AGH University of Science and Technology in Krakow

We create solutions that change the future
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Innovative technologies and modern research, outstanding expert staff and graduates who are professionals in their fields – these are the strengths of the university that I have an honour to lead. A double title of “Leader of Innovativeness” in the Ranking of Universities organised by “Perspektywy” confirms that our multidirectional activity is particularly important for the economic development of the country and the region, which to a large extent motivates us to continue our strenuous efforts, as well as to take up new activity.

A pioneering step for AGH UST in 2015 was the establishment of an association of universities InnoTechKrak together with the Cracow University of Technology and the University of Agriculture in Krakow. The basis for the first initiative of this kind in Poland is collaboration in the area of the establishment of consortia, research centres and laboratories, as well as in the area of more effective obtaining of research grants. We hope that together we will be able to work out and implement solutions which will, first of all, improve the quality of conducted research.

New horizons for the Polish science are opening up thanks to our flagship investments. The newly-developed Centre of Energetics, which is the only centre of this type in Poland and a unique institution in the European scale, has already attracted many companies interested in collaboration in the area of research and carrying out strategic projects. We have also launched Prometheus – the most powerful supercomputer in the history of Poland, which, according to the latest list TOP500, is ranked 38th in the world.

We are pleased that the results of all the efforts we put into the modernisation of the campus, as well as the design of green spaces, have been appreciated by the citizens of Krakow in this year’s architectural plebiscite “Krakow – my home”, and that the university is a friendly and comfortable place for the development of staff and students.

I wish you an inspiring and fascinating read!
The AGH University of Science and Technology in Krakow is a modern state university of national reach, which develops collaboration with colleges and universities from Europe and all over the world. The AGH University of Science and Technology is a technical university where exact sciences are strongly represented, and at the same time they constitute basis for the development of a maximum spectrum of applied sciences and the gradually increasing role of humanities. In line with global trends, we create new fields of study, but at the same time we keep the conventional ones, which are indispensable for a proper development of science, technology and economy of our country.
Establishment of the university

The history of the AGH University of Science and Technology in Krakow dates back to 1912, when a group of outstanding engineers and mining activists, led by Jan Zarański, initiated the process of applying for a consent to establish a school of higher education that would educate mining engineers in Krakow. The endeavours were successful, and in 1913 the Ministry of Public Work in Vienna appointed the Organizing Committee of the Mining Academy, chaired by professor Józef Morozewicz.

By force of a Supreme Order issued by Emperor Francis Joseph on 31st May, 1913, the establishment of the Mining Academy in Krakow was approved. The outbreak of World War I prevented the Academy from beginning its activity in 1914.

Opening and development in interwar period

When Poland regained its independence in 1918, the Organising Committee recommenced its work, and on 8th April, 1919, the Polish Government brought the Mining Academy into being. The first professors were nominated on 1st May, 1919. On 20th October, 1919, Józef Piłsudski, Head of the State, inaugurated the Mining Academy in the main hall of the Jagiellonian University. On 15th June, 1923, the cornerstone for the future university building was laid. Two years later, the project of the Academy emblem (to be seen in the AGH UST History Museum) signed B.T. – Bogdan Treter – was created; it is believed that the emblem was approved by the General Assembly of Professors. Soon, the Academy reached a very high educational standard, and became one of the best European mining schools. Since its early days, the university has collaborated closely with industry, and retained close links with the Polish economy.

World War II

The outbreak of World War II stopped the development of the Academy. Professors of the Mining Academy were arrested by the Gestapo during
“Sonderaktion Krakau”. The science and research elite was deported to the Nazi Germany’s concentration camps in Sachsenhausen-Oranienburg and Dachau. Between 1939 and 1945, the main Academy building was occupied by the German General Government. The property of the Academy was completely devastated and plundered, and the sculpture of St Barbara was broken by an act of throwing it from the roof of the main building. Thanks to the dedication of the staff, part of the library was saved. The Academy started to act in conspiracy, and the authorities tried to regain or create provisional teaching facilities.

Contemporary history
At the beginning of 1945, the Mining Academy was the only technical university in Poland which was able to operate. It became a support centre for other technical universities in Poland. The Cracow University of Technology came into being within the walls of the Academy; it acted under the name of the Polytechnic Faculties of the Mining Academy until 1954. The Academy also played a major role in the establishment of the Silesian University of Technology (23 Mining Academy graduates were professors there), and Częstochowa University of Technology, and it also contributed to the reconstruction of Warsaw University of Technology, and the organisation of Wrocław University of Technology and Gdańsk University of Technology. In 1947, an internal decision was made to rename the university the Academy of Mining and Metallurgy. However, a formal approval of the decision by superior authorities took place only in 1949. In 1969, Stanisław Staszic was chosen the patron statesman of the Academy. At the same time, the university received its standard.

On 14th December, 1981, the AGH UST academic community, under the flag of “Solidarność”, had courage to protest against suppressing – by an act of imposing Martial Law – the retrieved feeling of freedom and solidarity. The Independent Self-Governing Trade Union “Solidarność” at AGH UST was a student organisation, the only one in Krakow, and one of only three in Poland, which organised sit-down strikes in the first days of Martial Law.

In 1999, the sculpture of St Barbara was returned to the roof of the main university building A-0.

“The university, being a technical school, serves science, industry and society through educating students, the development of academic staff, and conducted research. The university cherishes its traditions and educates students to be honest and responsible people both at work and as the members of the society, according to its motto:

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
We go beyond the boundaries of knowledge
Alongside traditional faculties closely connected with mining and metallurgy, the university also has faculties whose research activity is connected not only with the conventional branches of industry or natural and technical sciences, but also with the branches of science which are fundamental for the development of modern economies, such as new materials, renewable sources of energy, biomedical engineering, and information technologies.

We teach at the highest level
The quality of education at AGH UST is confirmed by a high classification of AGH UST units in the parametric evaluation conducted by the Ministry of Science and Higher Education, distinctions for fields of study awarded by the Polish Accreditation Committee, or the first in history European accreditation of the study field of Materials Engineering.

We are a patent giant
The university is a creative place. This fact is confirmed by annual reports published by the Polish Patent Office, where we are in the lead among institutions submitting the largest number of inventions and utility models. Every year, we obtain over 100 patents and sell several dozen licences. Our activity is also noticeable on the European arena. AGH UST is a leader among Polish schools of higher education with regard to the number of patent applications in the European Patent Office.

We accomplish multi-directional collaboration
Scientific research, fields of study taking into account the needs of the labour market, scholarships, practical trainings, regular meetings with employers, and a smooth flow of students and graduates to the labour market are the key elements of collaboration between AGH UST and foreign universities, science institutions, industrial enterprises and companies which are crucial for the country's economy.

Our university campus is unique
The AGH UST campus is located in the centre of the most beautiful Polish city – Krakow. Modern teaching and research facilities with laboratories equipped with unique apparatus, comfortable conditions, numerous improvements for people with disabilities, and the largest campus in Poland – these are only some of its many assets.
AGH UST IN RANKINGS

Ranking of Universities “Perspektywy 2015”

In the most prestigious Ranking of Universities “Perspektywy 2015”, AGH UST came third among technical universities. The ranking was based on 31 detailed criteria, which created six main categories, i.e. prestige, scientific potential, scientific effectiveness, innovativeness, conditions of education, and internationalisation. A significant success is the first place in the category “innovativeness”. In this group, the following criteria were evaluated: patents and protection rights, funds obtained from the European Union, sold licences, and spin-off and spin-out businesses operating within the structure of the university.

“Forge of Chairpersons”

Another important ranking is the “Forge of Chairpersons”, in which AGH UST holds the second place. Surveys confirm that 7.29% of the chairpersons of the largest companies operating in Poland are AGH UST graduates. It is worthwhile to mention that our university has been placed among the leaders of the ranking for the seventh time in a row.

“Scientific Ranking of Universities”

AGH UST can also be proud of a high position in the “Scientific Ranking of Universities 2015”, prepared on the basis of the Hirsch index. The AGH University of Science and Technology won the second place among technical universities, and the 8th place in the general ranking of universities.

Ranking “Webometrics”

A wonderful success of the university is the first place among Polish technical universities in the ranking “Webometrics” (July 2015), which encompasses 12,000 schools of higher education from all over the world. In the prestigious group of 500 schools of higher education whose activity is the most noticeable on the Internet, there were only five Polish universities.
The AGH University of Science and Technology is a special place of unique atmosphere and 100 years of colourful history; it is a place of ideas, successes and friendships for life.
AGH UST GRADUATES ON THE LABOUR MARKET

The university educates engineers, thus providing staff for the Polish economy. The education and qualifications that can be obtained at the university are highly appreciated by employers both in Poland and abroad. Professional careers of many AGH UST graduates confirm the quality and usefulness of knowledge gained at the university.

The right choice of a university
May and June are months of an increased activity both on the labour market and the education market. Students of the initial years at a university frequently look for a summer job, more advanced students, as soon as at the turn of the third year of studies, begin to arrange practical trainings and internships, and students who are about to graduate from the university concentrate on securing employment.

87% of graduates took up a job within six months after graduating from the university, or they continued to further studies.

Another group are secondary school leavers, who making use of their parents’ and friends’ opinions are preparing to take up studies. A contemporary candidate for a university is aware of the consequences of making the right choice of a school of higher education. While taking the final decision, they consider a number of internal and external factors, one of which is finding employment. The degree of competitiveness of graduates on the labour market is therefore a natural verifica-
Among the graduates of the university there are chairpersons and presidents of the largest industrial enterprises and the most important Polish companies, public figures (ministers, voivodes, presidents of cities), as well as world-known artists.

The system which has been worked out and initiated by the AGH University of Science and Technology allows to adjust the programme of education to the actual needs of the economy while maintaining professional standards. It is a resultant of organisational, educational, market, and economic structures.

The system of education. An indispensable element of its effectiveness is the forecasting ability and a flexible form of programmes of study which take into account three elements: the profile, scope and standard of education, the knowledge and professional ambitions of students, and employers’ demands.

Monitoring professional careers of AGH UST graduates

Another method of evaluating and verifying the programme of education with respect to market demands is monitoring the professional careers of university graduates. Monitoring the professional
careers of the graduates of the AGH University of Science and Technology was conducted already in the 1990s. In 2008, the university began standardizing the process of monitoring professional careers of full-time undergraduate and postgraduate students. The AGH University of Science and Technology, as one of very few universities in Poland, has accepted a policy that the time interval counted from the moment of finishing studies to completing the questionnaires by the graduates does not exceed six months. This relatively short time aims at a thorough diagnosis of the graduates’ employment situation in relation to the education received at the university not long after leaving it. The number of surveyed individuals is also very high – every year the survey is participated in by over 80% of all graduates of full-time postgraduate courses, which translates into the reliability of the results.

