SILESIAN UNIVERSITY
OF TECHNOLOGY

GLIWICE 2016
FROM THE RECTOR

The Silesian University of Technology has a history of 68 years. It has become an important institution of public life and plays a vital role as a cultural and opinion-forming centre, deeply rooted in the city of Gliwice and Upper Silesia region. This special function is the result of the fact that for many successive years our university has served as a specific ‘knowledge deposit’, thanks to the creative work of its professors and other staff.

I have been involved with the Silesian University of Technology for many years. I appreciate its reputation and value. At the same time, however, I am fully aware of the challenges that we are facing. The Silesian University of Technology is the biggest technical university in our region and one of the biggest in Poland. There are 28,404 students at 15 faculties in 48 fields of study. As the institution with a vast research and teaching potential, the Silesian University of Technology provides engineers for the Silesian industry and for companies outside our region. Our graduates are well-prepared to work as managers.

Today, it is generally accepted that only the knowledge acquired in the process of education gives people the indispensable skills to face up to the challenges of the modern world. The development of society and economy based on knowledge requires a well-organized, modern system of education and training which allows the spirit of innovation to flourish. Our University continuously improves and develops the conditions for entrepreneurship and commercialization of scientific research.

I believe that thanks to the commitment of the whole academic community the Silesian University of Technology is becoming an innovative centre of education and science so that it can play an important role within the European Higher Education Area.

Prof. Arkadiusz Mężyk, PhD, DSc /Eng/
VICE-RECTORS OF THE SILESIAN UNIVERSITY OF TECHNOLOGY

VICE-RECTOR FOR GENERAL AFFAIRS
Prof. Bogusław Łazarz, PhD, DSc

VICE-RECTOR FOR SCIENCE AND DEVELOPMENT
Prof. Marek Pawełczyk, PhD, DSc

VICE-RECTOR FOR STUDENT AFFAIRS AND EDUCATION
Prof. Tomasz Trawiński, PhD, DSc

VICE-RECTOR FOR COLLABORATION WITH CIVIL AND ECONOMIC ENVIRONMENT
Prof. Janusz Kotowicz, PhD, DSc
A BRIEF HISTORY

The Silesian University of Technology is one of the biggest technical universities in Poland. Its rich, 68-year-old tradition makes it the oldest in Upper Silesia and one of the oldest in the country.

The foundation of the Silesian University of Technology fulfilled the idea which had been germinating in the heads of the Silesian people for a long time. Because Silesia had great prospects for economic development, the first steps to set up a technical university had been taken as early as the late 1920s – a technical university would have supported this highly industrialized region through scientific research and didactic activities.

Eventually, the Silesian University of Technology was founded on May 24, 1945 and Gliwice was chosen for its seat despite initial plans to locate it in Katowice. What made Gliwice stand out from other places in Upper Silesia was the space potential it offered. Here empty buildings, grouped in a small area, could be converted and used for didactic and administrative purposes as well as turned into halls of residence for students and teachers. Another strength of Gliwice was the fact that academic staff of the Lvov Technical University were resettled here after World War II.

The inauguration ceremony of the first academic year was held in Gliwice on October 29, 1945. At the time there were 2,750
students. Educational curricula and plans were based on the standards from the Lvov Technical University. The academic staff of the Silesian University of Technology comprised almost solely the former academics from Lvov. There were four faculties: Faculty of Chemistry, Electrical Engineering, Mechanical Engineering and Civil Engineering, with almost 200 university teachers. The excellent teaching staff were one of the strongest assets of the university from the beginning.
The Silesian University of Technology was founded as the scientific and didactic base for the most industrialized region in Poland and one of the most industrialized areas in Europe: Upper Silesia.

Ten faculties of the Silesian University of Technology are located in Gliwice – the main seat of the University, two in Katowice and two in Zabrze. Besides, lectures are delivered in Bytom, Dąbrowa Górnicza, Rybnik and Tychy, thus covering the whole area of Upper Silesia.

The Silesian University of Technology employs 1,875 academics, including 173 professors and 228 assistant professors with DSc degree.

So far, the university has to its credit over 158,437 graduates, 4,240 PhD degree holders, and 716 DSc degree holders.

The main strength of the Silesian University of Technology is the wide range of courses it offers and the superior quality of training it provides. The university has invariably been the top of Polish technical universities and it has been classified high in the ranking of higher education institutions. Its strong position has been confirmed by considerable academic achievements of its outstanding specialists and their numerous successes.

