



INTERNATIONALIZATION

Our region, our city, our university

Education and research at Gdańsk University of Technology

Why here?

What is living in GUT like?

Projects realised and development perspectives



**GDAŃSK UNIVERSITY
OF TECHNOLOGY**

**110
YEARS**

**GDAŃSK UNIVERSITY
OF TECHNOLOGY**

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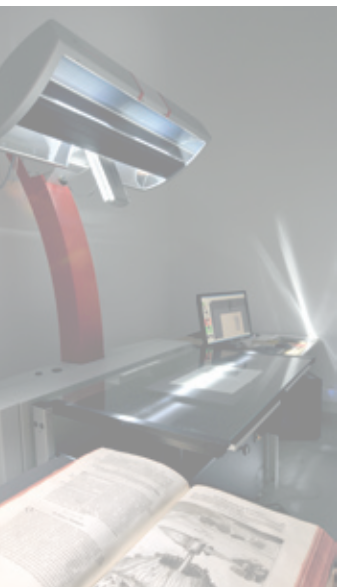
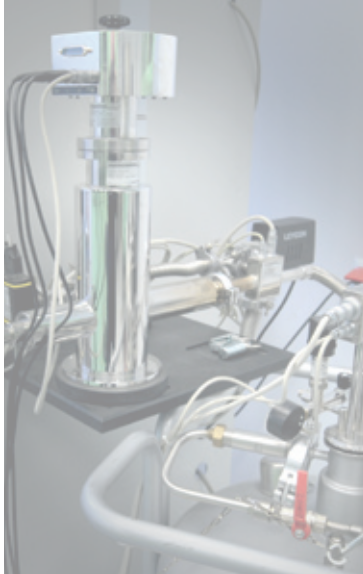
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Welcome to Gdańsk University of Technology!

Technical possibilities of the Internet, demographic situation of developed countries, growing mobility of societies, as well as results of increasing globalization are the main cause of university and national interest in internationalization.

Internationalization is the creation of educational and scientific space, where international cooperation is accompanied by international education of both, domestic and foreign students. This in turn is a source of:

- international experience, including inter-cultural competences;
- improvement of education quality caused by competition growth;
- familiarization with global labour market;
- closer relations of nations through personal international experience of individuals.

Development of internationalization demands though the relevant conditions regarding the development level of the state and of particular universities.

In the first case these are:

- equivalence of university studies in different countries (standards such as ECTS Label);
- relevant level of foreign languages knowledge (language knowledge standards);
- accreditation of study programmes, as a proof of high quality of teaching;
- conditions of student, doctoral and staff mobility (i.e. assistance in visa procedures, scholarships, living conditions);
- activities being carried out as an element of educational system development strategy, such as promotion, engagement in educational and scientific area, further development of Polish universities;
- double diploma programmes and other forms of cooperation.

In case of universities the important factors are:

- university brand, high quality and attractiveness of research and education;
- comprehensive and acceptable education model for foreign students;
- educational offer in English;

High positions in Polish rankings!

2nd most popular university in Poland among candidates according to the ranking of the Ministry of Science and Higher Education. For the fourth time in a row!

3rd position in regard to salaries of university graduates in Poland

4th position in the ranking of universities whose graduates hold CEO positions



8th position in Poland, 3rd position among Polish universities of technology

The best Faculty of Chemistry in Poland according to the Polish Accreditation Committee and the Ministry of Science and Higher Education

610th position in the "Webometrics Ranking of World Universities" – the largest academic ranking of Higher Education Institutions (among 21250 institutions)

- acceptable study conditions (costs of alimentation and accommodation, access to educational facilities, quality of staff, laboratories, IT systems etc.);
- university participation in international student and staff exchange programmes, such as ERASMUS, ERASMUS MUNDUS etc.

Gdańsk University of Technology adapted a strategy of internationalization to be realized in several stages:

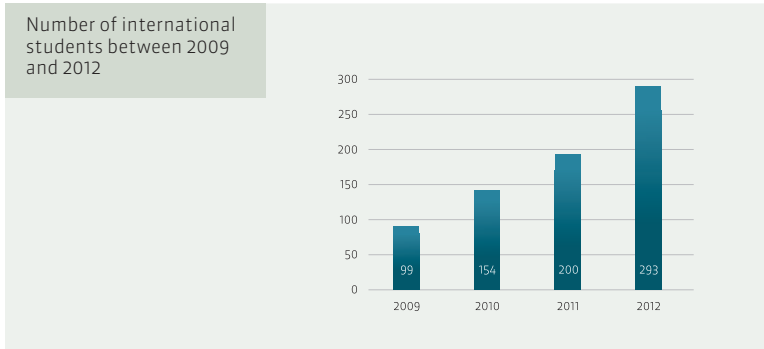
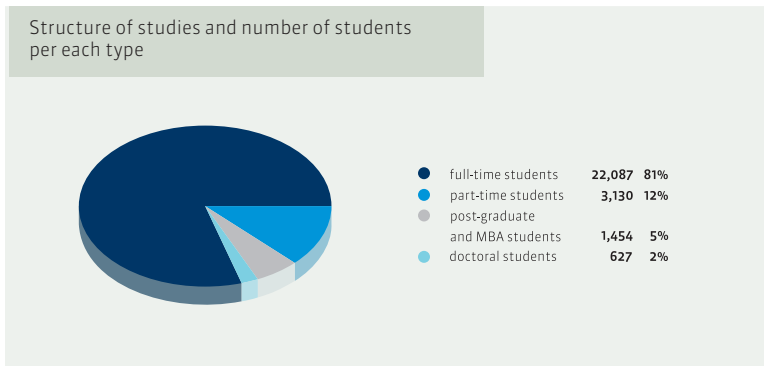
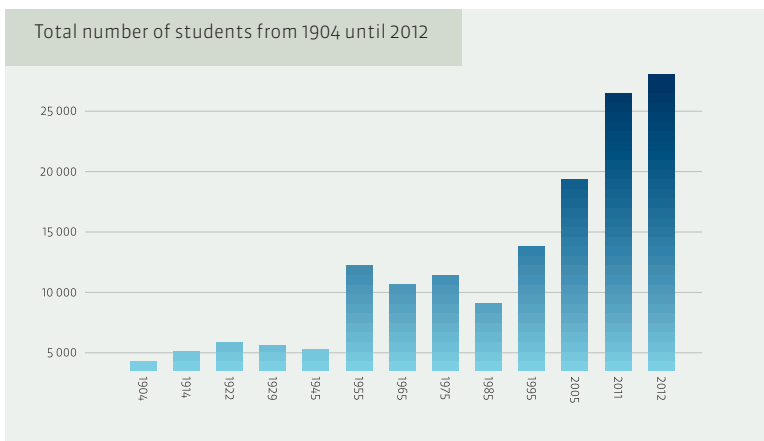
- creation of strong university image in order to attract international students;
- development of study offer in English;
- formation of an office dedicated to attend international students and guests;
- participation in educational fairs;
- participation in international and national internationalization programmes.

In this edition of "Pismo PG" you can find many details regarding the mechanisms of internationalization development as well as best practices examples.

I hope, that this information will facilitate the future cooperation and will contribute to new ideas and further gradual growth.



Prof. Henryk Krawczyk
Rector of Gdańsk University of Technology



Over 100,000 graduates!

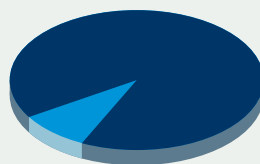
About 11.080 students graduated from the Technical University in Gdansk from 1904 until 1939.

The total number of graduates of Gdańsk University of Technology since 1945 amounts to 89,000.

Therefore, it is jointly over 100,000 graduates that left GUT with diplomas in their hands.

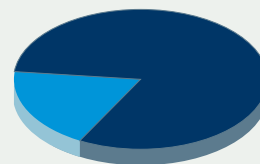
GUT 2010 graduates employment statistics

Are you currently employed?



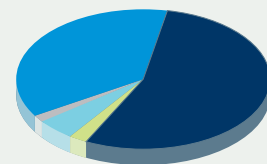
● Yes 92%
● No 8%

Is your employment in line with your field of study at GUT?



● Yes 79%
● No 21%

Are you satisfied with graduating from GUT?



● Definitely yes 53%
● Quite satisfied 39%
● I don't know 1%
● Rather not 5%
● Definitely no 2%



Pomorskie Region

Pomorskie Region – located in the north of Poland, on the southern coast of the Baltic Sea – is one of the most economically developed parts of Poland. It is very well connected – its international airport presently offers about 50 flight destinations, including Munich, Frankfurt, Copenhagen, Helsinki and Warsaw. The region has two major ports, in Gdańsk and Gdynia, which are operational around the year. They boast of increasing number of transshipments.

Considerable investments in road and rail connections towards the south of Europe as well as towards Germany, Russia and Belarus make Pomorskie even more accessible.

There are two special economic zones providing offers designed for investors as well as modern office spaces in very attractive locations.

In Pomorskie, both traditional and modern economic sectors are being developed. The first group includes: maritime, yacht building, chemical, pharmaceutical, cosmetics, machine, furniture and rural sectors as well as foodstuff processing. The latter is mainly modern design and ICT, banking and financial services.

Lufthansa Systems Poland, Intel Technology Polska, Thomson Reuters are good examples of investors in fields mentioned above. Investors can easily draw on a large pool of highly qualified staff – graduates of 29 higher education institutions including Gdańsk University of Technology, University of Gdańsk, Medical University of Gdańsk, Gdańsk University of Physical Education and Sport, Academy of Fine Arts, Gdynia Maritime University.



Coat of Arms of Pomorskie Region



Gdańsk Lech Walesa Airport

Graduates of Gdańsk University of Technology constitute the scientific elite of the region, what is visible in its active role in European research area.

Increasing number of international students is a challenge but also a stimulating factor for the university. In particular, growing group of Chinese students may prove valuable for the Pomorskie in terms of business cooperation with China.

Educating engineers well prepared to undertake new challenges, GUT is well placed within the Regional Development Strategy development strategy. Growing demand for technical education from informatics, through urban planning, geodesy and cartography to construction chemistry is evident. Moreover, the university is well experienced in acquiring structural aid and EU grants. This being apparent, when looking at modern, high tech premises at the Campus.

Establishing an efficient model of cooperation between the Pomeranian business and education is one of the local government's most important goals. The region aims at being creative and at generating innovative solutions, moreover it applies the innovative solutions created elsewhere. It also strives to be recognized as investors friendly and supporting investments in branches with growth potential. Therefore, in order to strengthen the comprehensive development of the region, various cooperation initiatives between educational entities, as well as between business and educational sector are supported.

Global companies have noticed this economic potential and have decided to set their branches in Pomorskie – a few examples are: Coca-Cola, IBM, Weyerhaeuser, Hutchinson Port Holdings, General Electric, Jabil Circuit Poland, GE Money Bank, Nordea Bank Polska, International Paper Kwidzyn or Bayer. It is also a seat of headquarters of several significant Polish companies among others Lotos Group, Polpharma, Energa SA and LPP.

Pomorskie is an important tourist destination with an offer ranging from rich historical monuments such as thousand-year-old Gdańsk or the nearby medieval Malbork Castle, to pristine natural areas of clean lakes and the sea. There are also many annual cultural events gathering crowds from all over the world – e.g. St. Dominic's Fair in Gdańsk or Open'er Festival in Gdynia.

Summing up – Pomorskie Region is a great place to live, work and do business.



Information about Gdańsk

Gdańsk Shipyard – the place of birth of the first Independent Trade Union "Solidarity"



Gdańsk, the capital of the TriCity metropolis, is one of the most important economic, scientific, cultural and touristic centres, as well as the maritime capital of Poland. Due to strategic location at the crossroads of major transit routes, it is a significant transport and handling hub. Well developed economic infrastructure, extensive scientific, technical and advisory background along with the availability of well-educated potential employees, positions Gdańsk as one of the leaders in the ranking of investment attractiveness in Poland.

The City is also a classic example of a cultural melting pot, where different nations, religions and languages coexisted in harmony throughout centuries .

At the same time Gdańsk is the largest academic center in Northern Poland. Polish universities are becoming more and more open to the world, welcoming an increasing number of foreign students every year. Numerous students from e.g. Germany, Ukraine, Russia, Belarus and China study here to gain high quality education and better understand Polish experience in political transition.



1. The main purpose of the **European Solidarity Centre** (design by a group of GUT architects) is to preserve the heritage of the first Independent Trade Union "Solidarity" in order to hand it down to future generations, while stressing its relevance and universal value

2. **Żuraw Gdański** – medieval port crane on Motława River

3. **Neptune Fountain** is the one of the most important symbols of Gdańsk, reminding of city's relation to the sea. It was built in 1633 in the centre of Long Market, in front of Artus Court

4. The **PGE Arena** football stadium is one of the biggest constructions of this kind in Poland, and will seat 44,000 spectators. During the European Football Cup in 2012 it was home for three group meetings and one quarter-final match

Among numerous public and non-public higher education institutions, Gdańsk University of Technology boasts the longest tradition. For many years it has been strengthening its position on the international arena. This is, mostly, the result of hard work of scientific staff, who supports students to gain the necessary skills and learn how to take their first steps at the labour market. Young, talented graduates contribute to build the economic potential of our metropolis.

Presence of foreign students and lecturers creates opportunities for growth, exchange of thoughts and ideas and mutual learning, how to function effectively in a global reality.

Positive image of Gdańsk is also a result of joint work of representatives of local government, local business and the world of science. Hence the city is developing dynamically, it can compete with major European cities. New investments and high quality of life attract domestic and foreign business. This places Gdańsk at high position in economic rankings.

Last but not the least, Gdańsk is in the forefront of the cities most eagerly visited by foreigners. Organization of UEFA EURO 2012 strongly influenced the recognition of the city. Hosting thousands of international and domestic football fans, Gdańsk appeared as a modern and cosmopolitan European city.

Despite the prior success, Gdańsk is continuously open to new challenges. Its future will be built on partnerships and dialogue with business and science.

The celebration of 110th anniversary of Gdańsk University of Technology will be an opportunity not only to summarize and reflect on the impressive history of the university, but will also help to set new, innovative solutions for the future.

P Adamowicz
Mayor of Gdańsk



The **Main Building** is one of the seven oldest buildings on Gdańsk University of Technology campus. The building was designed in the Dutch Renaissance Revival style, characteristic for Northern Europe. The richly decorated facade of the building is crowned with three gables, whose shape resembles the tenement house tops of Gdańsk's Old Town and constitute one of the most recognizable features of this architectural style

Gdańsk University of Technology – 110 years of science and technology



110
YEARS

Gdańsk University of Technology has not grown on sterile soil. It was preceded by centuries of development of science and technology filled with numerous outstanding achievements. At this occasion it is worth to remind them and recall the names of people considered pioneers in the world of science and technology.

Starting with **Joachim Retyk**, who was not a citizen of Gdańsk, but who, during the years he spent in Gdańsk, published here "The First Story" (Narratio prima) by Nicolaus Copernicus – a work about the heliocentric system. His book was printed in 1540 in Gdańsk by a publishing house of Francis Rhode and spread worldwide, praising the beauty of our region (i.e., then Royal or Polish Prussia) and the name of the brilliant astronomer. Retyk also measured the magnetic declination in Gdańsk, thus starting the oldest magnetic declination modification curve.