AGH UST students usually concentrate on looking for a full-time job when they are still at the fifth year of their programme of study, hence 50.6% of the graduates of class of 2014 took up employment still before completing their studies.

The results of monitoring professional careers of AGH UST graduates in the last seven years prove that they belong to privileged professional groups, and their position is stable, regardless of the changing economic situation of the market.

AGH UST graduates who were professionally active (employees, individuals running their own business, and those who continued their education) in a short time after completing their course of study constituted between 81.1% and 88.4% of the surveyed population. In the recent years, it has been observed that the group of employees has increased, and the number of graduates who started their own business activity or continued their education has decreased. A reason for this is an increased interest of employers in AGH UST graduates, which is also reflected in salaries – 23.3% of the graduates who were offered a contract of employment straight after graduating from the university were offered a salary of more than 4,500 PLN per month.

67.6% of the graduates took up employment in the Małopolska region, of which 54.2% in Krakow, while 15.3% found employment in all the other regions of Poland. 4.4% of the respondents obtained employment abroad (in line with the completed field of study).

Despite a relatively high rate of employment, the university does not neglect the group of unemployed graduates. A thorough analysis of the reasons is carried on, and subsequent comprehensive and individually-tailored supportive steps are taken. One of the reasons of unemployment is competition on the labour market, i.e. rivalry for a post by at least several candidates. However, contrary to popular belief, the privilege of selection does not only apply to the group of employers, as 51.9% of the AGH UST graduates who completed their education in 2014 received more than one offer of employment (three, on average), and it was them who could decide upon the choice of the job. It is a proof that the qualifications and skills gained by AGH UST graduates are highly regarded and looked for on the labour market. The need for particular types of professions is also part of the "Statement of Human Capital 2015", and one of the points says: 80% of employers struggle to find technical and exact sciences specialists.

The analysis shows that while choosing an employer, the most important aspect for 63.6% of the surveyed individuals was an opportunity for professional development, which marks high the ambitions of AGH UST graduates, and additionally, determines them to look for a job in line with received education. The second position on the list was salary, with the result of 52%.

Among the employed graduates of class of 2014 – 81.2% took up employment fully or partially in line with education, which confirms that the
programme and scope of education at AGH UST is well-adjusted to the needs of employers. Among the graduates who indicated partial consistency of employment with education, most of them were individuals whose time of employment did not exceed several weeks (a period of probation), which made the classification of “consistency” more difficult. Among 13.4% of the individuals employed not in line with completed education, 4.8% stated that the reason for this was a change of their professional interests.

The position of a graduate is also determined by the form of employment. Among the working AGH UST graduates of class of 2014, a contract of employment was signed by 75.4% of the respondents, 4.3% of the graduates started their own business activity (self-employment), and 18.9% were offered work on the basis of civil-law agreements.

More than 21% of AGH UST graduates did not need to look for a job, since it was employers who offered them a job contract, and for 47.1% the time of seeking employment did not exceed three months.

Both for employers and graduates, a legitimate quality is the prestige and reputation of the university. In the Western countries, it is a natural approach. In the first place, companies recruit graduates from universities of a well-proven track record, and also in Poland, a university’s reputation is steadily growing in importance. For 75.4% of employers, graduating from AGH UST is a candidate’s additional asset, and 23.4% have no views on the subject.

Judging the choice of a university from the perspective of several years, 78.8% of the graduates of class of 2014 declared that they would again choose to study at AGH UST, and 14.3% did not provide an unambiguous answer. In a face-to-face conversation (quality checks), they stressed the fact that it is also a personal satisfaction and pride which follows from the fact of holding an AGH UST diploma, which influences positive self-evaluation and a feeling of security on the labour market.

The employment record is not without an influence on the quoted opinion. The realization of professional ambitions and the improvement of economic status by AGH UST graduates is documented by the results of subsequent surveys taking place three years after graduating from the university: 77.9% of the respondents gained a promotion, 11.2% were employed at a managerial position, 85.1% enjoyed a pay rise in comparison to the employment obtained straight after leaving the university (a maximum pay rise was 30,000 PLN), and 29.6% had a salary that exceeded 6,000 PLN.

Undoubtedly, for a typical AGH UST graduate, the starting capital and the necessary condition for career development is knowledge, the completed field of study, as well as the level and scope of education that keeps up with the demands of the labour market, which has been proved by the conducted research and published rankings.

The conducted analysis and the opinions of employers confirm that the position of an AGH UST graduate on the labour market is stable, and creates a high probability of employment, and in consequence, a good chance for adequate professional development. It is a result of a forward-looking strategy and the consistent realisation of the university’s educational policy and the programme of education based on the actual needs of the economy.
The university educates nearly 35,000 students. The educational offer encompasses 57 fields of study, including 200 specialisations, which are offered by 16 faculties. The university also offers doctoral studies in 23 scientific disciplines, and over 100 postgraduate courses.

Our main assets are:
- huge scientific potential,
- recognition by employers,
- close links with industry and business world,
- possibility to do practical trainings and internships,
- modern teaching and research facilities,
- good social conditions,
- possibilities to develop interests (special interest groups, student organisations, Academic Sports Association),
- university campus with the largest student accommodation area in Poland.

AGH UST offers unique, often interdisciplinary studies which can be tailored to individual needs. Every year, the university launches new fields of study whose programmes take into account the needs of the labour market, which arise from the economic transformations and the demand for highly-qualified specialists. A high demand for engineers is a reason why the university graduates are often competed for by employers who offer them excellent conditions of employment. Our graduates are recognised as professionals both in Poland and around the world.

Some faculties at the university are unique in Poland, i.e. the Faculty of Materials Science and Ceramics, the Faculty of Non-Ferrous Metals, the Faculty of Drilling, Oil and Gas, and also the only in Europe Faculty of Foundry Engineering; all of them help students gain expert, engineering knowledge, and educate professionals in their selected, specialist fields and branches of science.

In line with the mission of the university, we place a lot of emphasis on the quality of education by taking steps in many different directions.
One of the elements of the AGH UST employees’ appraisal system are questionnaires completed by students. All activities which aim at maintaining high standards of the educational process are coordinated by the University Board for Quality of Education. An excellent evaluation of the educational activity of the university is reflected in the reports of the Polish Accreditation Committee.

It is worth emphasizing that in the course of the recent years all fields of study at AGH UST have received positive evaluation of the Polish Accreditation Committee, and some have also been distinguished. Additionally, all AGH UST faculties have been awarded top scores in the parametric evaluation of research units conducted by the Ministry of Science and Higher Education. The highest grade – category “A+” – was awarded to the Faculty of Physics and Applied Computer Science.

Receiving education at the highest level, which is recognisable all over the world, is possible thanks to:
- intensified learning of foreign languages,
- integrated studies with double diplomas (of AGH UST and a foreign university),
- possibility to do practical trainings and internships abroad,
- tailored programmes of study,
- constantly modernised methods and content of education (for example, distance education),
- well-developed teaching and social facilities,
- possibility to gain teaching qualifications.

Students are supported by learning materials available on the portal Open AGH UST (the first in Poland university repository of Open Educational Resources, understood as learning materials which are made available freely, without any charges, and with a right of further distribution), and the portal Open AGH UST e-Textbooks. Open AGH UST is an innovative project whose innovativeness lies in the fact of developing standards for creating open academic e-textbooks in accordance with the National Qualifications Framework. Open AGH UST does not just mean e-learning courses, but it means high quality, open, digital academic textbooks adapted to the AGH UST educational offer.

**Educational offer in English**

Caring about the competitiveness of our offer on the international education market we develop teaching in foreign languages.

Currently, education in English is offered at 17 fields of study (bachelor’s degree and master’s degree). Moreover, the university hosts the University Base of Courses in Foreign Languages.

The base encompasses over 100 courses, which are available to all AGH UST students each semester. Students can agree with the Deans of their faculties to include the courses in their plans of study. The programme is also intended as an educational offer for all students coming to AGH UST within the framework of international exchanges programmes.

**Bachelor’s degree**
- Electronics and Telecommunications
- Mechatronics

**Master’s degree**
- Biomedical Engineering: Emerging Health Care Technologies
- Chemical Technology: Clean Fossil and Alternative Fuels Energy
- Chemical Technology: Sustainable Fuels Economy
- Electrical Engineering: Smart Grids Technology Platform
- Electronics and Telecommunications: Networks and Services
- Energy Technology: Sustainable Energy Development
- Geophysics: Applied Geophysics
- Management: International Management
- Materials Engineering: Advanced Materials – Processing and Characterization
- Materials Engineering: Functional Materials
- Mechatronics: Mechatronic Design
- Mining and Geology: Economic Geology
- Mining and Geology: Mining Engineering
- Sociology: Technology and Society
- Virtotechnology: Virtualization of Foundry Engineering

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**Professor Edyta Brzychczy**
AGH UST researcher

“What does AGH UST mean to me? ‘A’ stands for an ‘asset’ which, without doubt, is the university diploma recognisable in Poland and abroad. Among our graduates there are many chairpersons of the largest companies in Poland. The university provides solid education and creates a wide spectrum of opportunities for the development of passions and interests.”
The AGH University of Science and Technology offers studies at three levels (cycles) of education:
- **bachelor’s degree** (6–7 semesters),
- **master’s degree** (3–4 semesters),
- **doctoral studies** – prepares students to teach and conduct independent research, and leads to awarding a doctor’s degree.
Educational offer in Polish

**Faculty of Mining and Geoengineering**
- Civil Engineering
- Mining and Geology
- Environmental Engineering
- Management and Production Engineering

**Faculty of Metals Engineering and Industrial Computer Science**
- Education in Technology and Computer Science
- Heat Engineering
- Materials Engineering
- Computational Engineering
- Applied Computer Science
- Metallurgy

**Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering**
- Automatic Control and Robotics
- Electrical Engineering
- Computer Science
- Biomedical Engineering
- Microelectronics in Industry and Medicine

**Faculty of Computer Science, Electronics and Telecommunications**
- Electronics
- Electronics and Telecommunications
- Computer Science
- Teleinformatics

**Faculty of Mechanical Engineering and Robotics**
- Automatic Control and Robotics
- Acoustic Engineering
- Mechanical and Materials Engineering
- Mechanical Engineering
- Mechatronics

**Faculty of Physics and Applied Computer Science**
- Medical Physics
- Technical Physics
- Applied Computer Science

**Faculty of Applied Mathematics**
- Mathematics

**Faculty of Geology, Geophysics and Environmental Protection**
- Geophysics
- Mining and Geology
- Applied Computer Science
- Environmental Engineering
- Environmental Protection
- Tourism and Recreation
- Ecological Sources of Energy

**Faculty of Mining Surveying and Environmental Engineering**
- Geodesy, Surveying and Cartography
- Environmental Engineering

**Faculty of Materials Science and Ceramics**
- Ceramics
- Chemistry of Building Materials
- Materials Engineering
- Chemical Technology

**Faculty of Foundry Engineering**
- Metallurgy
- Virtotechnology

**Faculty of Non-Ferrous Metals**
- Materials Engineering
- Metallurgy
- Management and Production Engineering

**Faculty of Drilling, Oil and Gas**
- Mining and Geology
- Oil and Gas Engineering

**Faculty of Management**
- Information Technology and Econometrics
- Management
- Management and Production Engineering

**Faculty of Energy and Fuels**
- Power Engineering
- Chemical Technology

**Faculty of Humanities**
- Cultural Studies
- Sociology
Doctoral studies

15 faculties of the AGH University of Science and Technology are entitled to confer the doctor’s degree in technical, chemical, physical, Earth, economic, and mathematical sciences in 23 disciplines: automatic control and robotics, biocybernetics and biomedical engineering, civil engineering, construction and operation of machines, chemistry, electronics, electrical engineering, power engineering, physics, geology, geophysics, mining and engineering geology, geodesy and cartography, computer science, materials engineering, production engineering, environmental engineering, mathematics, mechanical engineering, metallurgy, management sciences, chemical technology, and telecommunications. We believe that doctoral studies are a very important element on the path to the development of university staff, and we consequently develop this area of our activity. In the educational offer there are doctoral studies which are fully or partly conducted in English.