The superb quality of teaching is ensured by the qualified academic staff, close ties with a lot of scientific centres in Poland and abroad, and by scientific research aimed at active cooperation with industry. Favourable conditions for such cooperation have arisen from the fact that the university is right in the centre of the biggest industrial region in the country and one of the biggest in Europe, which enables close scientific cooperation in a range of fields. The Silesian University of Technology is a key player as far as new technologies and innovations are concerned. It is here that new ideas and solutions are being brought into life and when applied in industry they boost competitiveness of Polish firms.

The studies at the Silesian University of Technology give an excellent basis for a future career. There are 28,404 students...
in 48 fields of studies which encompass the whole range of engineering activities. Four faculties run courses in English, thus adjusting to the European educational market and encouraging foreign students to join. Thanks to the student exchange scheme, our students can study in almost any country in Europe, in one of 180 universities which cooperate with the Silesian University of Technology.

Studies at the Silesian University of Technology give ample opportunities to broaden one’s interests. During the academic school year the university is vibrant with activities inspired by Student Self Government and lots of student organizations. There are 20 different student organizations and over 100 scientific associations. Moreover, students have at their disposal a choir, a music band, a dance band and a theatre.

The campus is one of the biggest in Poland, with 13 halls of residence and 3,500 places. The Silesian University of Technology is also an ideal place for sports enthusiasts. There are 20 different sports sections, such as aerobics, badminton, curling, judo, karate, running, mountain cycling, men and women basketball, alpine skiing, handball, football, swimming, chess, men and women volleyball, contemporary dance, table tennis, and

<table>
<thead>
<tr>
<th>Number of students</th>
<th>28 404</th>
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<tbody>
<tr>
<td>Number of employees</td>
<td>3 487</td>
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<tr>
<td>Number of academic teachers</td>
<td>1 875</td>
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<tr>
<td>Number of graduates</td>
<td>158 437</td>
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<tr>
<td>Number of PhD degrees</td>
<td>4 240</td>
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<tr>
<td>Number of DSc degrees</td>
<td>716</td>
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</table>
DIDACTIC AND SCIENTIFIC ACTIVITY

Thanks to numerous sporting achievements of our students, the university has come top of the Academic Championships of Polish Higher Education Schools.
DIDACTIC AND SCIENTIFIC ACTIVITY

FACULTIES

Faculty of Applied Mathematics
Faculty of Architecture
Faculty of Automatic Control, Electronics and Computer Science
Faculty of Biomedical Engineering
Faculty of Chemistry
Faculty of Civil Engineering
Faculty of Electrical Engineering
Faculty of Energy and Environmental Engineering
Faculty of Materials Engineering and Metallurgy
Faculty of Mechanical Engineering
Faculty of Mining and Geology
Faculty of Organization and Management
Faculty of Transport
College of Foreign Languages
Institute of Physics – Centre for Science and Education

THE REMAINING UNITS

Academic Entrepreneurial Incubator
Biomedical Engineering Centre
Biotechnology Centre
Career Guidance and Student Promotion Centre
Centre for Advanced Security and Defense Technology
Centre for the Education in Mechatronics
Central-East Europe Civil Aviation Personnel Education Center
Central Library
Computer Centre
Education and Congress Centre
Engineering Education Centre
Foreign Languages Teaching Centre
Geometry and Engineering Graphics Centre
Innovation and Technology Transfer Centre
New Technologies Centre
Printing House
Project Management Centre
Prosumer Energy Centre
Publishers of the SUT
Sports Centre
FACULTY OF APPLIED MATHEMATICS

STRUCTURE

- Institute of Mathematics

FIELDS OF STUDIES

COMPUTER SCIENCE
BSc studies: full-time
SPECIALITIES:
  ▪ Multimedia
  ▪ Design of Internet Applications
  ▪ Electronic Data Processing and Storage

MATHEMATICS
BSc studies: full-time and part-time (extramural)
SPECIALITIES:
  ▪ Financial Mathematics
  ▪ IT Mathematics
  ▪ Applied Mathematics
MSc studies: full-time and part-time (extramural)
SPECIALITIES:
  ▪ Theoretical Mathematics
  ▪ Mathematics in Economy
  ▪ Mathematical Modelling
  ▪ Cryptography
  ▪ Statistics

POST-DIPLOMA STUDIES

- Mathematical education at schools
ABOUT THE FACULTY

The Faculty was founded in 1969, June 5th, due to the decision of the Minister of Science and Higher Education. It was formed from the departments of Physics, Mathematics and Descriptive Geometry already existing at the various faculties of the University. In those days it was the first and the only such faculty at technical universities in Poland.