There is no learning without schools. Since 1558, in the former Franciscan monastery, there was a secondary school, which was transformed in 1580 into Academic Gymnasium, whose two highest classes were equivalent to the first two years of university studies. There were many eminent scholars among its professors and alumni.



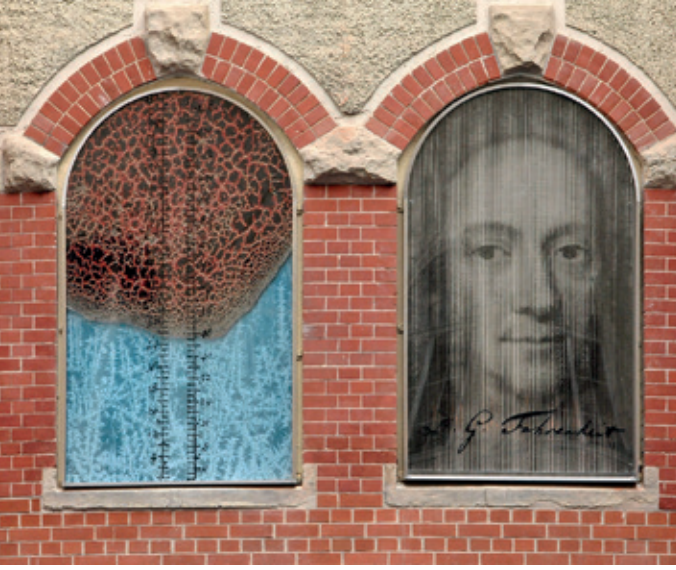
Professor **Peter Krüger** (1580–1639) was the author of the modern formulation of the cosine theorem (before him only Françoise Vieta achieved it). He also developed extremely accurate logarithmic tables, for the first time separately for trigonometric functions and for numbers.

Another citizen of Gdańsk, **Philip Clüver** (1580–1622), a graduate of the Academic Gymnasium, a professor at the University of Leiden, created a new branch of knowledge – historical geography. He was the first person ever to recognize the Urals to be the eastern border of Europe.

Among Krüger's pupils was the greatest, after Copernicus, Polish astronomer **Johannes Hevelius** (1611–1687). He was the scholarship holder of two monarchs and he founded and for 46 years led the world famous observatory on the roofs of houses at Korzenna Street. Hevelius was the first to use a micrometer screw for fine adjustment of instruments, invented a periscope and constructed pendulum clocks – one of the first in the world. He was the creator of the most accurate, at that time, maps of the Moon. He measured positions of 1,564 stars with great accuracy. He also introduced 9 new constellations on the maps, including the Shield of Sobieski. He collaborated with the Royal Society in London, of which he was a member since 1664 – one of the first foreign members.



Johann Hevelius was born in 1611 in Gdańsk. He is best known as "the founder of lunar topography" and discoverer of ten new constellations. Hevelius patronizes south courtyard in the Main Building of GUT



Daniel Gabriel Fahrenheit (1686–1736) was another famous citizen of Gdańsk. The world of science owes him the first reliable thermometer, for which he created his own scale, the discovery and investigation of the dependence of boiling and pressure, the first description of the properties of platinum. Fahrenheit was also a pioneer in low temperature physics.

Jacob Theodor Klein (1685–1759) was another member of the London Society coming from Gdańsk. He was famous for breeding the fruit-bearing coffee shrub in his own botanical garden in Długie Ogrody Street. He also studied fish, birds and other animals, created taxonomy of species different from Linnaean, which, however, has not been adopted.

Gdańsk scholar, **Daniel Gralath Elder** (1708–1767) was a pioneer in research on electricity. Among other achievements, he was the first to measure the forces between electrified bodies, he explained the principle of the so-called Leyden jars (prototype of capacitor), which he connected in series for voltage gain. He also wrote the first History of Electricity. In 1743, he founded the Society of Experimental Physics in Gdańsk, better known as the Society of Natural History. In his testament he assigned money to build the Great Linden Avenue to Wrzeszcz (today's Aleja Zwycięstwa).

Naturalists, **John Rajnold** (father, 1729–1798) and **John George** (son, 1754–1794) **Forster**, both natives of the Gdańsk region, circumnavigated the world, leading scientific observations in the second expedition of James Cook (1772–1775). The younger was a professor at the University of Vilnius in 1784–1787, where he lectured on the theory of evolution 70 years before Darwin!

The great philosopher, **Arthur Schopenhauer** (1788–1860), also came from Gdańsk and maintained contacts with the city throughout his whole life.


Professor of the Academic Gymnasium, **Paul Pater** (1656–1724), was a pioneer in the field of technical education. He was the founder of the first Polish curriculum (1711), which included technical drawings, architectural models, and production of optical instruments, clocks, musical instruments, and printing.




1. **Daniel Gabriel Fahrenheit** was born in 1686 in Gdańsk. He is best known for inventing the mercury-in-glass thermometer and for developing a temperature scale now named after him. He patronizes one of the courtyards in the Main Building of GUT

2. The photo shows the **oldest volume of the GUT Main Library Collection**. It is an astronomical work entitled "Theoriae novae planetarum" by Georg von Peurbach, **published in 1542**. The book has been opened in a place where one can see an original multi-layer illustration with movable elements, which was used to determine the phases of the Moon, and on the next page there is an instruction of how to use it. On the initiative of Gdańsk University of Technology, the project of digitizing library collections of Pomerania – **Pomeranian Digital Library** – was started. Apart from our university, other universities and institutions of Pomerania will participate in the undertaking. It involves converting about twenty million pages of the library collections into files of popular formats, and subsequently putting them on the web

Gdańsk University of Technology

 today employs about **2,400** persons

 including about **1,200** teachers

Gdańsk University of Technology (the literal translation of the Technische Hochschule as “Technical University” is factually incorrect) was established in 1904. In 1914 it employed 75 professors and associate professors and taught 731 students in the faculties of Architecture, Civil Engineering, Electrical Mechanics, Shipbuilding, Chemistry and General Subjects. From the beginning, it had full academic rights. Among the staff there were many world-class scholars.

After the World War I, despite many efforts, it was not possible to submit the university to the Polish authorities. Polish students were guaranteed equal rights, which were not suppressed until the Nazis. In 1928, among 1,500 students there were 400 Poles. Since 1922, Brotherly Help of Polish Students exists at Gdańsk University of Technology. The German authorities of the university and of the Free City approved the Polish name. In 1935, there were 8 faculties, 156 researchers, and 1,800 students. Scientific level was high. Prof. **Adolf Butenandt** was awarded the Nobel Prize in 1939 for the synthesis of hormones carried out at the university.

In 1945, a fire destroyed 60 percent of the Main Building. In the library 100.000 volumes were burnt. On October 11, 1945, the first lecture of the reborn university – recovered for Poland – took place. At that time there were 112 academic staff and 1,647 students.

Today GUT has more than 1,200 teachers and about 27 thousand students in 38 specialties, organized in nine faculties. The number of graduates has exceeded 100,000. The Campus has more than tripled. New buildings of Chemistry, Civil Engineering, Ocean Engineering, Electronics and Management and Economics, as well as student houses in Do Studzienki and Nowe Szkoty streets (Wyspiańskiego Street) have been constructed. Scientific success in many fields cannot be overstated. Also the strongest Tri-City Academic Computer Network (TASK), has been created, together with the recently opened innovative Centre for Nanotechnology. In 2012, the Main Building regained its turret clock, which has uplifted it in a way.

In 2014, Gdańsk University of Technology celebrates its 110th anniversary. It will be celebrated by implementation of new educational system geared to innovation and teamwork, while taking maximum advantage of new technical possibilities.

Andrzej Januszajtis
Honorary Citizen of Gdańsk
Former President of City Council of Gdańsk



Fahrenheit's thermometer was reconstructed in 2009 in memory of its inventor. It is situated very near the Main City Hall



Study offer at GUT

STUDIES IN POLISH

Faculty of Applied Physics and Mathematics

Technical Physics*

Material Engineering*

Mathematics*

Nanotechnologies*

Basics of Technical Sciences

Faculty of Architecture

Architecture and Urban Planning*

Spatial Development

Faculty of Chemistry

Biotechnology*

Chemistry*

Construction Chemistry

Material Engineering*

Materials Conservation and Degradation*

Chemical Technology*

Environmental Protection Technologies*

Faculty of Civil and Environmental Engineering

Civil Engineering*

Geodesy and Cartography

Environmental Engineering*

Transportation*

Faculty of Electrical and Control Engineering

Automatic Control and Robotics*

Electrical Engineering*

Power Engineering*

Faculty of Electronics, Telecommunications and Informatics

Automatic Control and Robotics*

Electronics and Telecommunications*

Computer Science*

Biomedical Engineering*

Faculty of Management and Economics

Economic Analytics*

European Studies*

Cognitive Engineering in Management and Economics Management*

Engineering Management

Faculty of Mechanical Engineering

Power Engineering*

Material Engineering*

Mechanical-Medical Engineering*

Mechanical Engineering and Machine Building*

Mechatronics*

Management and Production Engineering

Faculty of Ocean Engineering and Ship Technology

Power Engineering*

Transportation*

Ocean Engineering*

* fields of studies which are also conducted as postgraduate studies

STUDIES IN ENGLISH

OFFER OF UNDERGRADUATE STUDIES

Faculty of Chemistry

BSc in Environmental Protection and Management

Faculty of Management and Economics

BA in Management

OFFER OF POSTGRADUATE STUDIES

Faculty of Civil and Environmental Engineering

MSc in Civil Engineering

MSc in Environmental Engineering

Faculty of Electrical and Control Engineering

MSc in Automatic Control and Robotics
(Signal Processing)

Faculty of Electronics, Telecommunications
and Informatics

MSc in Control Engineering and Robotics
(Automatic Control Systems)

MSc in Control Engineering and Robotics
(Decision Systems)

MSc in Electronics and Telecommunications
(Radio Communication Systems and Networks)

MSc in Electronics and Telecommunications
(Computer Electronic Systems)

MSc in Informatics
(Distributed Applications and Internet Services)

Faculty of Management and Economics

MA in Management
(Small Business Economics and Management)

MA in Management
(International Management)

Faculty of Mechanical Engineering

MSc in Mechanical Engineering
(International Design Engineer)

Faculty of Ocean Engineering and Ship Technology

MSc in Ocean Engineering
(Marine and Offshore Energy)

MSc in Ocean Engineering
(Ship and Offshore Structures)

International Students and Visitors Office, founded in 2013, is run by the staff of International Relations Office. Its task is to help and support students, candidates and university's visitors. The office offers a wide range of services and its staff provides incoming students and visitors with professional help.



Monika Czerepak from **International Students and Visitors Office** with foreign students

International Students and Visitors Office



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ECTS Label

ECTS Label is a prestigious certificate granted by the European Commission to institutions, which properly apply the European Credit Transfer System (ECTS, also called the European Credit Transfer and Accumulation System). It is tool to support the organization and management of learning process and to facilitate the reckoning of the period of study carried out by a student at another university.

Gdańsk University of Technology is the only one in the region and the fourth in Poland to have received ECTS Label, confirming university's focus on quality, internationalization and student's educational process.

Systematization of the study programmes in the ECTS Catalogue, transparency of the rules of crediting subjects along with the unified assessment system, supports the mobility of students and facilitates ongoing monitoring of programme content.

<http://ects.pg.edu.pl>



Conceive – Design – Implement – Operate (CDIO) – new concept of learning

CDIO (Conceive – Design – Implement – Operate) is a system of education which offers a student an opportunity to determine his/her own role in a team project: create his own solution – design – implement – check how it works.

The idea of pro-industrial education of future engineers was created in the 90s of the 20th century at the Massachusetts Institute of Technology in the USA. It assumes preparing graduates for the needs of modern economy. This means not only the assimilation of the contents within the scope of science, but also emphasizes understanding of technical ideas and the development of systems and products – a multidisciplinary approach creating proper motivation of students. The learning process also includes development of skills necessary for an engineer to participate in a teamwork and to lead a team, including interpersonal communication and communication in foreign languages.

CDIO curriculum is organized around mutually supportive disciplines:

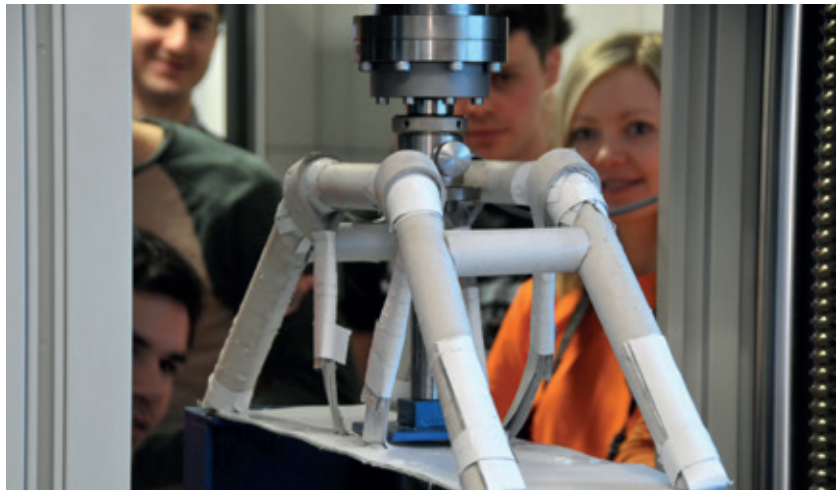
- a large number of student projects;
- an integrated approach to the acquisition of non-technical skills;
- active and experimental learning implemented in modern laboratories and halls of construction;
- continuous assessment and improvement of educational process.

Gdańsk University of Technology is the only university in the region, which participates in the exclusive CDIO consortium of over one hundred worldly renowned universities. The new project, funded under the Operational Programme Infrastructure and Environment in amount of PLN 64 million, will provide future engineers with training based on CDIO basis.



www.cdio.org





The Engineer of the Future

Improving conditions for science and experiments will help in educating engineers of the 21st century, whereas development and modernization of the university buildings will allow to create workshops, where students will be able to carry out scheduled team projects. These are the major assumptions of “The Engineer of the Future” project, being realized by Gdańsk University of Technology.

As a result of this project, in the next three years seven buildings will be constructed or modernized; the Mathematics Teaching and Distance Learning Centre being the largest of them. The project includes preparing equipment and software meant for completing the tasks scheduled by the student.

“The Engineer of the Future” project refers to Europe’s growth strategy “Europe 2020”. The concept of the project is based on CDIO (Conceive – Design – Implement – Operate), which has been implemented in over one hundred universities all over the world. It also takes into account the assumptions of the *Framework for Higher Education Qualifications* and ECTS Label.

The “Europe 2020” strategy, realized by the European Union, contains three interconnected priorities:

- intelligent development; development of an economy based on knowledge and innovation;
- sustainable development; promoting an economy which uses resources more effectively, is environmentally-friendly and more competitive;
- development of promoting social inclusion; promoting an economy with a high level of employment, social and territorial cohesion.



The European Commission stresses the importance of partnerships between universities and the economic environment, and development of qualifications required by the labour market. The success of this strategy depends on consistent realization of the tasks by EU, national and local institutions as well as companies and universities.