Postgraduate courses

AGH UST offers more than 100 postgraduate courses aimed at both professional engineers (programmes in the fields of ceramics, electrical engineering, power engineering, gas engineering, geodesy, geophysics, mining, computer science, mechatronics, metallurgy, robotics, telecommunications, financial engineering), as well as people who are interested in obtaining a new specialisation in computer science and computer graphics, environmental protection, public procurement, occupational health and safety, estate evaluation and management, human resources management, company management, quality management, and EU funds management.
**e-Learning**

The application of e-learning at the AGH University of Science and Technology encompasses a number of complementary activities. Both students and teachers can effectively use the new means of media and communications, in the first place, by making use of the University e-Learning Platform. The unit which is responsible for the development of education with the use of the Internet is the AGH UST Centre of e-Learning.

**Lifelong education**

The AGH University of Science and Technology has a rich offer of additional training courses which are aimed at a very wide range of recipients. AGH UST units also offer **specialist courses** commissioned by production plants for their employees. The offer of these courses has no age restrictions.

Implementing the idea of lifelong education we want to reach the highest number of social groups. For many years, AGH UST has hosted the **AGH UST Open University**. A characteristic feature of the Open University is its interdisciplinary character, which follows from the first Polish Open Seminar organised at AGH UST by professor Walery Goetel, the participation of the representatives of all age groups, as well as lecturers from all kinds of schools of higher education all over Poland, institutes of the Polish Academy of Sciences, and other governmental departments. In particular, the subject area of lectures relates to the advances in physics, computer science, the humanisation of technology, the optimum use of environmental resources, health-promoting activities, and the popularisation of culture. Lectures are combined with discussions and create an opportunity not only to update and broaden knowledge, but also to make the representatives of different age groups think about the integration of sciences for the purpose of improving both the condition of the environment and the quality of life, as well as the contemporary problems of the 21st century.

A new initiative at the university is the project **AGH UST JUNIOR** aimed at children of the pre-school and primary school age. The aim of the project is to spark the children’s interest in topics within the area of exact and technical sciences. The project encompasses a few parallel activities: **science workshops for children**, **visiting the AGH UST Museum**, and a specially created website: [www.junior.agh.edu.pl](http://www.junior.agh.edu.pl). It is worth adding that AGH UST, as the first university in Poland, has launched a multimedia platform via which scientists and researchers can share their knowledge with the youngest students.

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**Bartosz Niemczura**
AGH UST graduate

“While gathering educational and personal experience, we develop and mature. At the university, I found out about my strengths, thanks to which I am now achieving my professional goals.”
The AGH University of Science and Technology is a leader of the project “Małopolska Cloud Education”, the idea of which is to pass knowledge and bring closer the scientific achievements of universities with the use of information and telecommunication technologies by means of involving students of secondary schools in virtual classes, lectures and laboratories. The partners of the project are the Marshal’s Office of the Małopolska Region, Krakow universities, as well as administrative organs running secondary schools of general education and secondary technical schools.
RESEARCH AS A SOURCE OF INNOVATION

Developing research at the highest level, searching for new technologies that can be applied in industry, creating innovative solutions – these are our priorities through which we have influence on the contemporary science and economy.

Research activity of AGH UST comprises eight subject areas:
- Information Technologies,
- New Materials and Technologies,
- The Environment and Climatic Changes,
- Energy and its Resources,
- Mining,
- Electrical and Mechanical Engineering,
- Exact and Natural Sciences,
- Socio-Economic Sciences and Humanities.

The AGH UST staff are 2,000 scientists and teachers, of which 600 have a status of independent researchers. Scientists present the results of their research works and projects by organising and participating in a few dozen international and Polish conferences and science symposia every year. Experience and the highest qualifications enable many AGH UST professors to hold important functions in prestigious scientific bodies in Poland and abroad.

The university conducts over 2,000 domestic research projects, and about 200 projects carried out jointly with international partners within the framework of the following programmes: EU Framework Programmes, including Horizon 2020, Norway Grants, Swiss Contribution, KIC InnoEnergy, KIC RawMaterials, European Space Agency, International Visegrad Fund, Research Fund for Coal and Steel, EUREKA, COST, ERA, bilateral collaboration programmes, Erasmus+.

Research activity is supported by modern equipment. We have one of the most powerful microscopes in the world – Titan Cubed G-2 60-300, unique technological and measurement equipment, including devices working in the conditions of high cleanliness, in the so-called “clean room” with equipment designed for nanotechnology and material nonodiagnostics, as well as laboratories equipped with advanced apparatus and devices, such as the Laboratory for the Evaluation of Energetic Efficiency and Automatic Control of Buildings – AutBudNet, which holds – unique in Poland and East-Central Europe – the accreditations of LonMark International, RWE – AGH UST Solar Lab, which is the first LTE laboratory at a Polish university, the AGH UST – KGHM Laboratory of Critical Elements, and the Laboratory of Microelectronics and Radiation Sensors.
Making supercomputers available to others

By the decision of the State Committee for Scientific Research, the AGH UST Academic Computer Centre Cyfronet is a leading institution in the field of operating and developing the city computer network (Metropolitan Area Network – MAN), as well as in the area of using computers of high computing power. The Centre serves science, especially in the field of computer networks, computing power, and other information technology services.

Cyfronet, as a centre of computers of high computing power, supports scientists and researchers by means of making available the computing power of supercomputers – among them there is Prometheus, the fastest supercomputer in Poland (2.4 PFlops, 38th place on the list TOP500 of the fastest supercomputers in the world – as of November 2015) and Zeus (374 TFlops, continuously on the list TOP500 since 2008, currently at the 385th place).

Zeus is used extensively by the scientific research community – in 2014, it performed nearly 8 million calculations, and the total operation time was close to 13 thousand years! Thanks to the launch of Prometheus in April 2015, it is now possible to carry out simulations of the research tasks for which the computing power of Zeus was insufficient.

Cyfronet is the initiator and leader of the consortium PL-Grid, thanks to which a group of projects aiming at computer-based support for the scientific environment has been established – Polish Infrastructure for Supporting Science in the European Research Space – PL-Grid. Within the framework of the Programme PL-Grid, a fully functional Grid infrastructure has been built for the needs of the scientific environments in Poland. It encompasses not only high computing power, but also necessary mass storage and information platforms, as well as dedicated computing environments – tailored to the needs of scientists and researchers representing different scientific disciplines.
A study entitled “The Tatra Mountains during the Last Glacial Maximum”, co-developed by a researcher of the AGH UST Faculty of Geology, Geophysics and Environmental Protection, was decided the best map in the world published in 2014 by the “Journal of Maps”. The map, developed entirely in the 3D environment on the basis of digital elevation models, shows the topography of the Tatra Mountains during the last glacial period, over 20 thousand years ago, and is the first study in which a spatial picture of glaciers has been presented for the whole area of the Tatra Mountains.

An adaptive voltage divider with corrected frequency characteristic for measuring high voltages, and a system and a method for the synchronisation and transmission of information in a distributed measurement and control system are the inventions developed by AGH UST scientists and researchers which received awards at the 2014 International Invention Show & Technomart in Taipei.

At the 63rd International Exhibition “Brussels Innova”, AGH UST scientists and researchers won three gold medals (the technology Voice Colour; 3D real-time audio engine simulation for video games; an adaptive voltage divider with corrected frequency characteristic for measuring high voltages), one silver medal (a system and a method for the synchronisation and transmission of information in a distributed measurement and control system), and one bronze medal (an acoustic search engine for keywords – sound recognition technology SARMATA).

A gold medal with distinction for a separation drain street inlet, and a silver medal for a precise and ultrafast integrated circuit for new generation pixel digital X-ray cameras – this is the medal account of the university at the largest European exhibition “Geneva Inventions”.

The invention ”Battery of Fuel Cells”, which concerns a battery of high-temperature oxide fuel cells whose characteristic feature is a short start up time and an increased resistance to sudden changes of temperature, was awarded a gold medal at the 114th International Fair of Inventions “Concours Lépine” in 2015.

Three gold medals were brought back home from the Invention and New Product Exposition INPEX 2015 by the scientists of the Faculty of Computer Science, Electronics and Telecommunications. The following solutions were awarded prizes: a resonant-mode power supply with a multi-winding inductor, a method for controlling a resonant-mode power supply and a resonant-mode power supply with a controller, as well as a method for the reduction of losses in an integrated inductor and an integrated inductor.

At the International Exhibition of Economic and Scientific Innovations INTARG, the scientists and researchers of the AGH University of Science and Technology won a “Platinum Award” for a system supporting traffic management based on the analysis of images from street cameras, as well as four gold medals for a battery of fuel cells, an adaptive voltage divider with corrected frequency characteristic for measuring high voltages, “IdentCAR”, and “Instreet 2”.