COOPERATION

The faculty employees cooperate with several foreign research centres as part of both joint research projects as well as bilateral agreements. The Institute of Mathematics cooperates with the Ukrainian Academy of Sciences, Kiev (Ukraine), University of Campinas (Brazil), University of Central Florida (USA), University of New York (USA), University of Waterloo (Canada), York University, Toronto (Canada), University of Manitoba, Winnipeg (Canada), Texas A&M University (USA), University of Kiev (Ukraine), universities in Athens (Greece), Barcelona (Spain), Oulu (Finland), Wurzburg (Germany) and Technical Universities in Grenoble (France) and Copenhagen (Denmark). This cooperation results with science research contacts for the employees, joint publications in international journals and student exchange.

The Faculty also cooperates with some national research and industrial centers such as The Institute of Theoretical and Applied Mathematics of the Polish Academy of Sciences, Central Mining Institute (post-diploma studies) and IT companies from the region.

STUDENTS ACHIEVEMENTS

Scholarships of the Ministry of Science and Higher Education were granted to the following students of the Faculty: Małgorzata Baran, Piotr Bobek, Agata Jagoda Hacura, Ewelina Mainka. The Silesian University of Technology medal “Omnium Studiosorum Optimo” for Ewelina Mainka, Łukasz Jęda, Monika Pytka. Membership of the two students: Tomasz Borecki and Łukasz Gubała in a team of four called GuMaTeRa-Accelor Mittal Poland S.A., which won the first prize in the Vth National Engineering Competition “Best Engineering Competition” and later represented Poland in the international final in Turkey.
FACULTY OF ARCHITECTURE

STRUCTURE

- Department of Urban and Spatial Planning
- Department of Architectural Design
- Department of Design Strategies and New Technologies in Architecture
- Department of History and Theory of Architecture
- Department of Fine Arts and Functional Arts

FIELDS OF STUDIES

ARCHITECTURE AND URBAN PLANNING
- BSc studies: full-time and part-time/evening studies/
- MSc studies: full-time and part-time/extra-mural studies/

INTERIOR DESIGN
- BSc studies and MSc studies: full-time and part-time/evening studies/

POST-DIPLOMA STUDIES
- Architectural and Urban Conservation
- Interior Design and Decoration
- Graphic Design

COURSES

- Preparatory course for candidates wishing to study Architecture and Urban Planning
- Preparatory course for candidates wishing to study Interior Design
- Computer-aided design
ABOUT THE FACULTY

The Faculty of Architecture of the Silesian University of Technology continues the traditions of the Faculty of Architecture of Lvov University. The founders of the Faculty were professors: Tadeusz Teodorowicz Todorowski, Zygmunt Majerski and Włodzimierz Buć. At present the academic staff of the Faculty consist of about a hundred employees, including 14 professors and Doctors of Science. Apart from permanent post-holders, the Faculty employs architects and town planners with excellent track record and outstanding achievements.

Between 1945 and 1954 architects were educated at the Department of Architecture which was part of the Faculty of Civil Engineering and from 1961 it was part of the Faculty of Civil and Industrial Engineering. In 1969 an Institute of Architecture and Urban Planning was set up and the Faculty was renamed as the Faculty of Civil Engineering and Architecture. The Faculty of Architecture was finally granted its organizational, didactic and scientific autonomy in 1977.

The Faculty Council is entitled to award the title of PhD /Eng/.

SCIENTIFIC AND CREATIVE ACTIVITY

The Faculty implements projects and undertakes research work on modern urban and spatial planning, on the theory and history of architecture, on revitalization of municipal areas, on restoration and conservation of historic buildings, and on quality assessment and management of such buildings. Artistic projects include interior and furniture design, functional graphics, sculpture, painting and drawing. Employees and students take part in a variety of research and artistic grants and programmes which result in innovative ideas, conference publications, monographs, course books, architectural and urban projects, many of which have won awards both in Poland and abroad.

The Faculty of Architecture has established a special annual award /the Professor Zygmunt Majerski Medal/ to acknowledge those artists whose contribution to the architecture of the Upper Silesia region has been the greatest.

The Faculty of Architecture is an important centre for sharing and exchanging ideas and it has been organizing the following conferences:

▪ ‘Architecture, Technology and Health’ /ATZ/ since 2003
▪ ‘Urban Landscape Renewal’ /ULAR/ since 2005
▪ ‘Conference of PhD students at the Faculty of Architecture’ /KDWA/ since 2004
▪ ‘Modern Thinking in Architecture’ since 2007

Attached to the Faculty of Architecture, is the Committee for Urban Development and Architecture of the Polish Academy of Sciences /Katowice branch/. The Faculty is the founding member of interdisciplinary scientific consortium: ‘Energy – Building – Town’. The Faculty issues a scientific journal in English: ‘ACEE’ /Architecture – Civil Engineering – Environment/ in cooperation with the Faculty of Civil Engineering and the Faculty of Energy and Environmental Engineering.