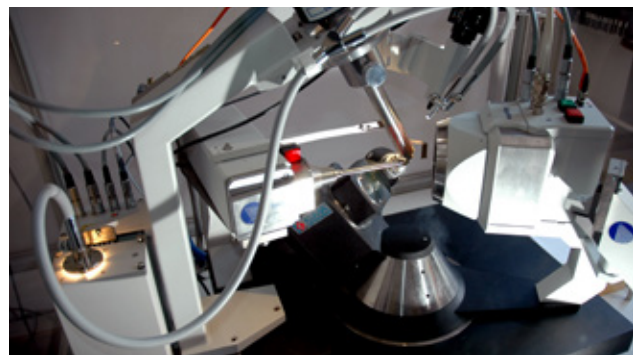
The basis of "The Engineer of the Future" project is a task-oriented education and realization of team projects. There are the following important factors: a firm link with the economy, consistent cooperation with industry and involvement of experienced businessmen in education process. There has been an emphasis on internships and active team work, which will require a lot of independence and creativity in solving tasks. We hope that education planned in this way will bring good results – students will be working on real company problems and thus develop skills that are required by the labour market.

We believe that it is crucial for graduates to gain the ability to define a problem and the ability to solve it. *They should be able to design a project, carry it out and evaluate its results*, says Professor Edmund Wittbrodt, the Coordinator of the project.

Professor Tony Wagner in *Creating Innovators: The Making of Young People Who Will Change The World* confirms that the most important things in creating innovators are team work, problem-oriented and multidisciplinary teaching, learning from experience and mistakes, creation and internal motivation, fun and passion.

The research of Dr. Ruth Graham published in *The Challenge of Change*: *Engineering Education for the 21st Century suggests that 70–80% of universities implement innovation due to external pressure (problems with recruitment or employment of graduates, changes in regulations, restructuring) and only 5–10% do it due to internal motivation. In most cases, people who had previous experience with industry initiated such processes of change.*

We realise that cosmetic or simulated changes will not bring desired results. That is why the Council of the project deeply analyses the mechanisms of realizing inter-university, inter-departmental, inter-facultative projects, their financing, target groups etc. However, we do not start from scratch. We base our decisions on the experience of project teams operating at the Faculty of Electronics, Telecommunications and Informatics, the Faculty of Architecture, the Faculty of Ocean Engineering and Ship Technology and the Faculty of Mechanical Engineering.



Doctoral studies: InterPhD and Advanced PhD

Gdańsk University of Technology has been realizing “The development of interdisciplinary doctoral studies at Gdańsk University of Technology in modern technologies (InterPhD)” project since 2009. In 2013 the project “The Center for Advanced Studies – the development of interdisciplinary doctoral studies at Gdańsk University of Technology in the key areas of the Europe 2020 Strategy (Advanced PhD)” was launched.

These activities aim at overcoming difficulties related to PhD student education, supporting reform of doctoral studies and encouraging the best graduates to undertake the doctoral studies at Gdańsk University of Technology. Both projects cumulated over PLN 27 million.

The projects comprise various activities concerning scientific and educational cooperation, such as 3-month stays of PhD students at foreign institutions or teaching by visiting professors. The “InterPhD” project also includes 2-month trainings for independent researchers and lecturers.

The results of the realization of the “InterPhD” project so far comprise of 65 arrivals of foreign lecturers, 19 traineeships of independent researchers and 78 foreign traineeships of PhD students. This experience has already brought some positive results in the form of relations and cooperation between the university and researchers of the leading European Union and worldwide academic centres.

<http://interphd.pg.gda.pl/en/>



<http://advancedphd.pg.gda.pl/en/>





Ukrainian delegation participating in the SpinOff Project

Educational projects at GUT

Gdańsk University of Technology effectively manages the obtained grants to develop the didactic potential and to raise the standards of learning outcomes in accordance with the expectations of the labour market. The European Social Fund and the international educational programmes are the main source of funding of the set objectives. GUT conducts many of these projects in collaboration with national and transnational partners. Between 2007–2013, eight educational projects in collaboration with international partners were concluded in total amount of PLN 4.4 million.

Thanks to the support of the European Union, Gdańsk University of Technology was able to get involved, among others, in the modernisation of the curricula of lower secondary schools. By cooperating with the University of Warmia and Mazury, University of Technology and Life Sciences in Bydgoszcz and Betacom SA, GUT had the opportunity to organise summer schools and practical extra-curricular activities, conducted by the academics, for 3,000 students from the Pomeranian, Kuyavian-Pomeranian and Warmian-Masurian Voivodeships (The Hand in Hand with Einstein Project, Human Capital Operational Programme). As a result of collaboration and the completion of two projects with an educational company Young Digital Planet and a Dutch company, LCB Malburg BV (e-Experiments in physics and e-Textbook, Human Capital Operational Programme), lower secondary schools in Poland will be using innovative electronic textbooks and virtual laboratory exercises during lessons.

Gdańsk University of Technology has also participated in the development of the curriculum grid for graduate and postgraduate studies in countries such as Egypt, Jordan and Syria. An innovative training programme for the first two of the above mentioned countries was developed in consortium with Slovak University of Žilina, a Swedish university in Linköping, four Egyptian universities and six institutions in Jordan (project EU-EG-JO, TEMPUS). Syrian universities have implemented the curricula developed in course of collaboration with the universities in Austria, Greece and Sweden, as well as with private and public institutions in Syria and the UK (projects: Safelite and TransLITS, TEMPUS).

EDUCATION AND RESEARCH AT GUT














Currently, in cooperation with a British partner Safety at Sea Ltd, Intercompany Trade Union "Solidarity" and the Human Resources Training Centre EuroPartner Ltd., efforts are under way, to devise an innovative methodological solution which would use modern ICT tools supporting engineering in the shipbuilding industry (Road to professional excellence, Human Capital Operational Programme).

The university has shared its experience in the commercialisation of the research results with scientific institutions and business environment in Ukraine. The SpinOff project (TEMPUS) conducted in cooperation with universities in Poland, Portugal, Sweden, Ukraine and the United Kingdom, aims to jointly develop guidelines for improving the legal basis for the commercialisation of research of Poland's eastern neighbour.

Thanks to the acquisition of a grant from the Leonardo Da Vinci programme, Gdańsk University of Technology, as the leader of the consortium, signed a partnership agreement with Polish Aiton Caldwell SA, German European Retail Academy, Czech Silesian University in Opava, Finnish The Municipal Federation of Savonia, University of Applied Sciences in Kuopio and Danish University College in Horsens. The result of these agreements will be participation in the adaptation of the Finnish case study methodology in education addressing employees of small and medium-sized enterprises (INNOCASE project).



Number of international partners working with GUT in educational projects

| | | | |
|---|--------------------|---|---|
|  | Austria | The University of Klagenfurt | 1 |
|  | The Czech Republic | Silesian University in Opava | 1 |
|  | Denmark | University College in Horsens | 1 |
|  | Egypt | Alexandria University | 4 |
|  | Finland | Savonia University of Applied Sciences | 1 |
|  | Greece | Technological Institute of Piraeus | 1 |
|  | Jordan | The University of Jordan | 7 |
|  | Germany | European Retail Academy | 1 |
|  | Portugal | Instituto Politecnico do Porto | 1 |
|  | Slovakia | University of Zilina | 1 |
|  | Syria | Syrian Engineering Association | 9 |
|  | Sweden | Lunds Universitet | 2 |
|  | Ukraine | National Metallurgical Academy of Ukraine | 9 |
|  | Great Britain | Safety at Sea Ltd | 4 |



International Research Staff Exchange (IRSES)

Gdańsk University of Technology actively cooperates with researchers worldwide. Among others, through IRSES projects (International Research Staff Exchange Scheme) within the framework of PEOPLE in EU 7th Framework Programme. GUT participates in creating the European Research Area by undertaking scientific mobility:

- outgoing: GUT's researchers travelling abroad;
- incoming: receiving researchers from countries that do not belong to the EU.

Gdańsk University of Technology is pursuing three projects of the IRSES type – two of which are coordinated by GUT. The **CARBALA** project, coordinated by Prof. Jacek Mąkinia of the Faculty of Civil and Environmental Engineering at GUT, envisages cooperation with universities in China, Brazil, Mexico, Canada and the USA. Five researchers from China and Mexico are going to come over to meet the challenges of the project together with researchers from GUT. Consequently, six GUT scientists are going to Canada and the USA.

The aim of the GUT-coordinated project **SASD**, that is being carried out at the Faculty of Management and Economics under the supervision of Prof. Cezary Orłowski, is to conduct research with Spanish and Australian partners. Six GUT scientists are going to the University of Newcastle in Australia to carry out research and gain new experience, while four researchers from Australia are going to visit Gdańsk University of Technology.

IMBeing is another GUT-coordinated project, that is being carried out at the Faculty of Ocean Engineering and Ship Technology in consortium with institutions from neighbouring countries: Belarus, Germany and Ukraine, under the supervision of Mohammad H. Ghaemi, PhD. GUT researchers are going to visit the National Science Center Kharkov Institute of Physics and Technology in Ukraine and the AV Luikov, Heat and Mass Transfer Institute of the National Academy of Sciences of Belarus.

Francisco Javier Pena Pereira, PhD, from the University of Vigo in Spanish Galicia, has been a member of the team at the Department of Analytical Chemistry since May 2013. He has been doing research under the supervision of Prof. Jacek Namieśnik as part of the grant awarded by the Galician government. Is it far from Pomerania to the north-west frontier of the Iberian Peninsula? It seems not, since Francisco is the fourth Galician associated with our university.

I became acquainted with Prof. Namieśnik's academic achievements from Internet websites before coming to Poland. I am very grateful to Prof. Namieśnik for agreeing to let me join his team. I am interested in Green Chemistry, especially its application in analysis. This is the reason why my main research profile embraces developing analytical methods taking into account the requirements of sustainable development, he explains. I found here very well equipped laboratories and friendly colleagues. I only wish my fiancée, Laura, had established scientific contacts in Poland. She works in the chemical laboratories of the University of Pau, which means a difficult separation for both of us.

After being awarded the degree of Doctor, Francisco Pereira worked at the University of Aveiro in Portugal for two years. Currently, as part of the grant he will be conducting research at the Faculty of Chemistry, Gdańsk University of Technology. Subsequently, he is going to continue his work at the University of Vigo. Studying chemistry is quite popular in Galicia, each of the three universities of the region, in Santiago de Compostela, Vigo and A Coruña has a department of chemistry. Unfortunately, not all of their graduates find jobs in their country.

Francisco finds Gdańsk very similar to his hometown Vigo, which is situated by the ocean. "I had known the impressive history of Gdańsk before coming here, especially its recent history. I really like The Old Town. The means of transport are great here. If I could, I would take your trams to Vigo straight away."

What would Francisco recommend to foreigner students staying at GUT? He recommends enjoying the GUT itself, visiting the beautiful Old Town, the Oliwa cathedral, spending some time at the enriching "Roads to freedom" exhibition in European Solidarity Centre, or relaxing at the forest or in one of the many nice parks along the city. In terms of gastronomy, he recommends enjoying traditional dishes like *żurek*, *pierogi*, *bigos*, *gołąbki* and sweet *pączki*.



Analytical Chemistry in Spanish





Summer Schools at GUT



15th International Summer School on Crystal Growth

In summer of 2013, Gdańsk University of Technology hosted over hundred young scientists from the most remote corners of the world, i.e. Brazil, Australia, Japan and China. They came to Gdańsk in order to attend lectures on crystal growth, which were carried out by experts in fields ranging from the process of crystal growth thermodynamics, through semiconductors, intermetallic crystal structures, to nanocrystals and metamaterials. Classes took place in lecture halls and laboratories of the Faculty of Applied Physics and Mathematics.

The summer school was dedicated to post-graduate and post-doctoral students as well as to researchers from industry and academia, interested in fundamental knowledge on crystal growth and epitaxy.

Students had an opportunity to conduct their own experiments and to present their results during a poster session. They also had a chance to get acquainted with the beautiful campus of Gdańsk University of Technology, the Main Building, Auditorium Maximum, laboratories and the modern Centre for Nanotechnology. Most of them visited Poland

Leaders for the future. Cross-cultural management as a key of success in the turbulent environment

for the first time. In their free time, the participants were sightseeing, attending St. Dominic's Fair. They also took part in a kayak tour down the Motława river.

Similar meetings are accompanying significant conferences devoted to particular subjects. The summer school in Gdańsk preceded a conference on crystal growth in Warsaw, organized by the Polish Society for Crystal Growth.

The idea of organising a summer school at the Faculty of Management and Economics appeared along with the guest from the Università degli Studi di Firenze, prof. Luciano Segreto, as one of the possibilities for cooperation within the framework of teaching.

The aim of the project was to introduce students to the topic of intercultural management, which is the key for success – especially in today's turbulent times. Listeners were presented with comparative cognition research methods, with particular emphasis on peculiarity of countries participating in the project. Students had the opportunity to work in international exercise groups with colleagues representing different attitudes and social environments. The target group of the programme are students of all areas, especially of social sciences (preferred: MA students), who have already acquired basic research skills and sufficient knowledge of English language. The programme is designed for people who, after graduation, are planning to work in corporations or international institutions in the global labour market.

Classes within the summer school took place in the period of 18–31 August 2013. Thirty students and ten teachers from five partner universities: Università degli Studi di Firenze, Erasmus Universiteit Rotterdam, Budapesti Kommunikációs és Üzleti Főiskola, Södertörn University and the Ecole Normale Supérieure de Cachan visited our university. In addition to a fairly tight timetable (intensive course requires a minimum of six hours of classes per day) we were able to visit Gdańsk, take part in a meeting with representatives of European Solidarity Centre, see the exhibition "Roads to Freedom", and visit the castle of Teutonic Order in Malbork.

The participants of the summer school left Gdańsk with a large dose of knowledge and a completely different image of our country.





IP SENSING THE CITY – Designing Urban Experience



Poland, Italy and Spain – three countries and three different experiences of the city. Since 2008, the Faculty of Architecture of Gdańsk University of Technology has been acting as a coordinator of a several-year-long intensive course programme. The third edition of the project, after the previous two held in Gdańsk and in Italy at the University of L'Aquila, was carried out in Spain in Cáceres in collaboration with Universidad de Alcalá de Henares.

The project within the extended consortium of partner universities assumed creating a highly integrated programme, oriented towards renewal of public space interpretation. It included environmental, social, engineering, materials and technology issues. In the next edition the IP project Cáceres 2012 offered an opportunity to review new technologies, with an emphasis on the relationship of media, nature and technology, and the role of their mutual relationship in the construction of a new quality of utilized urban landscape. The new aspect was the use of known methods and tools for restoration and redefinition of the city landscape of Cáceres, rich in terms of historical heritage.

The project was aimed at students of architecture, town-planning, landscape and at local community representatives directly involved in the project. The workshops consisted of seminars, lectures, project work, discussions and field work. An important element of the programme was the implementation of methodology and integration of results of the workshops in further education and in the semester projects.

Working in international project groups, together with discussions and consultations with academics and outside experts, served the ideological development of design concepts and problem solving. There was also time for cultural programme and weekend trips to nearby attractions in the Extremadura region – visiting the city of Merida and the ruins of the Roman Augusta Emerita, the Roman Theatre, the Museum of Roman Art by Rafael Moneo, and engineering construction – Santiago Calatrava bridge.