Innovative solutions developed at AGH UST gain recognition on the international arena. Below, there are some selected achievements of our researchers in the academic year 2014/2015.
In mid-2015, AGH UST launched Prometheus – the most powerful supercomputer in the history of Poland. In order to illustrate the speed of Prometheus, it can be said that in order to match its computing power, one would have to use over 50,000 high-class personal computers with the best-possible configuration, combined in a superfast network, and managed by the most sophisticated software.
Professional transfer of innovations from the university to the market is possible thanks to special purpose vehicles. At AGH UST, this role is fulfilled by the Krakow Centre of Innovative Technologies INNOAGH with 100% share capital owned by the AGH University of Science and Technology. Its main objective is the establishment of spin-off companies. The offer of INNOAGH is aimed not only at the academic environment, but also at business entities.

www.innoagh.pl

The mutual awareness of needs and possibilities, as well as the trust of the scientific and entrepreneurial environments are a key factor for the success of the transfer of technologies, hence increasing the innovativeness and competitiveness of the country’s economy.
TRANSFER OF KNOWLEDGE TO ECONOMY

The contemporary, very competitive market forces entrepreneurs to undergo constant development, for example, through introducing new or improved products or services, the rationalization of production costs, as well as limiting a negative influence on the natural environment. AGH UST has a wide scope of collaboration with entrepreneurs, responding to their needs. Our partners are ArcelorMittal, CEMEX, Cisco, Comarch, DRESSTA, Erbud Group, LOTOS Group, IBM, INGLOT, KGHM, Lafarge, Mesko, Nokia Solutions and Networks, PKN Orlen, PZL-Świdnik, RAFAKO, RWE, SGL Group, Siemens, TAURON, and Valeo.

An important aspect of the AGH UST activity is taking part in domestic and international scientific and industrial consortia, such as the Institute Motorway of Technology and Innovation, coordinating the work of CC Poland Plus – a scientific-research consortium of Knowledge and Innovation Community InnoEnergy, established on the initiative of the European Commission, or being part of the consortium KIC RawMaterials.

The Database of Job Offers and CVs is a platform which enables uploading CVs and job offers in two languages (Polish and English), as well as establishing a direct contact between an employer and a student or graduate whose curriculum vitae has been published in the database.

Centre for Transfer of Technologies

Within the structure of the university there is also the AGH UST Centre for Transfer of Technologies, whose aim is to support the processes of commercialisation and transfer of innovative technologies and knowledge. The AGH UST Centre for Transfer of Technologies deals with comprehensive issues connected with the transfer of new technologies, including:
- promotion of AGH UST research, technological and specialist offer for entrepreneurs and investors,
- selling intellectual property rights (patents, licences, know-how) and making them available in other forms,
- protecting intellectual property rights,
- obtaining funds supporting the transfer of technologies,
- information, advice and training related to the transfer of technologies.

The AGH UST Centre for Transfer of Technologies operates in the domains of the marketing of science in business environment, protecting intellectual property, as well as servicing and financing the transfer of technologies by means of cooperating with the AGH UST scientific environment and the entrepreneurial environment, regardless of the scale of their activity, as well as with member organisations for entrepreneurs.

www.ctt.agh.edu.pl

AGH UST Academic Incubator supports entrepreneurship

The promotion of business fundamentals among university students, graduates and researchers, and providing direct help in the process of establishing and running one’s own business is one of the main aims of the AGH UST Academic Business Incubator. In total, over one hundred firms have been established at the AGH UST Academic Business Incubator, and 2,000 individuals have received help and guidance. The Incubator’s support is also used by students and employees of other universities in the Małopolska region.

www.aip.agh.edu.pl

Professional help in searching for job offers and specialists

The AGH UST Career Centre is a university unit whose main objective is to establish and maintain collaboration between the university and the Polish economy. The Centre’s scope of activity encompasses obtaining job offers and offers of practical trainings and internships, running a database of people looking for a job, collaboration with Polish and international companies, organising job fairs (twice a year), presentation of companies, recruitment meetings at the university, as well as workshops and trainings.

www.ck.agh.edu.pl
The university campus is an area of **38 hectares** located between the streets of Mickiewicza, Reymont, Buszka, Tokarskiego, Armii Krajowej, Gramatyka, Nawojki, and Czarnowiejska.
The largest and the most beautiful campus

One of the AGH UST assets is a unique university campus, i.e. all buildings in which lectures, classes and research activities take place. It is also home to the university administration, student organisations, sports and recreational facilities, as well as the AGH UST Student Campus – all these are located in one district of the city of Krakow.

Location in the city centre
The AGH UST campus is located in the centre of Krakow. The distance between the AGH UST Main Building and the Main Market Square is only 1 kilometre, hence it is possible to walk the distance in a few minutes. Getting to the Main Railway Station in Krakow, thanks to an extensive network of trams and buses, takes only 10 minutes, and getting to the Krakow Airport in Balice – about 30 minutes.

The largest in Poland
The compact complex of AGH UST buildings is located in one district of Krakow and covers the area of 38 ha. An integral part of the university campus is the AGH UST Student Campus, covering the area of 13 ha.

In the garden of sculptures and rocks
The green squares and areas located between faculty buildings are at the same time an open-air gallery, e.g. for the works of Bronisław Chromy, a well-known Krakow artist, as well as several dozen sculptures made of sandstone. Single- or multi-element arrangements, composed of stone, and in some cases, interacting with stainless steel, cast iron, marble, bronze and black syenite are a result of outdoor meetings of the students of the Faculty of Sculpture at the Academy of Fine Arts in the architectural plebiscite “Krakow – my home” 2015, the AGH University of Science and Technology dominated its competitors in two categories. The winner in the category “public utility architecture” was the Centre of Energetics, and the AGH UST campus was awarded a distinction in the category “public space architecture”.
Arts in Krakow. Additionally, at the AGH UST square, which in the past used to be part of the Krakow Park, not far away from the AGH UST Main Building, there are specimens of sandstone – yellow, grey and red, as well as leucocratic igneous rock and granite erratic.

Open technologies
The technological character of the university and a close relationship with industry are emphasized by the exhibits in front of the faculty buildings, such as the wheel of a headframe, a pumpjack, a longwall coal-cutting machine, a cable car, a mine cart, solar panels, and a crankshaft. The area of Akademicka Street is a space for the "Railway Garden", with the famous AGH UST Locomotive (steam locomotive Ty2-559, series Ty2), a goods wagon, and the largest in Krakow and one of very few in Poland – an equatorial sundial, built with the use of an original wheel from a hard coal mine shaft.

Green arrangements
The arrangements of the AGH UST campus change with the seasons of the year. In spring, several thousand tulips are in bloom, in autumn, lavenders dominate the spaces. The wealth of the green areas is created by plane trees, lime trees, pear trees, maple trees, dogwoods, flowering almonds, beech trees, grasses, smoke bushes, hydrangeas, crocuses, rush daffodils, autumn crocuses, pachysandra, lace shrub, and dozens of other kinds of plants. The university gardeners take care of the regular forms of shrubs and hedges, as well as provide tree supports. The choice of plants is also influenced by building facades, for example, yellow daylilies and black mondo grass match the colours of the Centre of Energetics, and it is not coincidental that a northern red oak is growing in front of the Centre of Ceramics. In the neighbourhood of the AGH UST Locomotive there are beautiful rose beds – it is one of the favourite places of students and Krakow citizens. Also, thanks to collaboration with the Małopolska Ornithological Society, several hundred birdhouses have been placed on trees and buildings for starlings, tits, swifts, jackdaws and kestrels.

While visiting the Old City of Krakow, it is well worth visiting the AGH UST Guest House “Sienkiewiczówka” at 16 Piłsudskiego St.

Friendly and safe
Within the area of the campus there are enough car parks and cycle racks, as well as places where students can relax and have a meal between classes. Most buildings are equipped with special lifts and ramps for wheelchair users, and the following improvements make it possible for our students to take active part in the university life: audio loops, room labelling in Braille, and adjustable-height desks. The AGH UST campus is covered by a 24/7 security system, and any on-site actions concerning security have been specified in a special agreement.
The largest investment in the history of AGH UST has been the newly-developed Centre of Energetics. It is the only centre of this type in Poland and a unique institution in the European scale, focusing mainly on the development of innovative technologies in the field of power engineering, as well as research in the area of clean coal technologies, photovoltaics, nuclear power, and power distribution networks. This modern complex of 15,000 square metres, together with 40 specialist laboratories, will be made available to both AGH UST researchers, as well as the scientists of Polish and international institutions.

Modern investment
In the course of the last decade, thanks to a number of developments and the modernisation of the existing facilities, the AGH UST campus has gained a new look. The most important examples of modernisation and developments are: Centre of Computer Science, Centre of Ceramics, AGH UST Academic Centre of Materials and Nanotechnology, the new building of the Faculty of Energy and Fuels, AGH UST Swimming Pool, Education Centre, Teaching and Research Laboratory of Renewable Sources and Conservation of Energy in Miękinia, the Machine Room of the AGH UST Academic Computer Centre Cyfronet, in which there are maintenance rooms as well as computer rooms fully suitable for housing computers of high computing power and mass storage systems. At the same time, the extension of the Main Library has increased the comfort of using its resources and services thanks to the creation of a direct-access zone to some parts of the book collection. One of the key projects has been the largest development in the history of the university – Centre of Energetics. Invariably, the university also cares about the comfort of the inhabitants signed by the university authorities and the Municipal Police Headquarters in Krakow.
of the AGH UST Student Campus by means of regular refurbishment and modernisation works in student houses and student clubs – currently, the legendary club STUDIO is being refurbished.

**AGH UST Student Campus is the largest in Poland**

The AGH UST Student Campus is located between the streets of Reymonta, Buszka, Tokarskiego, Armii Krajowej, Nawojki, and Miechowska. Its dwellers can reach the university buildings in 10 minutes. Comfortable conditions are a great asset of the student houses – access to the Internet, special places for learning, TV rooms, and club rooms. The room standard is improved regularly by means of necessary renovations and refurbishments. The student campus has its own sports fields (including a modern football pitch, and volleyball and basketball courts with artificial surfaces), and tennis courts. A very modern AGH UST Swimming Pool is another great asset. Close proximity of the Krakow Blonia Park and Park Jordana allows runners, joggers, cyclists, and roller skaters to spend time actively in picturesque and green areas of the city.

The AGH UST Student Campus offers over 8,000 beds in 20 student houses.

Throughout the year, the AGH UST Student Campus also offers places in comfortable hostels. Tourists can take advantage of an attractive offer, whose prices are equally attractive. In July, August, and September, the AGH UST Student Campus becomes the largest summer hostel in Krakow. During the academic year, hostel services are provided by the student house OLIMP, which offers 280 beds in studio-type rooms with bathrooms and kitchenettes. A detailed offer of hostel accommodation is available on the website: www.taniehostele.pl

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**Jakub Rydkodym**

AGH UST student

“At the university, I have been impressed by loads of things: a good reputation, an unforgettable atmosphere among students, and the beautiful, elegant main building. (...) However, it is the student community that makes the period of study an unforgettable time.”

