoral students also participate in the ALICE experiment (as part of the ALICE-PL Consortium), which, in 2022, proved that charm quark have masses. Our scientists have also been involved in research and development work for future linear colliders $e+e-$: ILC (International Linear Collider) and CLIC (Compact Linear Collider). The AGH UST team works within the FCAL Collaboration.

Supercomputers available to researchers

The AGH UST Academic Computer Centre CYFRONET supports Polish scientists by providing world-class resources and solutions in the field of information technology. Essentially, these include three supercomputers: Athena (theoretical computing power of 7.7 PFlops, currently the fastest supercomputer in Poland), Ares (3.5 PFlops), and Prometheus (2.65 PFlops). They have all made it to the prestigious list of the TOP500 fastest supercomputers in the world – this is the first time that three supercomputers from one Polish research centre have made it to the ranking simultaneously.

At CYFRONET, Polish scientists use supercomputers in virtually all fields of science and innovative economy. In 2021, for the needs of scientific research, they have performed 5,549,582 computing tasks with a total duration of 43,409 years!

CYFRONET is the initiator and coordinator of the PLGrid Programme, within which the national computing infrastructure has been built for the needs of scientific circles in Poland. It encompasses supercomputers as well as unique IT platforms and dedicated computing environments, including specialist science software packages – tailored to the needs of researchers representing different scientific disciplines.

CYFRONET also coordinates work connected with offering access for Polish scientists to the resources of LUMI – a supercomputer with the computing power of 550 PFlops, assembled in Finland by a consortium of 10 countries (Poland included) and available through the PLGrid Portal.

In 2022, CYFRONET has been selected to host and operate one of five new-generation supercomputing systems currently under construction, which will create a European data processing infrastructure within the EuroHPC Joint Undertaking.



cooperation

Transfer of knowledge and technology

Technology transfer and the commercialisation of innovative solutions are strongly supported and promoted by our university. The experience we have allows us to regularly adjust and adapt our offer, as well as respond effectively to the needs and expectations of industry.

Continuous collaboration with entrepreneurs, business-related institutions, central and local government administration, other universities, and research and development institutions, as well as participation in Polish and international scientific and industrial consortia, allows us to carry out many interesting projects that usually become implemented to the market. Every year, the AGH UST signs about 100 contracts, letters of intent, and cooperation agreements with industry, administration, and business-related institutions. In addition, each year, the university executes approximately 1,000 research and development contracts, more than half of which are projects commissioned by the economic sector.

The AGH UST successfully participates in the ministerial programme of industrial doctorates, whose aim is to provide funding for research conducted by doctoral students in collaboration with socio-economic circles.

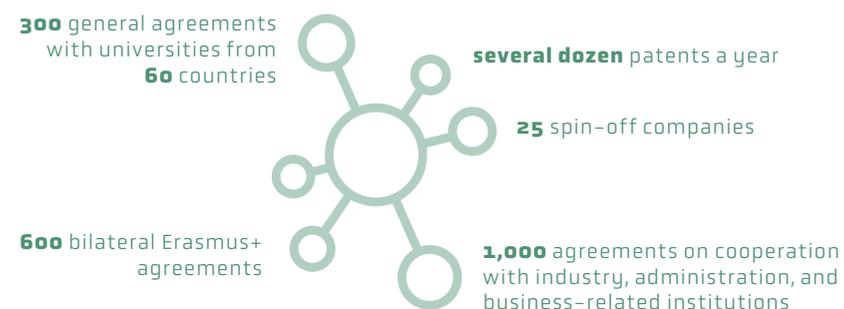
The innovative potential of the AGH UST is based on its intellectual property, the accumulated know-how, and sheer experience of our scientists and students. Every year, the university obtains several dozen patents and grants several dozen licenses. The AGH UST is in the lead of Polish institutions with regard to the number of patent applications submitted to the European Patent Office.

All these actions are carried out in the innovative ecosystem of our university, which comprises units that cooperate closely with one another and mutually complement their competences:

Technology Transfer Centre is responsible for protecting the intellectual property developed at the university as well as creating effective mechanisms facilitating the transfer of knowledge and innovative solutions to industry. It establishes and maintains contact with the socioeconomic circles, identifying technological needs and creating space to satisfy them.

The Krakow Centre of Innovative Technologies – INNOAGH Sp. z o.o. is a quasi-investment fund of the university, with 100% share capital owned by the AGH UST. INNOAGH is tasked with indirect commercialisation of the results of research and development work carried out at the AGH UST by means of establishing spin-off companies and buying shares therein.