The evaluation of “Sensing the City” Cáceres 2012 project, and of the previous ones, has been recognized as extremely complementary and model. With the implementation of this programme, Gdańsk University of Technology has become one of few universities in Poland, that successfully coordinates projects within the Erasmus IP.

WHY HERE?



ADITYA VARMA MANDAPATI, India

MSc in Civil Engineering, GUT

Qualified faculty, student-centred staff, modern facilities, and a variety of courses taught in English with a state-of-the-art methodology can make this university a good choice for any international student (like me), GUT make full of opportunities for young people willing to get quality education, enhancing their knowledge, improving skills and boosting international experience. I AM SURE.



NAMAN RASTOGI, India

MSc in Civil Engineering, GUT

I chose GUT for my further studies because it provides M.Sc. (civil engineering) in English language and the course duration is only 18 months and faculty of civil engineering here is highly qualified and experienced with specialization in various fields and one important point i considered that tuition fees of GUT which is affordable for me.



ROBERT KAY, Germany

MSc in Management and Economics, GUT

When I had to decide where to do my master programme, I had to choose between Germany and Poland. As you know, the cost of living are much cheaper but the education is as high as in Germany. Therefore, I took the chance to study abroad in lovely Gdańsk. The mixture of historical buildings and modern technics reflects what the Gdańsk University of Technology is. I love the atmosphere and the close relation between teachers and students which make studying a good experience. But get used to drinking coffee, the Polish are early birds – first lesson at 7:15 am.



GUNDAVARAPU GOVARDHAN, India

MSc in Civil Engineering, GUT

GUT has got one of the best civil engineering faculties in Poland. The teaching standards of the professors is world class. And the university is great and it's a great opportunity learning in the class with different students from different cultures and nations. I am having a great time at GUT.



EDGAR MAGAS, Philippines

MSc in Chemistry, GUT

I am here in GUT to do my master research thesis. Why did I choose GUT? The primary reason I chose GUT is the research topic that it proposed. I believe that GUT can provide the professional growth I want with the research topic I selected. I also chose GUT because of the instrument that I am going to use for research, which is the two-dimensional gas chromatograph coupled with time-of-flight mass spectrometer. It is an advanced equipment for chromatographic separation. In addition, I chose GUT because of the weather, which is entirely different from the weather in my country, the Philippines. I want to experience autumn and winter here in Poland. I also want to experience the Polish culture and evaluate the similarities and differences with the culture in my country. Another important reason is the cost of living in Poland. It is not very expensive living in Poland compared to the other countries in the consortium of my master programme. These are the reasons why I chose to do my research here in GUT.



Erasmus at GUT

Erasmus is a European Union programme, whose aim is to support the international cooperation of universities. Erasmus is a part of Lifelong Learning Programme (LLP) which supports various forms of learning, mainly through the development of cooperation between educational systems.

All the activities of the LLP Erasmus are going to be continued within the Erasmus+ Programme, which was inaugurated in 2014. Erasmus+ will be realized until 2020, with budget of 15 billion EUR – a considerable growth comparing to 3 billion EUR in Lifelong Learning Programme. Within Erasmus+ 3 billion EUR are designed for mobility costs with mobility of 2 billion students. It is estimated that 3-millionth student joined Erasmus programme in February 2013, so the scale of the planned activities is much larger than what we have experienced so far.

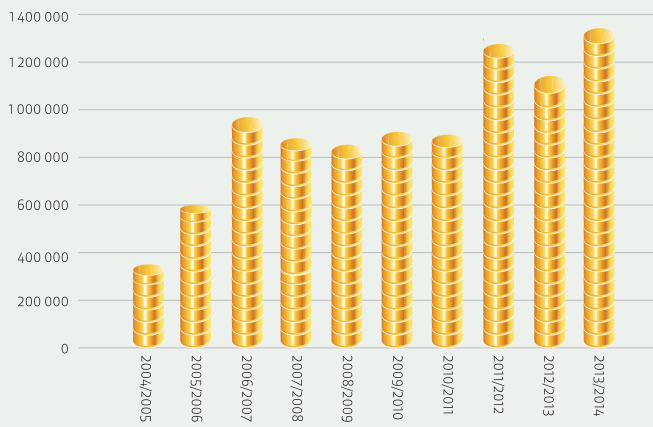
Erasmus Programme at Gdańsk University of Technology

Erasmus programme is a very important element of internationalization of Gdańsk University of Technology. Erasmus students are the largest group of foreign students at the university. Erasmus is also the main source of financing the student exchange. Owing to the programme, also the employees who are not academic teachers gained an opportunity to participate in training in international environment. As Erasmus+ is designed to reach beyond countries participating in the programme, it is hoped, that the programme's influence will become even more significant.

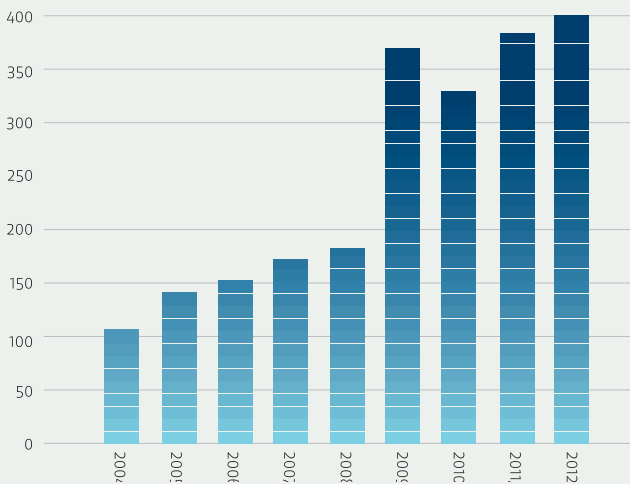
Gdańsk University of Technology has participated in Erasmus programme since 1998, when Erasmus was introduced in Poland. Nowadays GUT is one of the leaders of the programme in the country.

Gdańsk University of Technology is one of nine universities in Poland with Erasmus budget reaching over 1 million EUR in 2013/2014. It should also be pointed out, that only three technical universities obtained similar results among over 250 Polish universities qualified for Erasmus funding. GUT achieved the highest results of academic teachers mobility and staff training mobility among all the technical universities in Poland.

Erasmus Programme budget (EUR) of GUT



Inter-institutional agreements



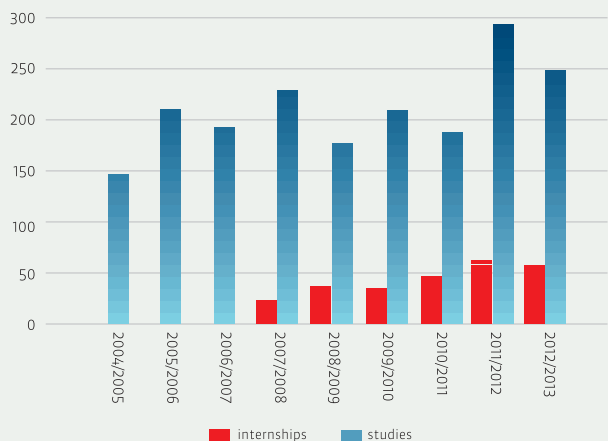
Student mobility

The major activity of the programme is student exchange. Student mobility is realized in two forms:

- mobility for studies – most mobility periods and the majority of funds are dedicated to realize this activity; it is based on previous inter-institutional agreements;
- mobility for placements – introduced by LLP only in 2007 (before student internship could only be completed within Leonardo da Vinci Programme).

Gdańsk University of Technology fulfils the high European Commission standards with reference to ECTS system and the student mobility formalities, which was confirmed by receiving the ECTS Label in 2011. Gdańsk University of Technology is one of only three Polish universities honoured with this certificate.

Outgoing students



Due to international students' satisfaction with Erasmus exchange period spent in GUT, each year we can see significant growth of incoming students number. As one of few Polish universities, we have already achieved equilibrium of incoming and outgoing students rates and next academic year we are expecting to receive more Erasmus students than we plan to send.

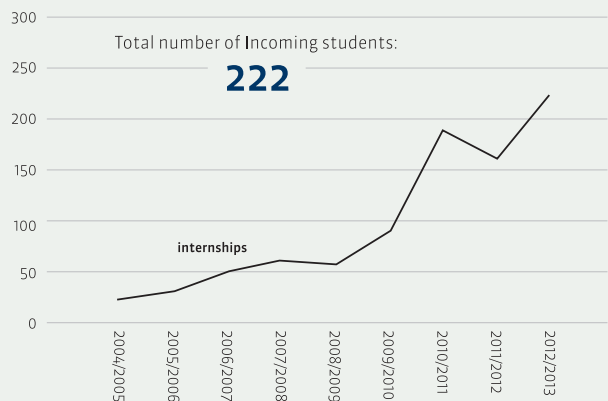
One of the main challenges of Gdańsk University of Technology is to prepare students to successfully enter the labour market. To gain professional experience in an international environment, students are encouraged to complete their internships in foreign companies and institutions. Erasmus programme is one of the most important instruments of financial support to students willing to undertake such an activity.

Staff mobility

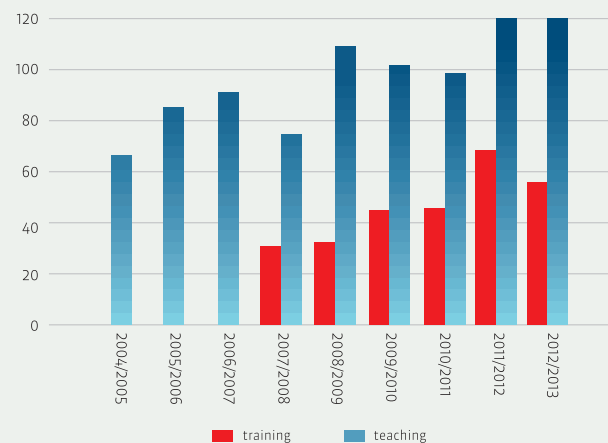
Erasmus Programme has supported academic teachers mobility from the very beginning. This activity enables students who otherwise could not participate in individual mobility to gain international experience taking part in classes performed by teachers from different countries.

Academic teachers from Gdańsk University of Technology have been participating willingly in exchange within the programme – GUT sends more academic teachers to partner universities than any other technical university in Poland.

In 2007 universities participating in the Erasmus Programme obtained the possibility of financing staff training mobility. Internationalization is a crucial element of Gdańsk University of Technology policy; therefore the university intends to prepare all the employees for this process. Training within the programme is a perfect tool for realizing this aim, enabling participants to gain international experience and additional skills.



Outgoing staff mobility



Erasmus Mundus



WHY HERE?

The EMQAL (Erasmus Mundus Master in Quality in Analytical Laboratories) project has been realized since 2008 by a consortium, which consists of five universities:

- Universidade do Algarve, Faro, Portugal (co-ordinating institution);
- Universidad de Cadiz, Spain;
- Universitat de Barcelona, Spain;
- Universitet in Bergen, Norway;
- Gdańsk University of Technology.

The programme consists of a number of subjects, so-called modules, arranged in three groups:

- Organization of analytical laboratories with regard to quality control and assurance (QM – Quality Management);
- Analytical methods, including medical and analytical methods (AM – Analytical Methods);
- Data Analysis (DA).

To date five editions took place, each lasting three semesters of study (the last ended up in the winter semester 2013/2014).

In 2012, the Consortium applied to continue the project for the next four editions – the application has been approved. The second round of the EMQAL project will last two semesters per edition. Apart from the previous consortium partners (this time the coordinating institution is the Universitat de Barcelona), the consortium will be extended by:

- Central South University (China);
- Novosibirsk National Research State University (Russian Federation);
- University of São Paulo (Brazil).



What's your opinion about GUT?

Faculty of Applied Physics and Mathematics

RERI RANJIT from Nepal

Course: Mathematical modelling in engineering "Material science"

Programme: Erasmus Mundus

Gdańsk University of Technology is an exceptionally friendly place for foreign students, comparable, for instance, to Italian universities, where I had an opportunity to study. I would not like to limit my stay in Poland to the period of studies only. I can see enormous potential in your country's economy. Having decided to stay in Poland, I am going to look for employment in industry, especially in international companies, the number of which is ever growing in Pomerania. I speak three European and three Asian languages. I am also a holder of Gdańsk University of Technology diploma, so I suppose I will be able to achieve my goal.



EEA/Norway Grants – Cooperation with Norway, Iceland and Liechtenstein

Since 2009, Gdańsk University of Technology has been successfully participating in Scholarship and Training Fund programme – Higher Education Staff and Student Mobility, which is financed by EEA-EFTA (European Economic Area – European Free Trade Association) member countries. Created on the basis of funds raised by Norway and EEA countries, the programme aims at the enhancement of social and economic coherence within the European Economic Area through activities in the field of education between Poland and donor states: Norway, Iceland and Liechtenstein.

The objective of the programme is to support the exchange of higher education staff and students who broaden knowledge and qualifications of the members, as well as inter-institutional cooperation development. The Fund provides

an alternative to the Erasmus programme and is dedicated to higher education staff and students, who want to go to Norway, Iceland and Liechtenstein. Higher grants together with additional travel allowance and insurance cause increasing interest in mobility within the programme. Another incentive to participate in this project is beautiful, wild and severe nature of above mentioned countries. The Fund offers support not only for outgoing mobility but also for incoming mobility of foreign students and guests from donor states.



M B A at GUT

Internationalization of MBA studies is one of the priorities of Gdańsk University of Technology, therefore GUT realizes the programme in English. The university cares about the presence of its MBA programmes in international ratings. In 2012 and 2013 the programme was in the third place (three palms) in the Eduniversal rating.

During their studies the MBA students have the opportunity to gain knowledge and practical skills in strategic decision making and in business administration. In addition, they improve their management and leadership skills, such as negotiation, interpersonal, self-management, time and team management. They have access to the latest knowledge achievements from foreign sources provided, used in Polish realities. To teach our students, we invite lecturers from different countries, including Great Britain, Germany and the United States.

WHY HERE?

The recruitment process, which is also performed in English, proved that the offer attracts interest of foreigners. The fact that the programme is delivered by globally recognized Gdańsk University of Technology increases its prestige. The university recognizes great value of the recommendations of our graduates who popularize our programme in their business environment, both in Poland and abroad.

Currently, we are planning to obtain the prestigious AMBA accreditation, which confirms the highest quality of MBA education programmes, in line with international standards.

www.zie.pg.gda.pl/web/mba/mba-programmes



OPINIONS ABOUT MBA



LARSON DE SOUZA
Portugal
MBA edition 2013–2015

My name is Larson de Souza. I am currently working full time as a Software Developer for Chillicow in London, England. I had applied for various posts in the IT industry and, keeping in mind my previous work experience as an IT Project Leader and later a project manager for a short period of time, a lot of directors and HR staff asked me if I had any management education. Since I didn't have any, I was unable to apply for any managerial positions which I loved most. At this point of time I felt the need to improve my skills. Finding a university that would accommodate my schedule and personal needs seemed distant. That was, until I looked at Gdańsk University of Technology. Among all the programmes I gazed at this programme appealed to me most because I would not have to give up my job in England to study as this is a part time programme. At the same time the course is very affordable and scheduled in a great manner to suit a full time employment simultaneously. The Masters in Project Management, Strategy and Programme Planning gets students oriented for Managerial positions.