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13 ha

the area of the AGH UST Student Campus
“A city within a city”

- 20 student houses
- eating establishments, shops and service-providing facilities
- student clubs
- a health centre
- a football pitch
- volleyball and basketball courts
- tennis courts
- a nursery school
- a crèche
- a chemist’s
- AGH UST Swimming Pool
The concerts given by the AGH UST Song and Dance Ensemble “Krakus” always receive a very warm welcome from the audience – the group has performed in all European countries, as well as in Asia, Africa, North America, and South America. In its 65-year history, “Krakus” has performed nearly 5,000 times, on many occasions winning prizes and awards at Polish and international music festivals.
Our creativity is not only restricted to solving engineering challenges – a wide spectrum of interests of AGH UST students and employees is reflected in their artistic activity.

AGH UST students’, employees’, and graduates’ scope of creativity is extremely wide, starting from music, through painting, graphic arts, sculpture, photography, poetry, and many others.

Every academic year is rich in cultural events, such as, for example, concerts on the occasion of the inauguration of a new academic year, singing carols, charity concerts, painting and photography exhibitions shown all over the university, and also themed exhibitions in the Main Library and the AGH UST Museum.

The artistic side of the university:

AGH UST Choir and String Orchestra “Con Fuoco”
In the choir’s repertoire there are many pieces, from medieval psalms, through classical compositions of the Renaissance and the Baroque, to quadri- and even octo-syllabic arrangements of contemporary music. Although “Con Fuoco” is the youngest choir among the Krakow’s universities, it has already had many successes both on the national and international arena.

AGH UST Representative Orchestra
The artists perform mainly popular and film music, as well as popular marches. The orchestra’s sound palette features the following instruments: flute, clarinet, saxophone, trumpet, trombone, French horn, oboe, bassoon, tuba, percussion instruments, and guitar. 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.

AGH UST Student Dance Club
It is the oldest club of this type in Poland. It has organised dance classes since 1955, and it also trains dancers in the competition section.

AGH UST Song and Dance Ensemble “Krakus”
The oldest student folk group in Poland shows the original Polish folklore. Songs, dances and traditions presented in suites related to the following regions of Poland: Krakow, Silesia, Rzeszów, Łowicz, Nowy Sącz, Lublin, Kielce, Żywiec, and Beskid, describe the beauty of these regions in a picturesque way.

AN ENGINEER IS ALSO AN ARTIST

When in my mind I combine the profession I have with the knowledge I gained at the AGH University of Science and Technology in Krakow, I can say that AGH UST is La Scala of technical knowledge.”

Wiesław Ochman
Opera singer
AGH UST graduate
Student clubs
The most energetic place with a concentration of music life, both on the map of the university, and in Krakow in general, are student clubs located at the AGH UST Student Campus. Each of them is unique, but they all have one thing in common – great atmosphere.

Klub STUDIO is one of the largest Polish concert clubs, where performances are given by well-known artists from Poland and all over the world. Klub Zaścianek regularly hosts concerts of emerging music bands, live-band karaoke, and collective singing events. Thinking of demanding students who look for more ambitious music, Klub Gwarek organises concerts of blues, jazz and folk performers. Dance lovers are welcome to visit Klub Karlík. An ideal location for meetings with friends is Klub Filutek, whose interior decorations let you escape from the hustle and bustle of the city while dining in good company over a tasty meal.

A special place serving artists from AGH UST is the so-called “Kotłownia” (English: “Boiler house”), being part of Klub STUDIO, where there are special rehearsal rooms.

The AGH UST Representative Orchestra consists of about 50 musicians. The artists perform both in Krakow clubs, as well as at international music festivals. During the academic year, the AGH UST Representative Orchestra performs many regular concerts in clubs Gwarek and STUDIO, as well as adds splendour to all important university events.
A unique media project has been set up at AGH UST – the Media Centre, created by putting together four independent organisations: Student Radio17, AGH UST Student Newsletter, television and production studio AGH UST MINE TV, and AGH UST Krakow Student Photo Agency. The aim of the Centre is to awaken students’ interest with regard to the theoretical and practical aspects of mass media.
A pride of the university is the **AGH UST Academic Sports Association** – one of the largest clubs of the Association in Poland, with nearly 1,000 best athletes of the academic community in Krakow, who practise sports in 40 units. Professionalism and the highest level of physical fitness are confirmed by two most significant successes in the history of the club – triumphs in the general classifications of the Academic Championships of Poland in seasons 2012/2013 and 2014/2015. A great victory was also a silver medal at the 2nd European University Games in Rotterdam won by the men’s volleyball team in 2014.
A large number of various sports units, excellent coaching staff, many sports fields, and a modern swimming pool – AGH UST attracts all people who are passionate about sport.

While taking care of the physical development of the academic community, the university promotes a healthy lifestyle. Regular investments in sports facilities bring us closer to the achievement of the goal of creating a Sports Centre within the boundaries of the university campus.

Our athletes represent the university at the most important championships in Poland and abroad, and professional athletes can enjoy individualised programmes of study, as well as scholarships for outstanding sporting achievements. Practising sports is possible thanks to the various units of the AGH UST Academic Sports Association and student sports clubs.

The AGH UST Department of Sport and Physical Education participates in organising sailing, rowing, skiing and cycling camps, as well as organises alternative rehabilitation classes for students with health problems, and carries out training within the field of basic life support.

The AGH UST swimming pool is a modern sports and recreation complex located within the area of the AGH UST Student Campus. The complex holds a 25-metre swimming pool officially approved by the Polish Swimming Federation, a 25-metre swimming pool for swim lessons and practice, a recreational swimming pool with hydro-massage, a jacuzzi, a water slide, and saunas (steam and dry), as well as a gym with modern TechnoGym exercise equipment. Our professional and experienced instructors offer swimming lessons, aqua aerobics, fitness classes, medical massage, and martial arts. The building also holds a modern bowling alley, billiards, a Play Centre for children, as well as a bar, a restaurant, and a shop with sports equipment.

AGH UST IS COMMITTED TO SPORT

Jarosław Królewski
AGH UST researcher

“As a member of the AGH UST Academic Sports Association I had a chance to represent the university at a number of sports events. I think about that period as one of the nicest and most inspiring in my life.”

AGH UST DEPARTMENT OF SPORT AND PHYSICAL EDUCATION

The AGH UST Department of Sport and Physical Education is responsible for physical education classes. The AGH UST Department of Sport and Physical Education makes use of the following sports facilities: modern sports halls with an artificial surface, two modern gyms (recreational and training), an aerobics and training room, a football pitch, table tennis rooms, fencing rooms for people with disabilities, three high-class yachts, canoes, and a steam sauna.
We pay special attention to the removal of architectural barriers, which increases the accessibility of university facilities and makes it possible to take full advantage of the AGH UST offer for everyone who wants to develop and continue their education. We make sure that the new buildings fulfil the highest standards of accessibility.

Students with hearing difficulties can benefit from sign language interpreters free of charge. More and more AGH UST units have employees capable of communicating in sign language. Students who are partially sighted or hard of hearing can also attend specially-designed foreign language classes. In the laboratory of typhlo-informatics, blind and visually impaired students can use specialist equipment, and text-enlarging and reading software.

The university library enables students with various disabilities to use library resources in alternative forms. Students can also hire individual rehabilitation and educational equipment (for example, FM systems, Dictaphones, enlargers, etc.) Psychological support is also available.

Moreover, disabled students can attend sports classes such as wheelchair fencing, and participate in exercises in a specially-designed gym and swimming pool.

The university activities for disabled students are coordinated by the AGH UST Disability Support Office, which also supports the initiatives of the Association of Disabled Students, the first organization of this kind in Poland. The Office offers legal advice and helps students in contacts with the university authorities, as well as offers support in solving various problems. Students can also take part in adaptation camps, integration events, workshops and courses.

At the AGH University of Science and Technology there are about 500 disabled students.
During the period of study we meet a lot of people and make friends for life. Building a good atmosphere is facilitated by many initiatives, such as traditional tavern parties, balls, and faculty excursions, which are also attended by the university teachers.
Scientific conferences, debates, trainings, lectures, special interest groups and student organisations, etc. – AGH UST is a place which enables comprehensive development.

Special interest groups
Student Special Interest Groups create an opportunity to broaden knowledge and skills under the supervision of the best scientists and researchers. In total, AGH UST hosts nearly 120 Student Special Interest Groups – all belong to the Mining or Metallurgy Section.

The most typical forms of activity of the student special interest groups are:
- regular training meetings,
- participation in theoretical and experimental research conducted by faculty departments and institutes,
- organisation of conferences, seminars, and science camps,
- participation in Polish and international conferences, and in international student exchange programmes,
- research and training excursions, as well as science, tourist and recreational trips.

The results of students’ year-round work are presented at the Student Sessions of Special Interest Groups, which take place during the traditional university celebrations on the occasions of Miner’s and Metallurgist’s Days. The best works presented during each session are then published in “Zeszyty Naukowo-Dydaktyczne AGH” (English: AGH UST Scientific Journals), and these publications often become a springboard for a scientific career of the future graduate. In order to support and develop students’ scientific movement and integration, as well as to ensure the continuity of contact between graduates and the members of currently active student special interest groups and university researchers, the Student Scientific Society has been set up. It organises competitions for the best master theses called “The Diamonds of AGH UST”, held under the auspices of the AGH UST Rector.

Student organisations
Students can practise sports in 40 sports units offered and managed by the AGH UST Krakow Academic Sports Association and a ski club, as well as to take part in karate classes. The university is also a starting place for many wonderful journeys – by travelling the world with a tourist, sailing, speleologist, mountaineering, motorcycling, diving or kayak club you can experience many unforgettable adventures.

Carrying out various projects is the basic form of activity of such organisations as: AGH UST BEST Krakow, international organisation EESTEC LC Krakow, AGH UST IAESTE Krakow, University Section of the Polish Red Cross and the Honorary Blood Donors Club at AGH UST, AGH UST Section of the Catholic Youth Association, AGH UST Academic Movement “Against the Flow”, AGH UST Association of Polish Students, and AGH UST Association of Disabled Students.

AGH UST students are represented by the University Board of Student Government, which organises many cultural, scientific and sporting events, as well as the legendary student festival Juvenalia. The university also hosts the University Board of Doctoral Students’ Government, AGH UST Independent Students’ Union, and the AGH UST Section of Erasmus Student Network.

At AGH UST there are nearly 120 special interest groups and 40 student organisations, in which students can broaden their knowledge, and develop their passion for sports, arts, and journalism, as well as accomplish various projects.
**3D printer made of LEGO bricks** – the first in the world printer made completely of LEGO bricks is a development of Piotr Palczewski of the Faculty of Mechanical Engineering and Robotics (the only exception is the print head). The print area is a rectangular cuboid of dimensions 13 x 10 x 10 centimetres. The process of printing starts with the modelling of a desired object, which is then saved in the STL format, and finally copied into an application which cuts the model into particular layers and sends the relevant codes to the printer. The ABS filament in the print head is heated up to 230 degrees Celsius and comes out of it in a liquid form. While moving along the determined trajectories, it builds up a model by putting the consecutive layers on one another, and congeals very quickly.