Administration and Business Cooperation Department initiates and coordinates cooperation between the AGH UST, entrepreneurs, economic circles, and the central and local government administration. It inspires and fosters collaboration between our university and the business environment by organising recurrent events related to the economy in the fields crucial to the growth of the region and country.



International cooperation

International cooperation is coordinated by the **Centre for International Affairs**.

The AGH UST has signed nearly 300 general cooperation agreements with universities in more than 60 countries (the majority in Ukraine, France, the People's Republic of China, and the United States of America), more than 600 Erasmus+ bilateral and 31 double diploma agreements (including one within the prestigious T.I.M.E. programme), as well as an agreement on a joint education programme with the Shibaura Institute of Technology in Japan (within the NAWA KATAMARAN programme).

Every year, about 700 students and 130 employees participate in the Erasmus+ programme of academic exchange.

Furthermore, each year, our university hosts more than a dozen visiting professors – prominent researchers and popularisers of science from all over the world.



The AGH UST structure comprises units that are unique in Poland:

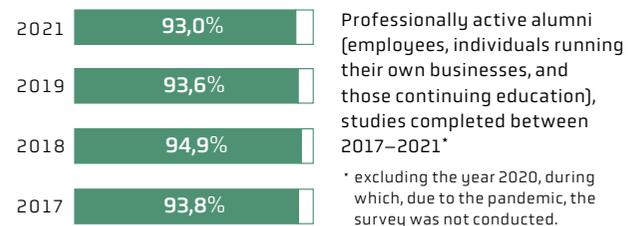
- Faculty of Materials Science and Ceramics
- Faculty of Non-Ferrous Metals
- Faculty of Drilling, Oil, and Gas
- Faculty of Foundry Engineering.

AGH UST alumni

Our graduates are highly qualified professionals, and their knowledge and skills are appreciated and sought-after by employers in Poland and abroad. In their professional careers, they put dynamic development first and hold prestigious positions in the economic sector and research institutions.

The success of our alumni on the labour market stems from a system that has been developed and implemented by the AGH UST, taking into account the scope and process of education, the aspirations of our students, and the employers' requirements verified regularly.

The AGH UST alumni get employed relatively early; more than half of graduates in 2021 found a job even before completing their studies. Their presence on the labour market is stable with an upward trend, and they belong to a professional group that employers look for, which was confirmed by the survey results conducted by the AGH UST Careers Centre in the past years. For 74.8% of the 2021 graduates surveyed, the most important aspect in choosing an employer was an opportunity for development, which reflects their professional ambitions. The second position on the list was the salary with a result of 62.4%. The net monthly earnings of our alumni exceeded PLN 5,000.



The **Careers Centre** is responsible for initiating and maintaining cooperation with the economic sector and preparing students for an effective job search. Its activity encompasses the promotion of the university and its graduates among employers, obtaining job offers, organising practical trainings, and internships, lectures, workshops, trainings, and job fairs (two editions in a year), as well as arranging presentations of companies and recruitment meetings at the university.

Bonds for life

In addition to knowledge, bonds are the most precious value from the time spent in a university. These relationships are shaped not only during classes, but also as part of various projects, practical trainings, internships, cultural events, sports competitions, excursions, etc. Graduating from our university does not mean severing the connection with the AGH UST. There are plenty of ways to stay in touch with the "AGH UST Family". Sign up for our **e-Repository** to receive our newsletter filled with information on university life, invitations to current events, and dedicated training and mentoring materials. Our former students may also reconnect through the **AGH UST Alumni Club**. Its members enjoy special discounts and can follow the current events at the university.

The **AGH UST Alumni Association**, established in 1945, is the oldest university organisation of this kind in Poland. It organises numerous events, including the re-matriculation ceremony of graduates 50 years after the beginning of their studies – a tradition that only our university cultivates.

2017–2019 and 2021 graduates:

- Professionally active: 93% on average, including 87% of contracted employees
- A quarter have been hired by employers without having to seek a job
- More than half of the employed began work before graduation
- More than half received four job offers on average



unique campus

Academic district in the heart of the city

All teaching and research facilities, the main offices of faculties, administration, and student organisations, as well as the AGH UST Student Campus with its four student clubs, sports, and recreation facilities make up a condensed 40-hectare hub nestled in the heart of Krakow. It is only a 15-minute walk between the Main Building and the Krakow Main Square. The entire area is conveniently connected with other parts of the city thanks to an extensive network of trams and buses. The campus also features student canteens, a medical centre, a nursery school, a crèche, and a number of various shops and service outlets.