CHIGOZIE ELIZABETH ISIKAKU
Nigeria
MBA edition 2012–2014

MBA studies at Gdańsk University of Technology are for me one of the most interesting and valuable work experiences that I have gained so far. Apart from my education in Africa, I also studied in Croatia and Great Britain. MBA studies conducted at Gdańsk University of Technology represent the highest European level, in addition to a very attractive price, much lower than the comparable MBA programmes offered by Scandinavian or other western universities. The international nature of the group of students and the opportunity to participate in classes conducted by lecturers from Australia, UK, the USA, Germany and even India convinced me to begin my studies in Gdańsk.

IT – the Latin of the 21st century

Latin was the language of Ancient Rome. It is the most apt and only authentic vehicle to fully express Roman culture, to gain access to its literature, its ideas and philosophies, to immerse oneself in its ethics and virtues, to not only understand but also intimately adopt and perfectly embody its complete world-view and way of life. It is also the only language in which the Roman Catholic religious rites can be duly performed.

An information society is a society where the creation, distribution, use, integration and manipulation of information is a significant economic, political and cultural activity. The aim of an information society is to gain competitive advantage internationally through using information technology (IT) in a creative and productive way. People who have the means to partake in this form of society are sometimes called digital citizens. This is one of the many labels that have been identified to suggest that humans are entering a new phase of society.

In Ancient Rome Latin was the language that brought people from different parts of the world together. Latin made it possible for people from places Romans conquered or did business with to come together, do business together or practice one religion together.



Henry Shani and Suna Bufungile – students of the 1st year of master studies at Faculty of Electronics, Telecommunications and Informatics

Information Technology brings people together in many different ways in this modern world, and some would call it the modern Latin.

Information Technology brings together businessmen from all corners of the globe and enables them to interact within their business for greater benefits in the same way as Latin did in Ancient Rome. IT brings teachers and professors from all over the world together in educational research and discussion; it also makes possible for students from different parts of the world to study together as long as they understand the language of Information Technology. This is why many people refer to IT as the Latin language of the modern world.



An interview with PhD students from other continents

Gdańsk University of Technology is popular not only among foreign students but also among young scientists from all over the world. There are, amongst others, two PhD students from India, who conduct scientific research at the Faculty of Chemistry: **Umesh Kalathiya** and **Monikaben Padariya**.

Why have you chosen GUT? What kind of place for studying is it?

UMESH KALATHIYA: *After completion of my master degree, it was always my desire and dream to make my PhD studies at Gdańsk University of Technology. The main advantage of studying here are the research activities conducted at the university and the multi-talented research teams. Apart from that the most important things that inspired me to study at Gdańsk University of Technology are close relationships between professors and students and facilities given to students for performing their research work or study. Concluding, Gdańsk University of Technology is one of the best universities in the world.*

MONIKABEN PADARIYA: *Each university is unique, but, fortunately, I have found Gdańsk University of Technology, which attracts me more than others. There are many research projects in my area of interest going on here. When I contacted Prof. M. Bagiński, the project he suggested was quite interesting for me and I decided to do my PhD research work on it. After starting the study, I found that it was the right choice, as the university is well equipped with new technologies and facilities; additionally Gdańsk University of Technology is the best place to improve skills to work in a team.*

Does GUT help young scientists in their development?

UMESH KALATHIYA: *According to my experience at GUT, development of young scientists and students is the main priority here. All requirements which are needed for the development, such as proper facilities, high level of knowledge and good cooperation have been provided by the University. Various national and international conferences and workshops are organized as part of the process of development of young scientists. Students are encouraged to work on various pro-*

WHY HERE?



jects and to cooperate with other universities and researchers from all over the world.

MONIKABEN PADARIYA: *Gdańsk University of Technology provides an academic environment for students, where professor helps them to gain an abundant knowledge for future life. Students can develop their independent characteristics at this university, which can be an efficient tool for them to compete with others; it also reconciles theoretical education with the real world. Gdańsk University of Technology provides complete facilities that young scientists need to conduct research.*

What positively surprises you in Poland and what would you change if you could?

UMESH KALATHIYA: *The main thing which surprised me after coming to Poland is your education system; the way of teaching and encouragement given to students to make progress in their field is awesome. Additionally, I found Polish culture and people astonishing; there is always a friendly environment in and off the campus. Considering my idea of changing something, I would wish to see more information about the country translated from Polish into English, which would help people like me to understand more about Poland but, apart from that, I think everything is going perfectly well here.*

MONIKABEN PADARIYA: *The most surprising thing for me in Poland was the language, because I can read Polish but I cannot understand it. One usually is not able to read something he cannot understand! As far as the education system is concerned, it is totally different from the one in my country; I like this education system, which evaluates knowledge of students in a practical way. If I were given a chance to change something in Poland, then I would like to modify the calendar system (sometimes Monday is Friday and Friday is Monday), it should be same as per the timetable followed by all.*

Would you like to stay in Poland for a longer period of time or do you treat it as a short break in your life?

UMESH KALATHIYA: *From the day I entered Poland, I have always wished to stay here forever; as the people, education and culture have inspired me a lot. But I do not think it will be possible so I do not have any idea how long I am going to be here. But I will be happy to have an opportunity to finish my study at Gdańsk University of Technology, which, no doubt, will help me to acquire good professional skills necessary to sustain myself in the competitive world.*

MONIKABEN PADARIYA: *I would be glad if I could stay in Poland for a longer period of time, but it all depends upon the opportunities which I will get after finishing my PhD studies at GUT. But I am sure that the time I will spend during my study in Poland will give me a great potential to improve my career prospects.*



At Gdańsk University of Technology a lot of attention is paid not only to the level of education, but also to promoting and popularizing high culture. In 2008, **Krzysztof Penderecki**, an outstanding composer and conductor, directed a concert in GUT



In 2005 an extraordinary event was held in the university courtyard. Professor **Aleksander Wolszczan**, an outstanding astrophysicist working at the Pennsylvania State University and discoverer of the first planets outside solar system, delivered a lecture entitled "Children of the Universe"



Since mediaeval times, every year in spring, in university cities students celebrate their festival of "Juvenalia". Students take over the keys to the city gates, which symbolize taking control of the city. Many concerts, cruises, dance shows and other events are organized then. Since 2009 GUT Students' Parliament has been realizing its original idea called "Technikalia" – a series of events in the tradition of "Juvenalia".

Why here? students' opinions

➤ *Although generally known for being very catholic and rather conservative, Poland is a relatively open country. Like a young teenager, with an overdose of energy and curiosity, it is very rapidly growing, while somehow still trying to (better) know itself and discover the world around.*

➤ *Poles are very sympathetic people, generally polite and discrete, we can find a very friendly and communicative personality behind their first distant and shy appearance (at least for foreigners). Yet, what attracts me most above all, is the Polish entrepreneurial spirit, the constant and stubborn openness for having, thinking, searching for new ideas, ways and solutions in order to get to a target or simply to get more.*

➤ *Probably due to the – still "fresh" – political history, with Poles we can feel a vibrant curiosity and strong will to learn, to undertake, to try, to move forward... A kind of "joy of life" which we, in central and western Europe, have definitely lost.*

➤ *When one says "Poland" I think about... the highest amount of shopping malls through Europe (all overcrowded, 7 days/week!); the most rapidly growing e-commerce market; still very low income averages; a transsexual deputy in Polish parliament, and of course also about women... caring mothers and housewives at home, women are amazingly active entrepreneurs in business (somewhere in the top 5 in EU for female entrepreneurship), hardworking employees in many industries and smart leaders occupying strategic positions in politics (e.g. Ministry of Higher Education and Science).*

However, sad and surprising side effect of – probably – this very same historical background, it is a pity to face in many areas of this same nation, an incomprehensible habit to do and to keep things going as “it once was/it used to be”. Gossips and jealousy (about neighbors’ success) are very strange hobbies that Poles have. Last but not least, unfortunately alcohol remains a threat for many young, as well as elderly people.

Well, having travelled, worked and/or lived in now approximately 70 countries around the globe, I can definitely say it without any doubt: Poland is a country of paradoxes!

☞ In my opinion, Polish entrepreneurship and creativity need more self-confidence. It’s time for the Polish culture and new generations to give more space for themselves, to show and better market their identity. There’s much stuff to do! “We” need to focus on ourselves, our skills, and exercise more on the clever “American way” of marketing.

☞ All in all, I feel very free and vivid in Poland. And I sincerely wish I can somehow have my little contribution here in the upcoming years.



KAZIM ANTONIO SAYIN

Doctorate student of the Faculty of Management and Economics

Once I got my master’s degree in international management (2002), not really willing to directly start working, I left my hometown Brussels for an international marketing internship in southern Germany. It was an extremely challenging period, with more than six months of total immersion in a different culture, different language and a strong business environment. With this very instructive and eye-opening experience, I finally made the first real step into the business world as Sales & Marketing manager in the automotive aftermarket industry.

During an intensively stressful (but happy) period of 5–6 years of international working experience, I travelled around the world, analyzing, developing and setting-up Sales & Marketing strategies in more than 40 countries. This strengthened my cultural interest and awareness, and practically forced me to widen various skills such as languages... I hope Polish will soon be the 6th language I can fluently speak. Henceforth, searching for new challenges, I set myself and everything around under a critical eye, embarking on an in-depth reflection time and went for an executive MBA in Kentucky, USA. New stuff, new people, new environment, and above all, new horizons... it was definitely a fantastic and valuable experience!

Since then I have been in charge of the international business development activities worldwide for a specific business unit within the same German group (present in 93 countries). Aged 34, with the motto “Always ask for more”, today I’m very happy and enthusiastic to have started a long-term cooperation in the academic world, with Gdańsk University of Technology in the scope of a PhD project: “Entrepreneurship and the impact of cultural and social parameters in international business management and strategies”.



The Faculty of Management and Economics introduced the Bachelor’s degree in Management Studies in the academic year 2007/2008, which was the first field of **study for students from Asia** in the Pomorskie Region. To make foreign students feel at home in a new place, besides the courses included in the curriculum, they can attend courses on Polish history and culture and the Polish language. Students from China have organised a **Chinese Day** at the faculty during which they presented the achievements of traditional Chinese medicine, as well as calligraphic lettering. They demonstrated how to use chopsticks and gave a lesson in Tai Chi

Recruitment Procedure

Recruitment procedure for candidates from outside the EU/EFTA

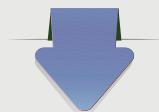
SEMESTER OF STUDY



Recruitment procedure to enter Gdańsk University of Technology is held twice a year:

- for the winter semester (beginning in October);
- for the summer semester (beginning in February).

REQUIRED DOCUMENTS



Candidates are required to forward copies of the following documents (by e-mail or post) to the International Students and Visitors Office:

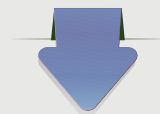
1. certificates of education (depending on the level of study):
 - 1st cycle of study – certificate of secondary education,
 - 2nd cycle of study – Diploma in Engineering or Bachelor's diploma,
 - 3rd cycle of study – Master's diploma.

All the above documents ought to be validated at a Consulate of the Republic of Poland or possess an apostille certification;

2. certificate of proficiency in English (for applicants to study in English) or in Polish (for applicants to study in Polish);
3. photocopy of the passport with personal details;
4. photograph;
5. medical certificate of no impediment to study in the chosen area;
6. CV and a cover letter;
7. confirmation of payment of the recruitment fee about EUR 200.

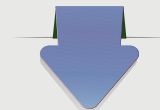
We accept documents issued in English or in Polish. All the translated documents ought to be certified by a sworn translator or validated at a Consulate of the Republic of Poland.

ADMISSION OF DOCUMENTS BY FACULTY RECRUITMENT COMMITTEES



Faculty Recruitment Committees carry out evaluation of content documents forwarded to the International Students and Visitors Office. This being positive, the candidate is expected to pay a yearly tuition fee. The university issues a certificate of enrollment which becomes a key document to apply for a Polish visa in a Consulate of the Republic of Poland.

ON ARRIVAL IN GDAŃSK



The student is expected to present: the original documents whose copies had been used in the application procedure, a valid visa and a health insurance policy, covering the period of study in Poland. Certificates of secondary education are to be validated by the Board of Education in Gdańsk.

CONTACT

International Students and Visitors Office

International Relations Office

Gdańsk University of Technology
Narutowicza 11/12, 80-233 Gdańsk
phone +48 58 347 28 28, fax +48 58 347 11 70
e-mail studygut@pg.gda.pl, visitgut@pg.gda.pl
www.facebook.com/IROGUT



ERASMUS STUDENTS


Incoming Erasmus students can choose courses available within the three cycles of study and spend between 3 and 12 months at Gdańsk University of Technology. More information about the Erasmus Programme is available on www.erasmus.pg.gda.pl

CONTACT

International Relations Office
ERASMUS Institutional Coordinator

Gdańsk University of Technology
Narutowicza 11/12, 80-233 Gdańsk
phone +48 58 347 12 89, fax +48 58 347 11 70
e-mail mdoerffer@pg.gda.pl
www.pg.edu.pl/international





Life in Gdańsk – all that a foreign student should know

Visa ➤ students get a visa which is usually valid for 12 months. To prolong his/her stay, a student should apply for a residence permit in Poland or a new visa in a country of origin before the current visa expires.

Insurance ➤ students require insurance for the period of studies in Poland. It may be obtained either in their country or after arrival in Poland. There is a possibility to choose either the National Health Fund (Narodowy Fundusz Zdrowia) or a private insurer.

Registration of stay at the local authority ➤ after arrival, student should register temporary residence at the local government.

Accommodation ➤ student may stay at one of GUT halls of residence or rent a room/flat off the campus.

Work during studies ➤ work permit is not required for summer months, i.e. July, August and September. It is also not necessary if a student is a holder of a residence permit.

Academic calendar ➤ academic year consists of two semesters: winter and summer semester, each ending with an exam period.

Student ID card ➤ issued by the Dean's Office. It is a document which not only confirms student's identity but also entitles the holder to numerous discounts in public transport, cinemas, museums, theatres, pubs and clubs.

Assistance in settling in new environment ➤ foreign students may always rely on support of International Students and Visitors Office. The office provides assistance with problems concerning legalization of stay, insurance and accommodation. There is also great support from Mentor Programme, run by ESN Gdańsk, that is based on friendly assistance of GUT's students.

City ➤ Gdańsk is one of the oldest cities and one of the most attractive touristic destinations in Poland. It is situated by the Baltic Sea; along with Sopot and Gdynia it forms the so-called TriCity. It provides numerous opportunities for spending free time, such as sightseeing, participating in cultural events or sports.

Monthly expenditure:

- accommodation at dorm ➤ 55–100 €
- food ➤ 100–150 €
- public transport ➤ 20–30 €
- entertainment ➤ 50–100 €



Offer for Students at GUT



Erasmus Programme

Every student at Gdańsk University of Technology has a chance to participate in the Erasmus+ exchange programme. This mobility programme involves study periods at a number of partner universities and work placements. It allows students to enlarge their knowledge, find out about other systems of education, learn about new cultures, develop passions, and discover new interests. It equips students with new scientific skills and helps them to develop their professional career.