**Knife made of Damascus steel** – Estera Machoń and Remigiusz Błoniarz, students at the Faculty of Metals Engineering and Industrial Computer Science, were awarded the only Honourable Mention at a prestigious conference held in Orlando, USA, for a khanjar-type of knife made of self-produced Damascus steel. This type of steel, used and produced from the ancient times until the Middle Ages, is regarded as one of the most mysterious materials, difficult to decipher even by experts in the field of materials engineering. Our students managed to reproduce the steel with high precision and accuracy.

**Project “Maja”** – honoured in Germany and Poland system of monitoring hives and managing apiaries, developed by Wojciech Sojka, a student at the Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering. It is a sensor-based system, which enables the monitoring of bee families inside hives, thanks to which it is possible to assess the condition of an apiary without time-consuming inspections of each family.
“After my day one, I already knew it was going to be well-invested time. It is here where I have met fantastic people. And now, once I have completed my internship in an automotive company, I know that AGH UST graduates are thought to be the best professionals in their fields.”

Students of AGH UST Space Systems are the best in the world – the first appearance of the team AGH UST Space Systems at the largest and most prestigious CanSat Competition in Texas resulted in an unprecedented success. The aim of the competition, organised by the American Astronautical Society, the American Institute of Aeronautics and Astronautics, and NASA, was a simulation of a probe flight through a planetary atmosphere with a simultaneous collection of telemetry data during descent.

3 silver medals for AGH UST Aero Team in California – a plane made by the students of the AGH UST Aero Team won three silver medals in its first appearance at SAE AeroDesign in California. The task of young engineers from all over the world was to build a remotely operated model of the so-called “cargo aircraft”.

Third in history racing car of AGH UST Racing team – the team competes in international races Formula Student – the largest engineering competition for university students from all over the world, emphasizing the prestige of technical universities. In the season 2015, the AGH UST team achieved excellent results taking part in Formula Student Hungary, Formula Student Spain, and Formula Student Italy.
AGH UST FACULTIES

Within the structure of the AGH University of Science and Technology there are 16 faculties, and a scientific research centre – the AGH UST Academic Centre of Materials and Nanotechnology, which has a status of an AGH UST non-faculty basic organisational unit.

Faculty of Mining and Geoengineering
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 Mining Surveying 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
AGH UST Academic Centre of Materials and Nanotechnology
The Faculty of Mining and Geoengineering (Faculty of Mining until 2002) is the oldest faculty of the university. It was the only faculty when the university was established by Józef Piłsudski in 1919. Until the 1950s, the history of the faculty was the history of the university.

The mission of the faculty is to educate engineers and conduct research at the highest level in line with the current and future needs of the economy and the challenges of a modern civilization.

The faculty is a large and interdisciplinary unit. It educates students and conducts scientific research in four disciplines: mining and engineering geology, environmental engineering, civil engineering, and production engineering.

The faculty collaborates with many Polish and international universities, particularly in the areas of national and international education programmes and the exchange of academic staff, international research projects, as well as the transfer of technologies and patent activity.

A strength of the faculty is a close bond with industry, which is related to conducting scientific research commissioned by various institutions and companies, as well as the organisation of student practical trainings and internships in the areas connected with particular fields of study.

The versatility of the faculty is also manifested in research activity which not entirely typical of the faculty profile – faculty scientists have for many years been taking part in the revalorisation and protection of the underground infrastructure of historic towns such as Sandomierz and Kłodzko. In the 1990s, this activity became the basis for a new field of study – Civil Engineering. Education in this field won the first prize in the Ranking of Universities “Perspektywy 2014”.

Faculty students, depending on the chosen field of study and specialisation, are prepared to work in mining companies, especially underground and open pit mines, departments of industrial plants dealing with environmental protection, public administration, as well as the economic, design and investment departments of companies. They also obtain qualifications which entitle them to apply for builder’s licences and mining certificates, as well as to hold managerial positions in mining and civil engineering companies. In addition to the offer of education at bachelor, master and doctoral programmes of study, the faculty also offers a wide range of postgraduate courses.
FACULTY OF METALS ENGINEERING AND INDUSTRIAL COMPUTER SCIENCE

When the Senate of the Mining Academy appointed the first Council of the Faculty of Metallurgical Engineering on 21st May, 1922, metallurgy became a new, separate course. In its long history, the faculty’s name changed several times. At present, it is the Faculty of Metals Engineering and Industrial Computer Science.

Current research focuses on extractive metallurgy, materials science, metal forming, heat engineering, environmental protection, computer-aided modelling of metallurgical processes, and industrial computer science.

The current faculty structure comprises departments which conduct research and educate students in Metallurgy, Materials Science, Heat Engineering, and Applied Computer Science. The faculty collaborates with Polish research centres of a similar profile: the Faculty of Materials Science and Metallurgy at the Silesian University of Technology in Katowice, the Faculty of Production Engineering and Materials Technology at the Częstochowa University of Technology, the Institute of Metallurgy and Materials Science at the Polish Academy of Sciences in Krakow, the Institute of Iron Metallurgy in Gliwice, and others. The faculty maintains excellent contacts with industry by participating in research projects and industrial training.

International collaboration includes long-term scientific contacts with industry, universities, and research institutes.

Faculty graduates are prepared for careers in metals engineering, heat and air conditioning, environmental protection and waste management, and computer science for materials engineering. Graduates of Education in Technology and Computer Science can work in all types of educational institutions, including universities. They are also prepared to give lectures and training in applied and industrial computer science on courses organized by various organizations, companies, and institutions.
The AGH UST Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering is one of the largest faculties in Poland. It invariably occupies a high position among other similar educational units both in Poland and abroad. Initially, the history of the faculty was connected with the Faculty of Electromechanics (established in 1946), which in 1952 was converted into two faculties: the Faculty of Electrification of Mining and Metallurgy, and the Faculty of Mechanization of Mining and Metallurgy.

The scientific potential of the faculty is confirmed by its right to confer the degree of doctor, as well as the post-doctoral qualification in Automatics and Robotics, Computer Science, Electronics, Electrical Engineering, Biocybernetics and Biomedical Engineering. The scientific and research activity at the faculty concentrates on modern techniques and technologies in information, bioengineering, robotics, environmentally-friendly production, transportation and the use of electrical energy, modern electrical equipment, and metrology. Research conducted at the faculty usually finds practical solutions in various areas.

A lot of the faculty staff also hold prestigious positions in world organizations, committees, and honorary social organizations.

The development strategy of the faculty concentrates mainly on the following fields of science: information society technology, sustainable development – renewable sources of energy, as well as the equipment for disabled people. The discipline of biomedical engineering goes beyond the traditional domains of technology in order to serve people, incorporating experience of scientists representing various disciplines.

Integration and versatility are very important aspects of courses offered to faculty students. Graduates of the faculty frequently undertake their first jobs during the study period, subsequently becoming the most needed specialists on the labour market.
FACULTY OF COMPUTER SCIENCE, ELECTRONICS AND TELECOMMUNICATIONS

The Faculty of Computer Science, Electronics and Telecommunications, thanks to its exceptional scientific staff and experienced teachers, carries out research and educates students in the fields of computer science, electronics, telecommunications, as well as information and communication technologies.

A recently introduced new degree programme of Teleinformatics, which combines the achievements of Computer Science and Telecommunications, develops dynamically. Admissions to the field of study of Electronics, the first degree programme run independently from Electronics and Telecommunications offered both in Polish and English, took place for the second time in the academic year 2015/2016.

Classes take place in modern and exceptionally well-equipped lecture rooms and laboratories, for example, at the AGH UST Centre of Computer Science, which became operational in 2012 – a building that has received many awards and distinctions for its original architecture.

The faculty also offers interesting activities in student special interest groups: Telephoners, KNE (student special interest group of electronic engineers), SPECTRUM (signal processing), and BIT. Degree programmes that are adjusted to the needs of modern industry combined with high teaching standards give graduates of the Faculty of Computer Science, Electronics and Telecommunications a real advantage on the labour market, and allow them to become valuable members of engineering teams working for international corporations located in Krakow, such as IBM, Cisco, Motorola, Delphi, Comarch, ABB, Nokia Solutions and Networks.

The strategy of the faculty includes key research areas such as information society technologies, cloud computing technologies, fast optical networks, global wireless communications, Internet of the Future, Internet of Things and sustainable development, e.g. embedded systems in electronics, industrial electronics, telemedicine, design of electronic systems, signal recognition, microwave techniques, optoelectronics, photovoltaics, sensor systems, spintronics, and nanotechnology.

The potential of the faculty manifests itself in scientific-research category "A" awarded by the Ministry of Science and Higher Education, as well as an outstanding evaluation by the State Accreditation Committee for the degree programmes of Computer Science, and Electronics and Telecommunications. In the Ranking of Universities "Perspektywy 2015", the Faculty of Computer Science, Electronics and Telecommunications came first in Poland in category "IT", and second among faculties providing education in Electronics and Telecommunications.
FACULTY OF MECHANICAL ENGINEERING AND ROBOTICS

The Faculty of Mechanical Engineering and Robotics became a separate AGH UST unit in 1952 as a consequence of the division of the Faculty of Electromechanics; initially, its name was the Faculty of Mechanization of Mining and Metallurgy. The present name was given in 1952. At the moment, the faculty employs 300 staff, including 224 university teachers, and educates 3,860 students.

For many years, the faculty has been dealing mainly with mechanics, machinery construction and operation, automatics and robotics. In the recent years, the number of patents and implementation agreements has been significant.

The faculty collaborates closely with the extractive and metallurgical industries together with their technical base, and a considerable number of energy and heat energy plants. In particular, collaboration with the following companies is very close: KGHM Polska Miedź, Skanska, Siemens, PZL Mielec – Sikorsky Aircraft Corporation, IOS Krakow, Valeo, ABB, Kirchhoff, MAN, Mitsubishi Electric, PIMOT Warsaw, and Delphi Automotive Systems. Thanks to our highly-qualified staff, the faculty can collaborate with worldwide recognized educational centres in the European Union, Latin America, and the USA.

Faculty students obtain grants and can study in Germany, France, and Great Britain, which results in obtaining a double diploma – one of AGH UST, and one of a foreign university. A wide scope of studies enables faculty graduates to work in any industrial branch in Poland, and their spectacular careers are often the best proof of their qualifications.