Modernity and safety

In the last decade, thanks to a number of construction and modernisation projects, the AGH UST Campus has gained a very modern look. The latest developments include a new building for the Faculty of Physics and Applied Computer Science, new buildings for the Faculty of Humanities and the Faculty of Applied Mathematics, as well as a building for the Educational and Research Laboratory for Renewable Energy Sources and Energy Saving in Miękinia near Krakow, and the construction of a modern sports hall and the AGH UST Student Construction Centre.

Most buildings are equipped with special lifts and ramps for wheelchair users, as well as other facilities, such as induction loops, room labelling in Braille, and height-adjustable desks.

The AGH UST Campus is secured by a 24/7 video surveillance system. Any on-site actions regarding security have been specified in a special agreement between the university and the Krakow Police.

The largest student accommodation in Poland

The AGH UST Student Campus covers an area of 13 ha. Its residents can reach the university buildings in 10 minutes. 20 halls of residence with 7,500 beds provide students with comfortable conditions – access to a fast Internet connection, designated places for learning, TV rooms, and club rooms. The room standard is regularly improved.

Between the halls of residence, there are sports fields and tennis courts. An unquestionable asset of the campus is a modern swimming pool with a gym. The close proximity to Krakow Błonia Park and Park Jordana allows runners, joggers, cyclists, and roller skaters to spend their time actively in the picturesque and green areas of the city.

During summer, the AGH UST Student Campus becomes the largest hostel in Krakow.

Eye-pleasing space

The AGH UST buildings are submerged in greenery and trees. Their architecture – monolithic, classical forms of simple, repetitive lines – enforces the way of arranging plants, which fit into the picture and create a well thought-out whole. Every year, green arrangements surprise with new set-ups. Blooming seasonal plants, perennials, shrubs, and trees attract insects, including bees, for which several hives have been located on the roofs of the Faculty of Materials Science and Ceramics and in the neighbourhood of Klub STUDIO. In trees and a few hundred nesting boxes, many species of birds find shelter.

At the same time, the lawns and squares of the campus create a unique out-of-doors gallery. Among the exhibits of the open-air collection, there are sculptures made by Bronisław Chromy, an outstanding Krakow artist, and works of art made by the students of the Academy of Fine Arts in Krakow, as well as erratic boulders, created by nature, and “industrial sculptures” – installations connected with the development of human technological thought and research activity of university faculties.





Accessible university

The AGH UST Campus continues to develop the infrastructure for people with disabilities. The facilities include special wheelchair ramps, lifts, and Braille placards to mark lecture rooms. Additionally, students with disabilities are provided with versatile help and individual support.

The AGH UST offers:

- Adjustment of the educational process
- Help of educational assistants
- Possibility of renting voice recorders, FM systems, text and image enlargers
- Access to the IT laboratory for visually impaired and adaptation of educational materials (e.g. digitalisation, Braille printouts)
- Specialised foreign language teaching
- Sign language translators
- Free psychological support
- Placement in a hall of residence suitable for people with disabilities
- Sports classes fit for the capabilities and needs of people with disabilities (credit for PE courses)
- Financial support
- Participation in projects that promote professional activity.

All activities related to accommodating the needs of people with disabilities are coordinated by the AGH UST Disability Support Office. The Office provides help in adjusting the process of education and educational materials to the needs of people with disabilities. It organises adaptation camps, integration events, workshops, and courses. The Office also supports the initiatives of the Association of Students with Disabilities.



centre of student culture

Festivals, concerts, and competitions

For many years, the university has supported and endorsed a large number of cultural events organised in student clubs at the AGH UST Student Campus. The most original ones include the interdisciplinary *Synaesthesia Festival. Music. Art. Word.*, which combines concerts of famous Polish artists, exhibitions, lectures, and a music competition. Other events include meetings with travellers, writers, and journalists, numerous rock, blues, jazz, and folk concerts, as well as highly popular comedy shows. The campus also hosts many events as part of *Juwentalia*, an annual student festival of all Krakow universities.

Since 2019, on the initiative of the AGH UST Student Government, the university has featured a show called *AGH UST Talent Mine*, which is an opportunity for artistically gifted students to present their passions and skills.

Student clubs

The Academic Cultural Centre Klub STUDIO is one of the largest and most avant-garde music clubs in Poland. The stage features well-known Polish and international artists. An underground connection with the nearby professional Kotłownia Music Studio enables recording live concerts. Klub STUDIO also features a Mining and Metallurgical Brewery, established on the occasion of the 100th anniversary of the AGH UST. Klub Zaścianek welcomes its guests with a stronger beat, but karaoke fans and organisers of collective singing events will also feel very at home here. Klub Gwarek often features blues and jazz performers, as well as young Krakow artists. On top of that, an ideal place to meet friends is Klub Filutek where you can enjoy delicious food and drinks.