ESN Gdańsk

ESN Gdańsk is a local section of an international student organization, **E**rasmus **S**tudent **N**etwork. Its main aim is to support and develop international student exchange programmes, especially Erasmus. The organisation's motto is "Students helping students".



Mentor Programme

ESN Gdańsk at GUT makes effort to minimize the effects of culture shock that international students might experience. Therefore, a number of actions are taken to integrate newcomers into the local environment, the most important being Orientation Week. This event as well as assigning a personal mentor (GUT student) to every international student is an immense help in the first several weeks after arrival at the university. More information <http://gdansk.esn.pl/mentor-programme>.

Erasmus Club

Erasmus Club organizes various events for students. Each One Teach One held on Mondays, gives international and Polish students a chance to meet in small conversation groups to talk to native speakers and practice their skills of communicating in foreign languages.

Social Erasmus offers international students an opportunity to get involved in the life of the local community. Students can participate in two projects: Erasmus in Schools where they carry out lessons about their culture and language, and Erasmus Forest, an ecological project whose aim is to plant trees.



ESN Travel makes sure that Erasmus students become familiar not only with the attractions of the Tri-City, but also visit other beautiful must-see places in Poland.

In addition, Erasmus Club organizes a photographic competition, Discovery Europe, a sports competition ESN OLYMPICS and several other events: HeL(L) SuRFiN (a trip to Hel Peninsula including the basics of windsurfing), Sailing Trip (sailing in Masurian Lakeland) and BaltiC Operation (a ferry round trip from Gdynia to Karlskrona, in cooperation with ESN BTH).

Careers Office

The Careers Office of Gdańsk University of Technology, in cooperation with business organizations, helps students to build their career path by offering work placements consistent with a candidate's profile, organizing careers fairs and seminars hosting employers from the region. One of the CO objectives is to prepare students to successfully enter the labour market and facilitate contact with potential employers.



e-Learning

Gdańsk University of Technology is a modern university, promoting solutions and strategies which exploit the potential of new technology. It offers teaching using ICT – an integral element of education and virtualization of the university. As part of e-Learning GUT offers on-line consultations and interactive systems of measuring competence. There are trainings and courses being run, which are implemented in the Internet in whole or in part, educational materials are being shared through channels/playlists on sites such as YouTube or in social networks.



Learning foreign languages

Gdańsk University of Technology holds courses of nine foreign languages:

- English
- German
- French
- Spanish
- Italian
- Russian
- Swedish
- Japanese
- Hindi

and a course of Polish for foreign students.

WHAT IS LIVING IN GDAŃSK UNIVERSITY OF TECHNOLOGY LIKE?



Foreign language teaching is carried out at several levels: from elementary (A1) to proficiency (C2), so that everyone can find a group corresponding to his abilities. For students with basic knowledge of a foreign language there are classes in specialized language matching their course of study. For students fluent in English there are two modules available: "English at Work" and "Proficiency". Attending regular classes is not the only means to develop language skills. There are several dynamically developing language circles at Gdańsk University of Technology: English, Spanish and German.

Academic Sports Centre

Whatever sport you have ever thought of practicing, you can take it up at the Academic Sports Centre of Gdańsk University of Technology. The centre offers trainings in 20 different sports sections: swimming, athletics, judo, volleyball, tennis, table tennis and others. Renovated and modernised sports halls, swimming pools and modern equipment provide the right balance between mental health and physical fitness. The Centre is located in Wrzeszcz, in the vicinity of GUT, along the main artery with the tram line and near the train line (SKM).

Student organizations and scientific circles

In addition to studying, students at Gdańsk University of Technology can take advantage of student organizations and scientific circles to develop their passions and pursue their interests. Whoever cannot find a section meeting his individual needs has a chance to start his own activity. At the moment, there are over 60 scientific circles and 25 student organizations actively working at GUT.

Psychological Support Centre

Psychological Support Centre is the place where every student and PhD student can get professional psychological help and therapy free of charge. The centre diagnoses existing problems and develops individual therapy. In difficult or critical situations the most effective help is a kind word and psychological support, which every student can receive at the centre.

Grants obtained by GUT between 2007 and 2013 – a short resume

One of the GUT development strategy elements is gaining grants from national subsidies, EU funds and other external initiatives. During 8 years between 2007 and 2013 the university signed **560 agreements**, 92% of which concerned innovative projects. The overall financial support has been estimated at over **PLN 646 million**.

The highest rate of success has been visible within the area of **National Research Programmes**, where 428 projects were carried out, making 76% of all initiatives. Among other substantial sources of funding, there have been: **Structural Funds** (80 projects worth over PLN 515 million), **Framework Programmes**, **International Research Programmes** and **International Educational Programmes** (52 projects worth over PLN 51 million).

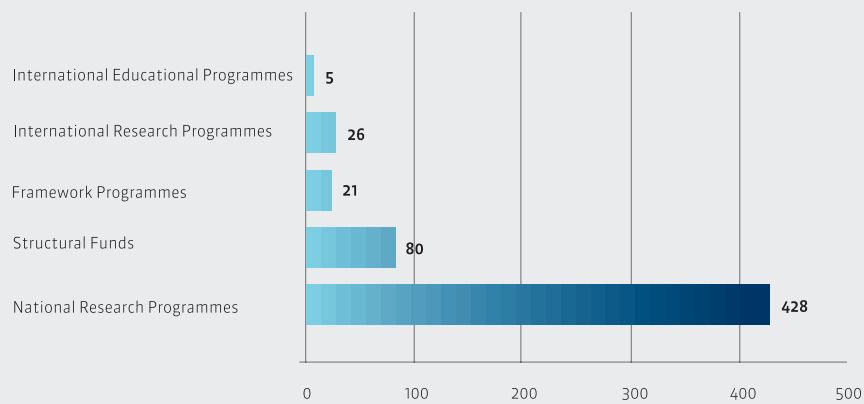
Many of above mentioned projects have been carried out **in cooperation with leading scientific research and business centres in Poland and worldwide**.

EU programmes signed by GUT in 2007–2013

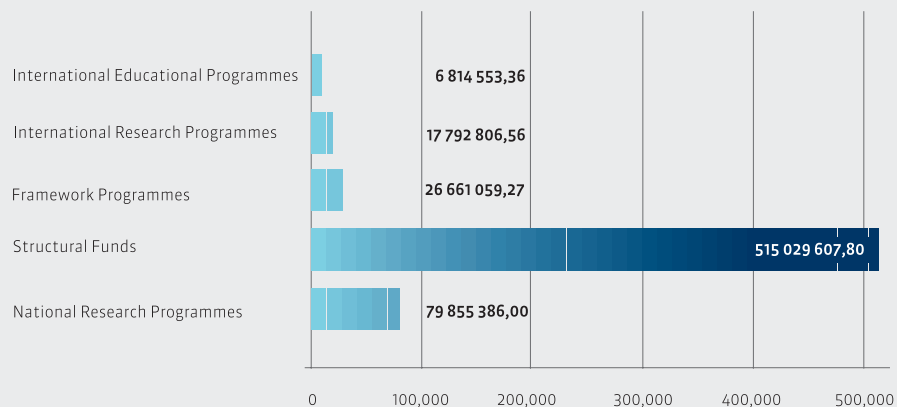
| | PROGRAMME | 2007–2012 | 2013 | 2007–2013 |
|---|--------------------------------------|-----------|------|-----------|
|  | National Research Programmes | 405 | 23 | 428 |
|  | Structural Funds | 72 | 8 | 80 |
|  | Framework Programmes | 17 | 4 | 21 |
|  | International Research Programmes | 17 | 9 | 26 |
|  | International Educational Programmes | 5 | 0 | 5 |

PROJECTS REALISED AND DEVELOPMENT PERSPECTIVES

EU programmes signed by GUT in 2007–2013



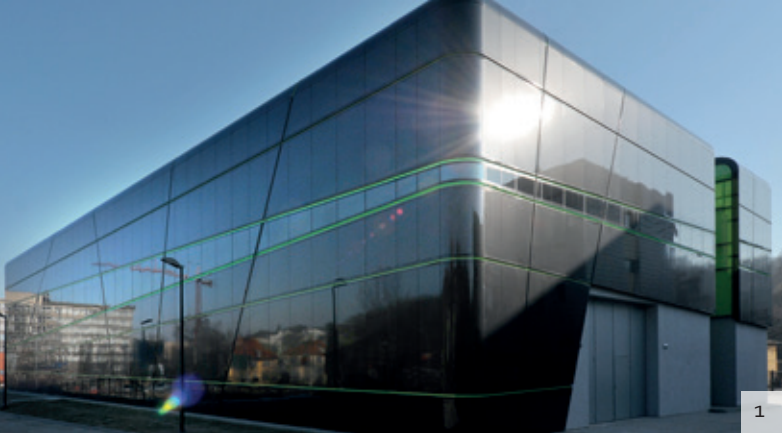
Value of projects gained in 2007–2013 [PLN]



As a beneficiary of European Union and national subsidies, GUT has been constantly developing its educational offer, implementing new mechanisms of scientific inventions and modernizing its research and development infrastructure.

Moreover, owing to its international cooperation, the university has enriched its potential (Structural Funds, national grants) and contributed to world scientific research trends (7 FP, International Research Programmes).

It has also participated in the Baltic Sea Research and Development Programme (European Territorial Co-operation) and in implementation of innovative solutions among non-European Union states (International Educational Programmes).



1



3



2



4

Large infrastructural projects at GUT

Gdańsk University of Technology gained financing from the European Union for several large infrastructural projects between 2007 and 2013. These projects are changing the image of GUT not only by enabling construction of modern buildings, including latest technology scientific and educational equipment, but also by leading to development of new educational methodology based on American experience.

In 2009, Gdańsk University of Technology concluded the biggest contract concerning financing of infrastructure development. The project of the **Centre for Nanotechnology (3)** originally scheduled construction and equipment of one new building. Due to cost-effective approach, GUT managed to construct and equip two buildings, thus providing means necessary to educate future nanotechnology specialists.

The project was funded from the European Regional Development Fund 2007–2013. The value of funding was PLN 73.7 million.

Within the Operational Programme for Infrastructure and Environment, the university campus is being developed to serve the implementation of a new educational system based on CDIO (Conceive – Design – Implement – Operate) Concept. Within the project, which provides funding of PLN 67.2 million, new premises for Centre for Teaching Mathematics and Distance Education will be built. There is also

reconstruction of the Faculty of Mechanical Engineering edifice and several new laboratories being planned.

Gdańsk University of Technology develops continuously its R&D infrastructure. In 2009 it gained an important grant from Operational Programme Innovative Economy for constructing and equipping the **Laboratory of Innovative Technologies for Electricity and Integration of Renewable Energy Sources – LINTe² (1,2)**. The value of this project was PLN 43.8 million.

Seven lecture theatres and six lecture rooms at our university were rebuilt, redecorated, and equipped as part of the project: Innovative Lecture Theatres at Gdansk University of Technology. The project also involves constructing the **Laboratory of Immersed Spatial Visualisation (4)** – a place where virtual spatial experiments can be carried out. The laboratory can serve various purposes, such as training firefighters and public policy officers (it allows for generating a virtual battlefield) and industrial specialists (it allows for virtual inspecting of ships or buildings). It also facilitates scientific visualizations, for example, virtual manipulating of complex chemical molecules. In addition, this unique laboratory can be used for virtual tourism or visiting virtual exhibitions, as well as for didactic virtual trips, for example, in space. The laboratory could also play a vital role in medicine – in treating phobias using the method of quenching reactions to stimuli by immersion, and in physiotherapy.



Large research project – “TYPOSERIES” – “Elaboration of multimodal interfaces and their practical implementation”

The project, funded in amount of PLN 7.2 million within the Operational Programme Innovative Economy, involves improving the ways of communication between people and computers, including education and rehabilitation of persons with disabilities.

Traditional ways of communication between humans and computers restrict the application of information technology in many areas of life, such as:

- educational applications;
- education and rehabilitation of persons with disabilities;
- situations where computer users cannot or do not intend to use conventional methods of entering data and commands to control computers.

The facilities developed within the project contribute to the prevention of digital exclusion and to the equalization of opportunities for persons with disabilities.

The products below have received numerous international and national awards:

- ➔ **gesture-controlled Sound Mixing System** – solutions for remote computer set operation through gestures; was awarded gold medal at the Convention of the Audio Engineering Society in Rome;
- ➔ **computer aroma interface** – a product designed for people with developmental disabilities (intellectual disabilities, autism) and sensory deficits. In addition, the interface can be used in educational programmes, e.g. using odours emitter during the course of biology and materials science. The product has been awarded a gold medal at the Convention of the Audio Engineering Society in Rome;
- ➔ **interface to synchronize the hemispheres of brain** – the aim of the tool is to support the treatment of dyslexia, developmental and sensory disorders and to accelerate the pace of learning (including foreign languages acquisition). It is intended primarily to work with people with developmental dyslexia and sensory integration problems. The invention received the gold medal of the Korean Association of Inventors; silver medal at the VI International Exhibition of Inventions IWIS 2012 and honorable mention at 8th Industrial Technology, Science and Innovation Fair TECHNICON-INNOVATION;



- ➔ **a set of hardware and software to support and develop the process of speech understanding in pupils** – the device is designed to support the teacher’s speech recognition (during lessons and from recordings) and to assist the diagnosis of disorders (through computer programmes). Moreover, the product allows to adjust the parameters of the receiver to the real needs of the child and to train the ability to understand speech and to monitor progress in this area through the included set of tasks and tests for self-training. An important part of the solution is the algorithm for slowing down the speech during its reception. The hearing aid for patients with disorders of the central nervous system received gold medal at the 60th edition of the World Exhibition of Innovations, Research and New Technologies BRUSSELS INNOVA 2012;
- ➔ **Auditory-Visual Attention Stimulator** – the interface will support people with disabilities of eyesight and hearing, as well as children with ADHD, as a multimedia stimulator of binocular vision in applications to counteract the deficit of visual attention in children and adults and to force the binocular vision in cases of amblyopia (“lazy eye” syndrome). An original application is a set of tools and tests to diagnose the degree of awareness of persons with no contact (in coma or vegetative state); the interface was awarded gold medal of the Poznań International Fair within the competition Economy for Science, and was also awarded at the international exhibition of inventions BRUSSELS INNOVA 2012;
- ➔ **integrated CyberEye system** – used for the diagnosis and treatment of persons in coma; it received the title of THE INVENTION OF THE YEAR 2013 in a competition organized by TVP and honorable mention in the “Golden Scalpel” competition for prominent innovator in the Polish health care, as well as the gold medal with special distinction at 62nd World Exhibition of Innovations, Research and New Technologies BRUSSELS INNOVA 2013. Thanks to many distinctions already received, CyberEye system and other innovative projects have a chance to become global products, used on a global scale; www.multimed.biz



International research projects at Gdańsk University of Technology within the 7th EU Framework Programme

For many years, internationalization of research has been one of the priorities of the development strategy of Gdańsk University of Technology.

Currently, the university is among leaders in Northern Poland in the implementation of projects funded by the international research programmes. Worth mentioning is the potential of researchers from Gdańsk University of Technology in obtaining projects within the 7th EU Framework Programme (FP7) – the largest mechanism for funding research in Europe.