The faculty is changing constantly, following the needs of the transforming economy, and the expectations of candidates. The faculty’s latest offer is Mechatronics. It is a new, interdisciplinary field of study which combines mechanics, electronics, and computer science. Mechatronics deals with products which require a very high functional and technological integration of their mechanical, electromagnetic and electronic parts. The Faculty of Mechanical Engineering and Robotics also offers studies in the discipline of Acoustic and Sound Engineering, and in the discipline of Mechanical and Materials Engineering.
The Faculty of Geology, Geophysics and Environmental Protection had its beginnings in the early days of AGH UST in the form of three “geological” departments belonging to the Faculty of Mining, which was the only faculty of the Mining Academy at that time. In chronological order they were: the Department of Mineralogy and Petrography, the Department of Geology, and the Department of Applied Geology. In 1946, they were incorporated into the newly-established Faculty of Geology and Surveying, which evolved into the Faculty of Geology (in the academic year 1951/1952), and the Faculty of Geology and Mineral Exploration (in the academic year 1952/1953). In the following years, the faculty grew steadily, and its structure underwent many changes. In the academic year 1992/1993, the faculty was renamed again, and since then it has had its current name – the Faculty of Geology, Geophysics and Environmental Protection.

At present, the faculty has the most environmental profile among the technical faculties of AGH UST. It is the only faculty in Poland which educates students of geology to become specialists in applied geology, geophysics and computer science, and at the same time, it offers university-type of education, including the environmental aspects of geological sciences and tourism.

Such a diversity gives faculty graduates better possibilities to find employment in industry (mainly in mining and related sectors), secondary education, research institutes, administration, tourist offices, and others.

Among the European universities, the Faculty of Geology, Geophysics and Environmental Protection has the highest number of professors and associate professors (doctors with postdoctoral qualifications) of geology, supported by a substantial number of doctors and assistants; some of them are the former Fulbright and Humboldt scholarship holders.

The staff, working in well-equipped laboratories, can deal with almost any research task, carrying out mainly practical research. Staff members are also involved in fundamental research that helps us understand better the world and its phenomena around us, although the results of this research cannot currently find a practical use due to the insufficient development of technology.
The AGH UST Faculty of Mining Surveying and Environmental Engineering was established on 1st October, 1951, on the basis of two existing units: the Geodesy Department at the Faculty of Engineering of the AGH Polytechnic Faculties, and the Department of Mining Surveying at the Faculty of Surveying and Geology. Initially, the faculty students were educated in geodesy and cartography, specialisations covering mining surveying and engineering, and industrial geodesy.

At present, the faculty's research activities focus on the implementation of computer science in the context of spatial data processing, and on using modern metering and measurement techniques for the purpose of industrial, architectural and infrastructure stocktaking.

Research activities cover the implementation of the GPS technology, terrestrial and aerial laser scanners, and the application of radar interferometry. Extensive studies have also been conducted into the use of remote sensing and photogrammetric methods for the purpose of monitoring the natural environment and historic buildings.

In the area of environmental engineering, the research activities aim at the improvement of methods used for determining the quality level of all environmental components. Scientific studies include research into the amount of emitted pollutants coming from various sources, focus on their influence on the ecosystem, and the optimisation of industrial technologies in order to weaken their harmful effect. Various methods of environmental management such as air quality management, water, sewage and waste management have also been developed. A lot of attention is paid to soil surveying, the reclamation of contaminated sites, and the restoration of their biological functions.
The origins of the Faculty of Materials Science and Ceramics date back to 1949, when the Faculty of Minerals, later renamed the Faculty of Ceramics, was set up at the University of Mining and Metallurgy. Its present name was given in 1971, and was related to the inauguration of the “Materials Science” course, the first such a course in Poland, and one of the first courses of this kind in Europe.

The Faculty of Materials Science and Ceramics educates students in the following disciplines: Materials Engineering, Chemical Technology, Ceramics (since 2010), and Chemistry of Building Materials (a joint programme of three universities: Gdańsk University of Technology, Technical University of Łódź, and AGH UST, offered since 2011).

Students graduating from the faculty have strong technological background, traditionally associated with the manufacturing of ceramics, glass, building materials, and refractories. They also have comprehensive engineering knowledge in the areas of designing, processing and testing new materials for specific applications in different fields of modern industry (for example, energy production, aircraft and automobile industries, electronics), materials for medicine and environmental protection, as well as analytical science and quality control.

The main research activities of the faculty staff in the area of solid state chemistry, inorganic chemistry and silicate chemistry focus on problems important for traditional large-scale technologies, but they also concentrate on the development of knowledge-based materials for demanding applications, and advanced characterization methods and analysis.

The Faculty Board is entitled to confer the degree of doctor as well as the post-doctoral qualification, and the title of professor in chemical and engineering sciences in the following disciplines: chemical technology, materials engineering, and chemistry. The Faculty of Materials Science and Ceramics is a well-equipped research and education centre which has a nationwide importance, strong links with industry, as well as excellent international collaboration.

www.ceramika.agh.edu.pl
The Faculty of Foundry Engineering was established in the academic year 1951/1952 by the act of dividing the Faculty of Metallurgy. In line with the faculty’s profile, there were two specialisations: foundry technology, and foundry machines and mechanisation. At present, the faculty is entitled to confer the degree of doctor as well as the postdoctoral qualification, and the title of professor.

The faculty educates specialists in the field of foundry technology, and is the only faculty of this kind and scope of education operating within the structures of the higher education system in Poland and Europe.

Modern foundry technology mainly strives for the improvement of casting production quality, reduced consumption of energy and raw materials (lean processes and lean production), improved processes and product economy, and, last but not least, reducing the harmful effect of the foundry industry on the environment. The idea of constructing and operating a waste-free foundry plant is nowadays the main subject of large-scale international research projects.

Graduates of the faculty are well-prepared to face the challenges of modern industry. The faculty maintains close contact with foundry enterprises, organises training courses for students, as well offers postgraduate scholarships to individuals who have successfully completed their studies.

In 2011 – with the help of the Faculty of Metals Engineering and Industrial Computer Science – a new, interdisciplinary field of study called “Virtotechnology” was introduced. Graduates in this discipline gain knowledge and practical skills with regard to the processing of metals, materials technology, computer science, economics, and ecology. In 2013, a new specialization “Virtualization of Foundry Engineering” was introduced at the postgraduate programme of study within the framework of Virtotechnology. The specialisation programme comprises courses such as technology and its trends of development, computer-aided engineering, modern systems of enterprise management, computer science, and applied mathematics.

Faculty staff maintain relationships with numerous scientific and research centres, universities, research institutes, and industry. A map of the locations of foundries and enterprises with which the Faculty of Foundry Engineering has collaborated covers practically the whole area of Poland.
The Faculty of Non-Ferrous Metals was established in 1962. It is a research and educational unit which is unique in the world scale. It educates future engineers and conducts research for the industries of metallurgy, materials science, processing of non-ferrous metals, physical metallurgy, as well as related branches. Since the early days of the faculty, it has maintained very close collaboration with industry.

The development strategy of the faculty is mainly based on two fundamental notions: educating students and carrying out research, both leading to staff development. Our educational offer for students encompasses the latest technologies in the field of the production and processing of metals, alloys, and composites, as well as the methods of testing and designing their structures and properties by means of modern analytical and experimental instrumentation.

Graduates of the faculty know how to make use of the special features of metals, such as durability, hardness, plasticity, electrical and thermal conductivity, superconductivity, magnetic properties, shape memory, and many others. The faculty prepares its graduates to work not only in the metallurgical and processing plants of the industry of non-ferrous metals. The knowledge gained during the course of studies also allows them to find employment in the metal, machine-building, automotive, aircraft and ship-building industries, in the production of cables and materials for power industry, in the industries of electrical engineering, telecommunications and medicine, precious metals production, the Polish Mint, and in other plants dealing with plastic working and heat treatment, property testing, and quality control.

Collaboration with industry has been performed within the framework of a large spectrum of subjects from the problems of obtaining metals from concentrates to the production of new alloys and products designed for different purposes. It encompasses all plants of non-ferrous metals (metallurgical and processing), as well as a large number of enterprises operating in the mechanical, chemical, oil, power engineering, iron and steel sectors, and many others. The faculty has also been a co-founder and active participant of projects conducted by various research and scientific consortia.
FACULTY OF DRILLING, OIL AND GAS

The Faculty of Drilling and Petroleum Engineering was established in 1967, and in 1995, it was renamed the Faculty of Drilling, Oil and Gas.

Its activity focuses on petroleum, gas engineering and scientific research, mainly of practical character. Being the only faculty of this kind in Poland, it offers education within full-time, part-time, doctoral and postgraduate study programmes.

The Faculty of Drilling, Oil and Gas consists of three departments: Drilling and Geoengineering, Oil Engineering, and Gas Engineering.

The works of the Department of Drilling and Geoengineering concentrate on designing boreholes, optimising the parameters of drilling technology, working out the compositions of drilling muds and sealing slurries, designing tools and devices for on- and off-shore boreholes, as well as trenchless techniques.

The Department of Oil Engineering is responsible for investigating new geophysical methods, methods of on- and off-shore oil and gas production, mathematical modelling and computer simulations of liquid raw materials production, deep and surface geological cartography of hydrocarbon deposits, determining hydrodynamic conditions of hydrocarbon migration and accumulation, verification of hydrocarbon resources, geochemical monitoring of underground gas storage facilities, utilization of sewage and waste water, environmental monitoring, exploration and production of groundwater, as well as activation and renovation of wells and water distribution systems.

The scientific and research works conducted at the Department of Gas Engineering focus on natural gas production, underground gas storage, production of natural gas from unconventional deposits, designing gas transfer systems, modelling hydrocarbon deposits production and UGS operation, works related to carbon dioxide sequestration, and the analyses of energy systems in Poland.

The Faculty of Drilling, Oil and Gas collaborates with scientific centres in Poland and abroad. A result of this collaboration are European and Polish joint projects, as well as numerous publications, expert reports, and patents.
For forty years, the faculty has focused on teaching and research aimed at the development of a solid base of knowledge combining management with modern technologies.

The mission of the AGH UST Faculty of Management is to support the development of modern management systems for organisations acting in the economy based on knowledge by means of creating and transferring advanced and practical knowledge in the field of economic and technical sciences.

Successes in this area have been confirmed by obtaining a very high scientific category “A”, as well as regular top positions in the rankings of the best economic departments of technical universities.

The educational offer for students is a reflection of the traditions and challenges of the contemporary market. Education at first- and second-cycle studies is conducted at three fields of study: Management, Management and Production Engineering, and Information Technology and Econometrics. A versatile profile of study programmes encompassing a wide range of managerial and engineering skills offers faculty graduates high employment prospects, both in private enterprises, as well as in the public sector.

A strength of the faculty is well-developed international collaboration. It enables students to do an internship or work placement abroad, study at a partner university, take part in lectures given by professors from other countries, and to cooperate directly with a large number of international students at the faculty. International collaboration also plays an important role in the faculty’s scientific research activity.

Faculty researchers are recognisable in Polish and international scientific environments, deliver lectures abroad, as well as accomplish joint projects in international research teams. The results of conducted research are published regularly in leading Polish and international scientific journals. An important role in the research activity conducted at the faculty is played by the popularisation of knowledge and its transfer to the economic reality.