AGH UST Media Centre

The AGH UST is the home of a unique media and art project, gathering the largest student Internet radio in Krakow under one roof – Radio1.7, the award-winning AGH UST Krakow Student Photo Agency, the professional film and television production studio AGH UST MINE, and the AGH UST Student Newsletter, whose publications are distributed throughout the campus. The centre combines the features of a production media house and a cultural centre, where more than 180 people, including students from different Krakow universities, can freely develop their creative passions.

Musical pride and joy of the university

- **AGH UST Choir and String Orchestra “Con Fuoco”**
There are many pieces in the band’s repertoire, from mediaeval psalms and classical compositions of the Renaissance and the Baroque, to contemporary music arrangements. Every year, “Con Fuoco” goes on international tours and takes top places in Polish and international competitions.
- **AGH UST Representative Orchestra**
The artists mainly perform popular and film music, as well as popular marches. The make-up of the orchestra changes frequently, new members join in, and many university graduates, despite completing their studies, continue their musical adventure with the Orchestra. Its greatest musical success was the first place in the category of concert competition at the WAMSB World Championships in Calgary, Canada, in 2019.
- **AGH UST Song and Dance Ensemble “Krakus”**
The oldest student folk group in Poland shows the original Polish folklore. Songs, dances, and traditions connected with Krakow, Silesia, Rzeszów, Łowicz, Nowy Sącz, Lublin, Kielce, Beskid, and Kashubia describe the beauty of these regions in a picturesque way.



Krakow:

- One of the oldest and most beautiful cities in Poland, with a historic old town included in the UNSECO World Heritage List
- Important academic hub, home of many research and development institutions and technology transfer centres
- Major industrial and business base, seat of national headquarters of many global companies
- Cultural capital of Poland, famous for its bohemian atmosphere, great theatres, galleries and museums, numerous concerts, festivals, and open-air events



Major landmarks:

- Main Market Square with Gothic Saint Mary's Basilica and the Renaissance Cloth Hall "Sukiennice"
- Wawel Royal Castle
- National Art Museum
- Kazimierz – former Jewish district
- Historic Salt Mine in Wieliczka

sports champions

The AGH UST also cares about the physical fitness of the academic community and takes steps to promote a healthy lifestyle. The availability of numerous sports facilities, several dozen various sports units, and professional coaching staff provide everyone who is passionate about sport with an opportunity not only to hone their skills, but also to win medals.

The AGH UST students represent the university at the most important championships in Poland and abroad, and professional athletes can enjoy personalised programmes of study, as well as scholarships for sports achievements.

Department of Sport and Physical Education

The main task of the AGH UST Department of Sport and Physical Education is to conduct and organise physical education classes. The Department is also an organiser of sailing, kayaking, skiing, cycling, mountain trekking, water sports, and windsurfing-kitesurfing camps; it organises alternative fitness-improvement classes for students with health problems and carries out training courses within the field of first aid.

AGH UST Academic Sports Association

The Academic Sports Association is one of the largest clubs of its kind in Poland, with hundreds of the best athletes of the academic community in Krakow, who practise sports in 31 units, from sport aerobics to sailing. Professionalism and the high level of physical fitness of the athletes are corroborated by significant successes in the course of recent years, both personal and in the AGH UST colours, from the Academic Championships of Poland to the Olympics.

AGH UST Academic Sports Association in the general classification of the Academic Championships of Poland

1 st place	2012/2013 season
2 nd place	2013/2014 season
1 st place	2014/2015 season
1 st place	2015/2016 season
2 nd place	2016/2017 season
2 nd place	2017/2018 season
2 nd place	2018/2019 season
2 nd place	2020/2021 season
3 rd place	2021/2022 season



Sports facilities

- ⚽ Sports and recreation complex of the AGH UST Department of Sport and Physical Education:
 - Two modern sports halls
 - Two gyms
 - Aerobics and workout to music room
 - Steam room
- ⚽ AGH UST Swimming Pool:
 - 25-metre-long sports pool (Polish Swimming Federation type-approval)
 - 25-metre-long training pool
 - Recreational pool with hydro massage
 - Hot tub
 - Gym
 - Bowling alley and billiards
 - Instructor-supervised classes: swimming, aqua-aerobics, fitness, combat sports
- ⚽ Football, basketball, and volleyball fields
- ⚽ Tennis courts
- ⚽ Multipurpose sports and entertainment hall (under construction)



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