Over past seven years, joined efforts of GUT top researchers in preparing applications for research grants have resulted in obtaining **21 projects**, funded within the programme.

Implementation of the projects of the 7th Framework Programme enables scientists from Gdańsk University of Technology to participate in research conducted at the highest level of modern science and in collaboration with leading research centers and industry in the world.

Moreover, the programme supports establishing new contacts and enhances performance of academic staff by funding organization of international conferences, as well as exchange programmes and internships.

FACULTY OF OCEAN ENGINEERING AND SHIP TECHNOLOGY

| | |
|-----------------------|--|
| <p>CORFAT</p> | <p>D.Sc., Eng. Henryk Bugłacki Department of Ship Manufacturing Technology, Quality Systems and Materials Science <i>The project involves the implementation of sensors, whose deployment in certain areas of transport: ships, road and rail tanks will allow on-line monitoring of their technical condition (cooperation with Naval Shipyard Gdynia SA).</i></p> |
| <p>RISPECT</p> | <p>D.Sc., Eng. Janusz Kozak Department of Ship Manufacturing Technology, Quality Systems and Materials Science kozak@pg.gda.pl <i>The project involves development of an innovative method of scheduling maintenance of ships, which will contribute to the conduct of safe and cost-effective inspection of ship structure, determine the extent of repair, and allow for the improvement of the design principles of existing ships.</i></p> |
| <p>PROMARC</p> | <p>D.Sc., Eng. Tadeusz Borzęcki Department of Ship Manufacturing Technology, Quality Systems and Materials Science <i>The aim of the project was to encourage talented students and pupils to take up a career in research in the field of shipbuilding and ocean engineering.</i></p> |

**SMARTCATCH
and
ClosedFishCage**

D.Sc., Eng. Lech Rowiński
Department of Theory and Ship Design
rowinski@pg.gda.pl

The aim of the project is to support innovative small and medium-sized enterprises (SMEs) in relation to the provision of research facilities.

IMBeing

D.Sc., Eng. Mohammad H. Ghaemi
Department of Control and Power Engineering
ghaemi@pg.gda.pl

As part of the grant, researchers from the Faculty of Ocean Engineering and Ship Technology will establish research collaboration with Heat and Mass Transfer Institute (HMTI) of the Belarusian Academy of Sciences. Gdańsk University of Technology coordinates the project.

FACULTY OF ELECTRONICS, TELECOMMUNICATIONS AND INFORMATICS

PERFORM

Prof., D.Sc., Eng. Andrzej Czyżewski
Department of Multimedia Systems
ac@pg.gda.pl

The project involves solving problems associated with effective distance monitoring of health and the personalization of treatment of persons suffering from neurodegenerative diseases and movement disorders, such as Parkinson's disease.

ADDPRIV

Prof., D.Sc., Eng. Andrzej Czyżewski
Department of Multimedia Systems
ac@pg.gda.pl

The project involves the creation of a system of intelligent surveillance and the increase of public acceptance of monitoring.

INDECT

Prof., D.Sc., Eng. Andrzej Czyżewski
Department of Multimedia Systems
ac@pg.gda.pl

The project involves development of a platform for registration and exchange of operational data, intelligent processing of all information and automatic detection of threats.

ASSIST

D.Sc., Eng. Łukasz Kulas
Department of Microwave and Antenna Engineering
luke@eti.pg.gda.pl

The aim of the project is to develop computational algorithms for the antenna issues using macromodels and massive parallelism of computational plots in graphic processors.

DEWI

D.Sc., Eng. Łukasz Kulas
Department of Microwave and Antenna Engineering
luke@eti.pg.gda.pl

The project involves introduction of an integrated and reliable architecture of communication, using wireless technology, and the creation of the concept of "sensor and communication bubble." The technology will allow replacing traditional, heavy cables between computers, devices or sensors, which, in turn, means lower costs and increased flexibility.

COPCAMS Prof., D.Sc., Eng. Andrzej Czyżewski
Department of Multimedia Systems
ac@pg.gda.pl

The aim of the project is to create software, and practical use of modern hardware platforms with embedded system, dedicated to the acquisition and processing of visual and photonic signal. A new device will be produced: a multiprocessor computation accelerator built in the camera, complete with a package of programming tools for integration with other types of sensors: acoustic, RFID, infrared cameras and others.

FACULTY OF APPLIED PHYSICS AND MATHEMATICS

QOLAPS Prof., D.Sc. Paweł Horodecki
Department of Theoretical Physics and Quantum Information
pawel@mif.pg.gda.pl

The grant refers to research in the theory and implementation of new specific resources, such as quantum correlations, quantum non-locality and contextualism. It is one of three ERC Advanced Grants projects implemented in Poland.

**DYNAMICOL
and
VIBRAMAN** D.Sc., Eng. Marta Łabuda, dr. Julien Guthmuller
Department of Theoretical Physics and Quantum Information
marta@mif.pg.gda.pl, jgutmuller@mif.pg.gda.pl

Individual Grants (Marie Curie Career Integration Grants – CIG) support integration with the university after previous research internship abroad. They are intended for researchers from around the world with at least 4 years of experience in research or PhD degree.

PARYLENS D.Sc. Maciej Bobrowski
Department of Solid State Physics
mate@task.gda.pl

The aim of the project is to develop a new generation of optical devices based on the concept of innovative and reliable concept inspired by natural optical systems, such as human or fly eyes.

FACULTY OF CIVIL AND ENVIRONMENTAL ENGINEERING

DYN@MO D.Sc., Eng. Kazimierz Jamroz
Department of Highway Engineering
kazimierz.jamroz@wilis.pg.gda.pl

The project involves the implementation and evaluation of an integrated package of technology solutions for urban transport: the creation of car-free pedestrian zone, bus lanes and investments in trolleybus communication in Gdynia. Moreover, it is planned to implement a method for detecting accidents and other road incidents, supporting intelligent traffic control system TRISTAR (includes cooperation with the University of Gdańsk, Gdynia Municipality and with Trolleybus Communication Company in Gdynia).

CARBALA

Prof., D.Sc., Eng. Jacek Mąkinia
 Department of Sanitary Engineering
 jacek.makinia@wilis.pg.gda.pl

The project involves establishment of long-term research collaboration with the University of California (USA) and the University of Manitoba (Canada); at the same time GUT will host researchers from the University of Sao Paulo (Brazil), Tonga University (China) and the Scientific Research Institute of San Luis Potosi (Mexico).

FACULTY OF MECHANICAL ENGINEERING

PERSUADE

Prof., D.Sc., Eng. Jerzy Ejsmont
 Department of Machine Design and Vehicle
 jejsmont@pg.gda.pl

The project is to develop a sustainable, economically viable Poroelastic Road Surface (PERS) of processed scrap tyres. According to the assumptions, the surface will have a positive impact on the environment, with a significant reduction in noise and vibration, generated during the movement of vehicles, and will help to solve the problem of managing used tyres.

ROSANNE

Prof., D.Sc., Eng. Jerzy Ejsmont
 Department of Machine Design and Vehicle
 jejsmont@pg.gda.pl

The aim of the project is to develop and standardize research methods of rolling resistance, grip and tyre noise on road surfaces.

FACULTY OF MANAGEMENT AND ECONOMICS

SASD

D.Sc., Eng. Cezary Orłowski, GUT Professor
 Department of Applied Informatics in Management
 Cezary.Orlowski@zie.pg.gda.pl

The aim of the project is the exchange of scientific personnel between Gdańsk University of Technology and the University of Newcastle (Australia). Gdańsk University of Technology is the coordinator of the project.

European Projects Department

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The process of internationalization of research at Gdańsk University of Technology covers a wide range of activities based on collaboration with leading centres abroad. Active international cooperation in the area of the 7th Framework Programme stimulates the development of research work at the university and gives the opportunity to present Polish technical thought at the international arena.

European Territorial Co-operation (ETC)

Between 2007 and 2013, Gdańsk University of Technology participated in 10 ETC projects within the framework of the **Baltic Sea Region Programme** and the **South Baltic Cross-Border Co-operation Programme**, working together with 125 partners from 11 European countries. GUT's share in the total value of these projects was over EUR 2 million.

The main objectives of the projects that are being conducted at GUT within the framework of the **Baltic Sea Region Programme** are:

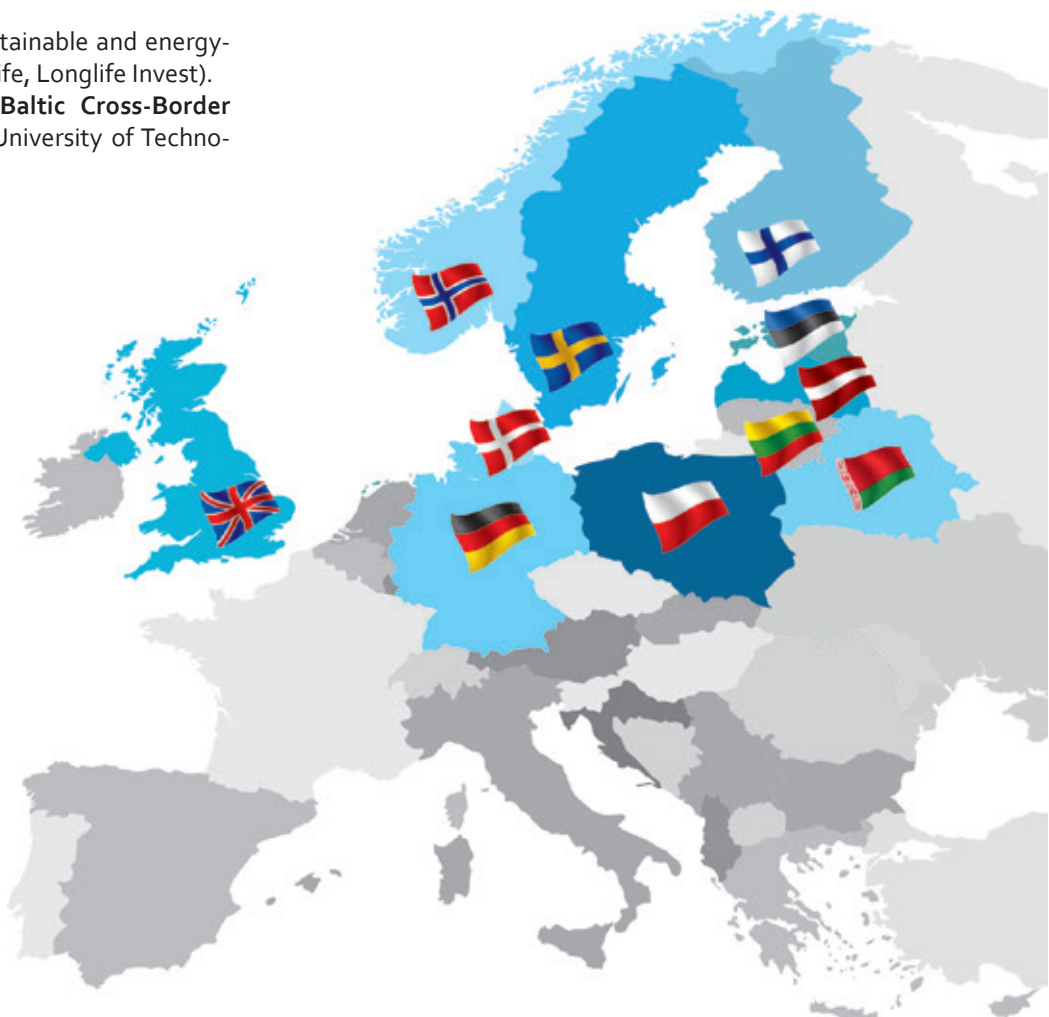
- dissemination of entrepreneurship and innovation in the regional labour market under support of the Ministry of Treasury (*QUICK, QUICK IGA*);
- international transfer of knowledge and technology (*RECO Baltic 21 Tech*);
- professional activation of women and older people (*Best Agers, Best Agers Lighthouses*).

Other projects aim at developing sustainable and energy-efficient residential buildings (LongLife, Longlife Invest). Thanks to support of the **South Baltic Cross-Border Co-operation Programme**, Gdańsk University of Techno-

logy cooperates with numerous universities and research units from the South Baltic Area. Measures are being taken to protect the coastal areas (*Dredged Dike*), to promote the South Baltic area as a tourist region (*MARRIAGE*) and to identify the changing needs as well as to counteract negative processes occurring in the integrated labour market (*Generation BALT*).

Cooperation, exchange of knowledge, experience and good practices of Gdańsk University of Technology and its partners aim to strengthen the sustainable development of the Baltic Sea Region and the South Baltic Area.

| Number of partners of Gdańsk University of Technology in ETC projects: | |
|--|----|
| Germany | 35 |
| Poland | 26 |
| Lithuania | 23 |
| Sweden | 9 |
| Belarus | 7 |
| Latvia | 7 |
| Denmark | 5 |
| Finland | 5 |
| Estonia | 4 |
| Norway | 3 |
| Great Britain | 1 |



HORIZON 2020

| Excellent Science | Industrial Leadership | Societal Challenges |
|--|--|---|
| <ul style="list-style-type: none"> • European Research Council (ERC) frontier research by the best individual teams • Marie Skłodowska-Curie Actions opportunities for training and career development • Future and Emerging Technologies collaborative research to open new fields of innovation • Research Infrastructure (including e-infrastructure) ensuring access to world-class facilities | <ul style="list-style-type: none"> • Leadership in enabling and industrial technologies IT, nanotechnology, advanced materials, biotechnology, advanced manufacturing and processing and space • Access to risk finance leveraging private finance and venture capital for research and innovation • Innovation in SMEs fostering all forms of innovation in all types of SMEs | <ul style="list-style-type: none"> • Health, demographic change and wellbeing • Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bioeconomy • Secure, clean and efficient energy • Smart, green and integrated transport • Climate action, environment, resource efficiency and raw materials • Inclusive, innovative and reflective societies |

European Institute of Innovation and Technology (EIT)
Combining research, innovation, training in Knowledge and Innovation Communities

Joint Research Center (JRC)
Providing a robust, evidence base for EU policies

Gdańsk University of Technology has participated in projects financed by EU Framework Programmes since 1999, i.e. on Poland's association with the above mentioned programmes.

GUT has carried out:

- 23 projects within the 5th Framework Programme (FP);
- 23 within the 6th FP;
- 21 within the 7th FP.

New Framework Programme of the UE, **Horizon 2020**, has been a great challenge to the scientific environment of Gdańsk University of Technology. The university is planning to apply for new grants which would help to fund exchange and recruitment of foreign scientists within the EXCELLENT SCIENCE pillar. INDUSTRIAL LEADERSHIP pillar shall also give broad chances for development; it finances research carried out in cooperation with industries such as IT and nanotechnology. The university is also going to continue its efforts to obtain grants within the pillar of SOCIETAL CHALLENGES.

The Ministry of Science and Higher Education appointed Gdańsk University of Technology the Regional Contact Point for the new Framework Programme Horizon 2020 for 2014–2020 in both Pomeranian and Kuyavian-Pomeranian Voivodeships.