The Faculty of Management is an AGH UST unit offering the widest range of educational forms aimed at the practitioners of management. The educational offer which enables lifelong learning encompasses first- and second-cycle part-time studies, doctoral studies, various courses and trainings, as well as postgraduate programmes.
The Faculty of Energy and Fuels is now at a turning point: it develops very rapidly and in line with an increasing demand for energy and fuels, both being essential for the economic growth of any society.

The faculty was established in 1991 as the Faculty of Coal Energochemistry and Physical Chemistry of Sorbents. At that time, the research and education offered by the faculty concentrated on the energochemical processing of coal, and the development of sorbent technologies. Gradually, the faculty extended its educational and research offer with an emphasis on fuels and energy of the highest quality, conditions of sustainable energy development, implementation of renewable energy sources, and environmental protection in chemical and power industries. Consequently, in 1995, the faculty’s name was changed to the Faculty of Fuels and Energy.

Although the faculty educated students in chemical technology, many elements of energy and power engineering were also introduced into the programmes of study. Therefore, students who graduated from the faculty could apply for a job in the chemical, power engineering, metallurgical, gas, heat, and environmental protection industries, as well as in local and governmental administration.

In 2003, the Ministry of Science and Higher Education registered a new discipline of study: energy. At AGH UST, education in this discipline was entrusted to the Interfaculty School of Power Engineering. In 2008, the Senate of the University decided to integrate the Faculty of Fuels and Energy and the Interfaculty School of Power Engineering in order to form a large and significant faculty whose aim was to combine education and research on fuel technology and power engineering.

Since 2008, the Faculty of Energy and Fuels has significantly developed its scientific research infrastructure, as well as the base of human resources. The number of departments has increased from three to eighth, the number of research staff from 56 to 105 (professors from 12 to 34 plus 6 candidates for the position of professor), and the number of students has doubled. New specialisations have been introduced, for example, nuclear power, hydrogen energy, and computer modelling in power engineering. New laboratories and lecture rooms have been built, some have been refurbished.
The origins of the faculty date back to 1919, when the Mining Academy was founded, within which the Department of Physics was established. It had undergone several organizational transformations, until in 1991, the AGH UST Senate decided to form the Faculty of Physics and Nuclear Technology. In 2004, the name was changed to the Faculty of Physics and Applied Computer Science, according to the changes in the fields of research and educational activity.

The faculty offers several programmes of study leading to bachelor's, master's, and doctor's degrees. The undergraduate courses encompass a seven-semester basic bachelor's programme. They are followed by three-semester postgraduate programmes leading to master's degree in the following specialisations: Medical Physics, Technical Physics, and Applied Computer Science. "The Construction and Establishment of the Bionanotechnology and Biodiagnostics Laboratory at the Faculty of Physics and Applied Computer Science of the AGH University of Science and Technology in Krakow" within the framework of the Małopolska Regional Operational Programme of the European Regional Development Fund is a dedicated project whose aim is to ameliorate both research and teaching quality in the discipline of Medical Physics. The faculty runs a four-year programme of doctoral studies in Physics in the fields related to the research interests of the faculty staff, i.e. technical nuclear physics, condensed matter physics, high energy physics, nuclear electronics, and environmental physics.

In collaboration with other research institutes, the faculty runs an interdisciplinary research project "Advanced Materials for Modern Technologies and Future Energetics". The faculty's research programmes are carried out in close collaboration with many international laboratories and research centres. Many research projects are conducted within the European Framework Programmes.

The Faculty Board is entitled to confer the degree of doctor as well as the post-doctoral qualification in Physics, and to apply for conferring the title of professor. In a recent ranking of the State Committee for Scientific Research, the faculty has received the top grade ‘A’. The faculty staff hold posts in the Polish Government, in major Polish scientific organizations, and in various international science and research centres.

The scientific activity of the faculty comprises both fundamental and applied research in the field of nuclear physics, solid state physics, and the physics of the environment.
FACULTY
OF APPLIED MATHEMATICS

Mathematics has been present at the AGH University of Science and Technology since its origins. The first Rector of the university, professor Antoni Hoborski, was a mathematician.

In 1969, the Department of Mathematics and the Department of Descriptive Geometry were merged in order to form the Institute of Mathematics, an interfaculty unit whose staff members taught at all university faculties. The institute became the Faculty of Applied Mathematics in 1997.

The research activities cover various areas of mathematics and its applications, including discrete mathematics, in particular, graph theory, functional analysis, numerical methods, computational mathematics, statistics, differential equations, geometry, and stochastic analysis applied to finance.

The faculty runs master’s degree courses in applied mathematics, focusing on providing students with practical skills which can be applied to computer science, finance, insurance, management, and various areas of technology.

Surveys shows that 100% of faculty graduates find employment in industry, banks, insurance companies, administration, and education. The faculty is entitled to confer the degree of doctor in Mathematics.
The Faculty of Humanities (formerly Faculty of Applied Social Sciences) was established in 2001 in response to new educational and research needs which had developed as a result of globalisation and rapid technological progress. The mission of the new faculty was defined as the education of modern specialists combining social knowledge with expertise in the application of new information and communication technologies to various areas of public life and business activity.

The Faculty of Humanities offers courses in the following fields of study: Sociology (with three specialisations in Polish: Multimedia and Social Communication, e-Economy, Social Innovations and Interventions, and one in English: Technology & Society), and Cultural Studies (with four specialisations in Polish: New Media and Intercultural Communication, Culture of New Media, Visual Communication and Graphic Design, and Protection of Cultural and Natural Assets).

The education programmes for Sociology and Cultural Studies have been specially designed to meet the requirements of the labour market. In the educational offer there are also courses dealing with the intensive changes taking place at the crossroads of modern technologies and society, e.g. virtual societies, cyber-culture, e-commerce, e-democracy, intermedia in culture, social innovations, digitalization of cultural and natural assets, as well as the human-computer interaction.

Students gain knowledge related to media, popular and audio-visual culture, advertising and promotion, as well as they attend workshops on interpersonal communication, intercultural mediation, planning and management of media projects, and obtaining grants in the field of culture. The interdisciplinary model of studies at the Faculty of Humanities ensures a wide range of employment possibilities for all faculty graduates.

Sociologists can be employed by public sector institutions, governmental and non-governmental organizations, PR and advertising agencies, as well as social research centres.

Cultural Studies graduates are well prepared to work for various cultural institutions: media, museums, cinemas, theatres, non-profit organizations, advertising agencies, and community centres.

For several years the faculty has been rewarded for the courses it offers. In 2012, the faculty came second in the general classification of “One million zloty competition” for the curriculum at the postgraduate programme of Sociology (ranking published by the Ministry of Science and Higher Education).
AGH UST ACADEMIC CENTRE OF MATERIALS AND NANOTECHNOLOGY

The AGH UST Academic Centre of Materials and Nanotechnology was officially established in July 2013. The Centre evolved from an initiative called CZT AKCENT MAŁOPOLSKA, in which besides AGH UST active participants were the Jagiellonian University and the Cracow University of Technology. The main tasks of the Centre concern research in the field of engineering materials and nanomaterials, and nanotechnology in general.

The Centre features eight Research Lines, which conduct fundamental and practical research into magnetic materials and their nanostructures. In particular, research with the use of microscopy, and x-ray and gamma spectroscopy is being developed. Research is also conducted into the modelling of intermolecular forces, and organic optoelectronic devices, such as light-emitting diodes, transistors, and solar cells. Unique measurements of physical properties executed in ultra-low temperatures (T=10 mK) are also remarkable. Research conducted at the Centre also concerns the development of nanoparticles for diagnostic and medical applications.

Theoretical research carried out by the Academic Centre of Materials and Nanotechnology concerns the problems of electron states and conductivity, the connection topological insulator-graphene and superconductor-graphene, as well as the theory of high-temperature superconductors.

The Centre also conducts research of practical character concerning organic optoelectronic devices, sensors for fast biochemical analysis, the technology of developing new nanostructures of metal oxides for photocatalysis and gas sensors, memory M-RAM and STT-RAM, and nanostructures of spin logics.

Within the field of materials engineering, research is carried out into the mechanisms of plastic deformation and strengthening in metallic materials, the properties of metals and alloys after significant plastic deformation, layered materials and coatings, as well as gas absorption in metals and alloys. New metallic materials designed for particularly hard conditions are also a subject of research.

In the field of ceramic materials, the Academic Centre of Materials and Nanotechnology conducts research into self-developing high-temperature synthesis of nanocomposites of unique physicochemical properties, as well as the development of nanosuspensions of controlled rheological properties, suitable for shaping with the use of rapid prototyping methods.

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Krakow is the second largest city in Poland, and for centuries it has been an important political, cultural and scientific research centre. Currently, Krakow is home to 23 schools of higher education and a population of 180,000 students. Excellent infrastructure and unique intellectual potential are only some of the reasons why the development of modern technologies is concentrated in the capital of the Małopolska region. It should be noted that as many as 20% of all international students arriving in Poland choose to study in Krakow.
AGH UST Campus

1. Rector’s Office
2. Faculty of Mining and Geoengineering
3. Faculty of Metals Engineering and Industrial Computer Science
4. Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering
5. Faculty of Computer Science, Electronics and Telecommunications
6. Faculty of Mechanical Engineering and Robotics
7. Faculty of Geology, Geophysics and Environmental Protection
8. Faculty of Mining Surveying and Environmental Engineering
9. Faculty of Materials Science and Ceramics
10. Faculty of Foundry Engineering
11. Faculty of Non-Ferrous Metals
12. Faculty of Drilling, Oil and Gas
13. Faculty of Management
14. Faculty of Energy and Fuels
15. Faculty of Physics and Applied Computer Science
16. Faculty of Applied Mathematics
17. Faculty of Humanities
18. AGH UST Academic Centre of Materials and Nanotechnology
19. AGH UST Centre of Energetics
20. Main Library
21. Walery Goetel School of Environmental Protection and Engineering
22. Department of Foreign Languages
23. Department of Sport and Physical Education
24. AGH UST Swimming Pool
25. Centre of e-Learning
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28. Department of Education
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33. University Board of Student Government
34. Career Centre
35. Centre for Transfer of Technologies
36. Academic Business Incubator
37. Department of International Collaboration
38. Disability Support Office
39. AGH UST Museum
40. Geological Museum of the Faculty of Geology, Geophysics and Environmental Protection
41. AGH UST Press
42. Academic Cultural Centre, Club STUDIO
43. Student Club “Gwarek”
44. Student Club “Zaścianek”
45. Student Club “Karlik”
46. Student Club “Filutek”

Purpose of facilities:
- research and teaching facilities
- student houses at AGH UST campus
- service outlets
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