Center of Advanced Studies – IBM’s collaboration with GUT


In 2013, as a result of a seven-year collaboration with IBM International, Gdańsk University of Technology gained the status of the Center of Advanced Studies. This is the highest level of cooperation between a university and business in the field of “Rational’ technology”.

As part of this project, IOC system (Intelligent Operating System) on a strategy for smart city management is being developed. To support its manufacturing process researchers from the Department of Information Technology Management at the Faculty of Management and Economics, together with IBM, built an overlay on the Android operating system. This system allows agile (Agile) cooperation between the manufacturer and the project management in the underlying technology. Currently, the majority of projects managed are dominated by the agile approach.

The main objective of the scientific-research team led by Prof. Cezary Orłowski – head of the Department of Applied Informatics in Management at the Faculty of Management and Economics, is to construct a model of production and management environment.

At this stage of construction of such an environment the following was achieved: two completed doctoral dissertations and four still under implementation, together with models and products that are being created to date.

Cooperation of Gdańsk University of Technology and the international corporation IBM shows how far the university research and the main stream of the activities carried out by the world leader in science overlaps.



Cooperation with Intel

The Intel Technology Poland R&D Center (ITP) was established in 1999. Starting with 100 employees, Intel Technology Poland has grown to 1000+ Site. The growth has been rapid but ITP Site remains stable & focused on quality and agility. The employees of Intel Technology Poland are primarily software engineers (90%). The rest are Sales & Marketing and Support Teams responsible for local and EMEA / Global Support.

The new building of the Faculty of Electronics, Telecommunications and Informatics holds the IT Centre for the Tri-City Academic Computer Network (TASK), where the "GALERA" supercomputer has been installed. It is the most powerful and the fastest calculating machine in Poland and one of the biggest clusters in Europe. Access to the computer is strictly protected and controlled on account of the importance of the data processed and stored in the TASK Centre. The access protection system uses innovative iris detection technology

The Polish team has won a lot of internal and external awards. Intel Technology Poland was the Best Employer in Poland & Central Eastern Europe in 2010, 2011 and 2013 (AON Hewitt). In 2011, Intel Technology Poland received an award for the most significant investment in "New Technologies" from the Polish Information and Foreign Investment Agency (PAIIZ). In 2013 ITP received the first prize in the most-important category "Top Investor of the Decade", in the FDI Poland Investor Awards.

One of the bases of Intel Technology Poland growth is perfect cooperation with Gdańsk University of Technology. In 2012 ITP and Gdańsk University of Technology won the grant from the National Centre of R&D.

The "Modality" project conducted in the Multimedia Systems Department at the Faculty of ETI in cooperation with Intel

Multimodal system supporting acoustic communication with computers. Project financed by the National Centre for Research and Development within the Applied Research Programme.



Xeon Phi Coprocessor funded by Intel


Xeon Phi™ Coprocessor

About the project

The purpose of the MODALITY project, carried out by Audio Acoustics Laboratory, Multimedia Systems Department and Intel Technology Poland, is to reinforce audio and audio-visual communication with mobile computers.

Portable computer devices, such as tablets, netbooks or smartphones, have gained a lot of popularity in the past few years. The research conducted within the project serves the purpose of improving the usage standards of such devices through improvement of the quality of the audio tract and human-computer interaction.

Two main research topics are related to this goal: Smart Sound technology and audiovisual speech recognition.

Thanks to the cooperation with the leading semiconductor devices manufacturer, the results have the chance for commercialization on a global scale.

Smart Sound technology

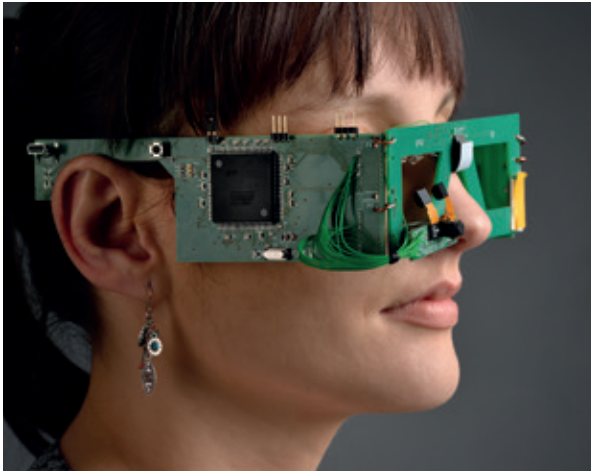
Miniaturization and mass production of mobile computers has a negative impact on the quality of the equipped acoustic transducers. This results in irregularities of the device's frequency response, in particular poor reproduction of low frequencies. Another important issue is the impact of disturbing sounds present in the surroundings on the comfort of sound perception. The researchers working on this project develop methods for improvement of sound quality which take into account the characteristics of the device, played content and user's hearing preferences, as well as the surroundings of the listener:

- objective measurements of acoustic characteristics of mobile devices employing professional acoustic measurement equipment;
- linearization of device characteristics in order to ensure balanced projection of all frequencies;
- enhancement of low frequencies with the use of psychoacoustic techniques;
- speech intelligibility enhancement, in particular related to dialogue in movie soundtrack;
- fitting of the sound to the user's individual hearing preferences.

Audiovisual speech recognition

Voice-based interfaces are more and more popular as a medium for human-computer interaction. When it comes to speech recognition in mobile conditions, e.g. inside a vehicle, noise is a crucial issue, which can deteriorate the efficiency of the system. A possible technique for enhancement of speech recognition accuracy is to supplement the method with visual information in the form of lips image. The MODALITY project researches innovative techniques for improving speech recognition by adding visual signal analysis:

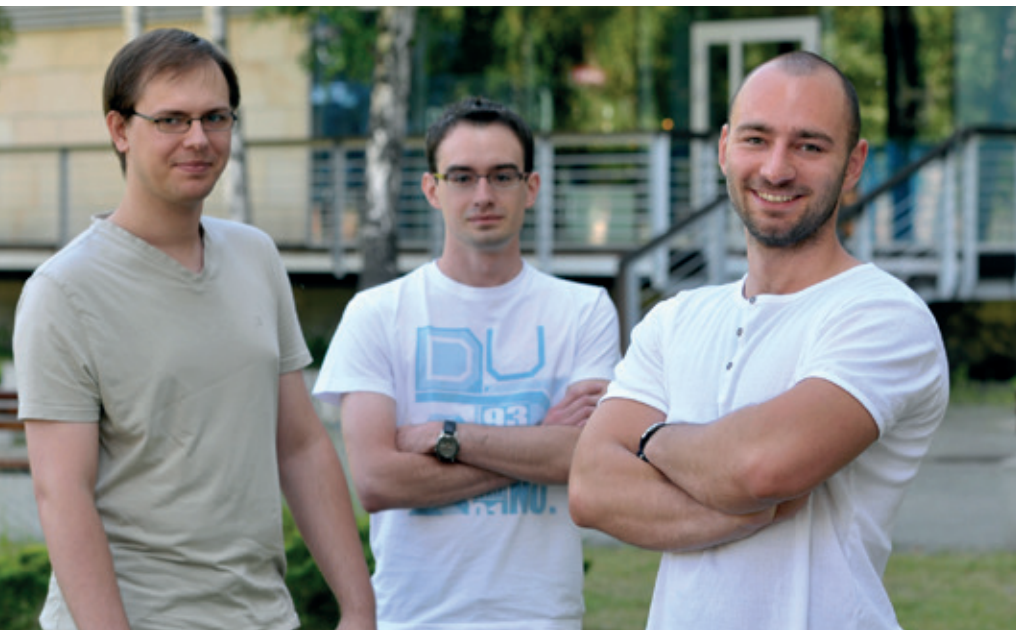
- recording a multimodal database of speech signals for the English language;
- analysis of images from cameras with high framerate (fps > 100);
- employment of stereo thermal imaging and Time-of-Flight cameras;
- development of feature extraction methods for the purpose of audiovisual speech recognition;
- assessment of the accuracy of speech recognition based on additional modalities.



Selected international and national achievements of GUT researchers and students



- In January 2014 the Centre for Transfer of Knowledge and Technology was awarded a grant of PLN 1.5 million to support the transfer of technology. The Ministry of Science and Higher Education founded the grant as part of the "Innovation Incubator" programme. The grant was awarded to only 12 of the best units in the country.
- Dr. Marek Tobiszewski from Gdańsk University of Technology was awarded the 2013 Jan Uphagen Award of the City of Gdańsk for Young Scientists. The prize in amount of PLN 7,000 was granted for his research work in the field of analytical chemistry and environment.
- CyberEye for the diagnosis and treatment of patients in coma was chosen the Invention of the Year 2013 – a competition organized by TVP and the Ministry of Science and Higher Education.
- At 62nd World Exhibition of Innovations, Research and New Technologies BRUSSELS INNOVA 2013, scientists from the Faculty of Electronics, Telecommunications and Informatics were awarded four medals. Gold medals were awarded to **Talking maps** (application for the blind, facilitating moving around the city), **CyberEye** and **movie player with the function of improving the intelligibility of dialogues**. Silver medal was awarded to an **intelligent camera controlled by RFID signals** – a hardware extension of the monitoring systems by a radio layer, enabling the location of objects and tracking their direction automatically.
- CyberEye was awarded Golden Scalpel for a prominent innovator in the Polish health care system in 2013.
- Gold medal and special award for product best suited for implementation at Industrial Technology, Science and Innovation Fair TECHNICON-INNOVATION 2013, earned by thawing indicator Chill-ID, developed at the Faculty of Chemistry. The indicator will inform consumers about the quality and freshness of food products. Pra-



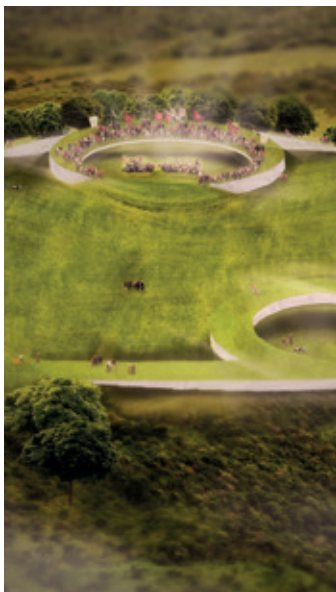
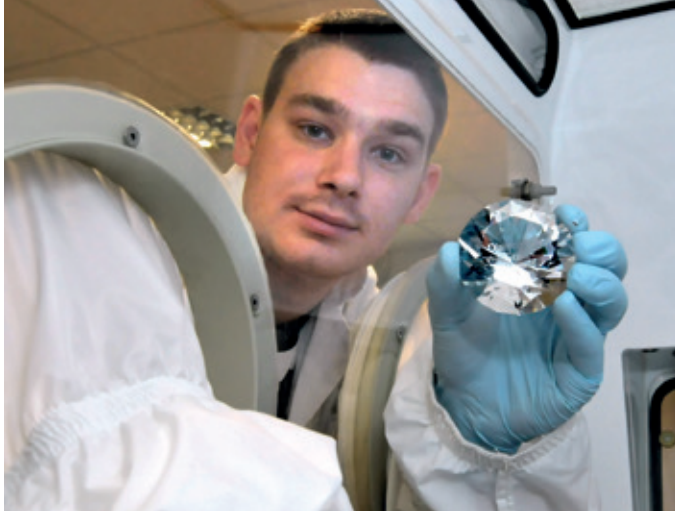
ised were also polyurethane nanocomposites reinforced with reduced graphene oxide, also developed at the Faculty of Chemistry. These materials can also be used, e.g. as super durable insoles for specialist shoes.

- ➔ 10 years of collaboration between a team of researchers from the Faculty of Chemistry, led by prof. Janusz Rachoń, and Polpharma SA within the scope of development and implementation of production on an industrial scale, allowed Polpharma SA to receive the prize of the President of the Republic of Poland in the category of innovation for the development and implementation of technologies for the production of a series of biologically active substances used in the treatment of osteoporosis: alendronate, risedronate sodium, zoledronic acid and ibandronate sodium.
- ➔ Scientists from the Faculty of Chemistry brought gold medal of the sixteenth Moscow International Salon of Inventions and Innovation Technologies. The jury appreciated new generation of biomaterial that may be used in medicine, veterinary medicine and cosmetology, de-

veloped by a team led by Grzegorz Gorczyca, M.Sc. The material was awarded silver medal at the second largest exhibition of inventions in the world – International Trade Fair Ideas Inventions New Products 2013 in Nuremberg.

- ➔ A team of researchers from the Department of Multimedia Systems brought two gold medals from Poznań International Fair INNOVATIONS – TECHNOLOGIES – MACHINES in 2013. The jury awarded Stimulator of Auditory and Visual Attention, a computer interface helping, i.a. to detect lateralization abnormalities of school children. Scholars of this department have also discovered a method of privacy protection in monitoring systems – Video streams anonimizator.
- ➔ Barbara Kuznierewicz, PhD from the Faculty of Chemistry received Research Grant – over PLN 1 million – in course of LEADER programme in 2013. The researcher works on developing “the application of microwave technology in the processing of fruit and vegetables in order to obtain food products of high quality”.

PROJECTS REALISED AND DEVELOPMENT PERSPECTIVES



- ➔ Prize for the best scientist in the contest for the best scientific work in mathematics was awarded to Joanna Janczewska, PhD of the Faculty of Applied Physics and Mathematics. This nationwide competition was organized by the GUT Centre of Applied Mathematics in 2013.
- ➔ Platform NOR-STA, which is an innovative set of online services to facilitate obtaining compliance with the standards and norms, has been recognized by consumers. The solution, developed under the guidance of Prof. Janusz Górski of the Department of Software Engineering, was awarded the Gold Medal of two of the Poznań International Fair INNOVATIONS – TECHNOLOGIES – MACHINES – Consumers' Choice 2012 and ITM Poland 2012.
- ➔ In 2013 three students from Gdańsk University of Technology won Diamond Grants of the Ministry of Science and Higher Education. Funding is allocated to conduct their own research projects:
 - Maciej Klein from the Faculty of Applied Physics and Mathematics is working on "Laser modification of oxide layers in pigmented photovoltaic cell" (awarded a grant of PLN 197,150);
 - Katarzyna Kobierowska from the Faculty of Electronics, Telecommunications and Informatics explores "Conducting polymers in environmental gas sensors" (awarded a grant of PLN 187,550);
 - Mateusz Zauliczny from the Faculty of Chemistry examines "electrophilic ligand complexes of R_2P-P " – new compounds of low-valence phosphorus (awarded a grant of PLN 118,800).
- ➔ Jakub Grabowski and Kacper Radziszewski – students of the Faculty of Architecture – won two worldwide architectural competitions organized by ARCHmedium. They designed the Camelot Research & Visitors Center and the San Francisco Fire Department Headquarters.
- ➔ Karol Stosik, Paweł Nowakowski, Mateusz Nowak – students of the Faculty of Electronics, Telecommunications and Informatics gained the second place in the world finals of the Technology Olympic Games for students – Imagine Cup 2013, held in Moscow.
- ➔ Daria Maria Bieńkuńska – student at the Faculty of Civil and Environmental Engineering became finalist of the first edition of Future Generation Programme. The young researcher deals with pollution of water and land in the countryside. She intends to develop recommendations for the conservation and management of natural resources and received PLN 89,000 to develop her project.



INTERNATIO NALIZATION



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