The Faculty has its own Gallery /since 2005/ which exhibits architectural and artistic output. Each year there are numerous exhibitions and other events organized by the faculty.
GRADUATE PROFILE

The Faculty offers a wide variety of classes, lectures, tutorials and workshops. Apart from that students get the opportunity to take part in apprenticeship projects, historical and conservation studies, plein-air workshops, and they have a chance to work in student scientific associations and organizations. The Faculty encourages the creative flair and practical skills of our students who win awards in many important students’ competitions, including the prestigious contest for the best diploma project, organized by Polish Architects Association, Polish Urban Planners Society, Polish National Committee of the International Council on Monuments and Sights ICOMOS, and by the Minister of Construction.

Graduates of Architecture and Urban Planning are well-prepared for creative work in shaping the spatial environment according to the needs of an individual and the entire social groups. An architect and an urban planner fulfills his/her vocational goals through implementing investment guidelines, architectural and urban design and spatial planning, through the ability to cooperate with specialists from other fields, and through author’s or investor’s supervision over a given project.

Graduates of Interior Design are well-prepared for creative work on residential, industrial and commercial interiors. They also design functional art objects such as furniture, packaging or graphic signs. They acquire basic skills and background knowledge of stage design and architecture of exhibition.

Graduates are well-prepared to work in architectural studios, interior design offices, visual advertising and promotion studios, building companies, real estate development companies, spatial planning and municipal development bureaus and administrative bodies. Our graduates have very good prospects for employment both in Poland and abroad, as the diploma from our University is acknowledged in the whole of Europe. Our graduates are not only good designers with talent and knowledge but they are also broad-minded and aware of the social mission inextricably linked to the job of an architect, urban planner or interior designer.
COOPERATION

The Faculty is a member of the European Association for Architectural Education /EAAE/, the European Council of Landscape Architecture Schools /ECLAS/. It also cooperates with organizations and institutions in many countries, e.g. with IAPS /International Association for People-Environment Studies/, Internationale Bauausstellung /IBA/ Furst-Puckler-Land in Germany, Romualdo Del Bianco Foundation in Italy, National Preservation of Cultural Heritage Old Halich in Ukraine. Our students participate in international design workshops and, within the framework of LLP ERASMUS program, they can study at 23 partner universities in Gorlitz, Aachen, Cottbus, Kassel /Germany/, Goeteborg /Sweden/, Saint-Etienne, Marseille-Luminy /France/, Sevilla, Castello de la Plana near Barcelona, Valencia /Spain/, Coivilha, Coimbra /Portugal/, Rome, Bologna,Genna /Italy/, Wageningen /Holland/, Brussels /Belgium/, Copenhagen, Horsens /Denmark/, Kowno /Lithuania/, Ankara and Izmir /Turkey/. We are actively cooperating with other universities in Poland, and with professional organizations like Polish Architects Association, Polish Urban Planners Society, Chamber of Polish Architects, Chamber of Polish Urban Planners, and with local self-governments and the self-government of the Silesian Province.
STRUCTURE

- Institute of Automatic Control
- Institute of Electronics
- Institute of Informatics

FIELDS OF STUDIES

AUTOMATIC CONTROL AND ROBOTICS

BSc studies, MSc studies and PhD studies: full-time and part-time /evening courses/

SPECIALITIES

BSc studies:
- Automatic control and robotics – general profile
- Information technologies for automatic control and robotics

MSc studies:
- Automatic control
- Computer control systems
- Information processing and control for biotechnology
- Robotics
- Measurement systems

BIOTECHNOLOGY

BSc studies and MSc studies: full-time

SPECIALITY
- Bioinformatics

ELECTRONICS AND TELECOMMUNICATION

BSc studies, MSc studies and PhD studies: full-time and part-time /evening courses/

SPECIALITIES
- Electronic apparatus
- Biomedical electronics
- Microelectronics with nanotechnology
- Radio engineering
- Telecommunication

COMPUTER SCIENCE

BSc studies, MSc studies and PhD studies: full-time and part-time /evening courses/
SPECIALITIES

BSc studies:
▪ Databases, computer networks and systems
▪ Computer graphics and software
▪ Industrial information systems

MSc studies:
▪ Databases and systems engineering
▪ Information systems in aviation
▪ Internet and web technologies
▪ Industrial information systems
▪ Interactive 3D graphics
▪ Systems software

INFORMATION AND COMMUNICATION TECHNOLOGY

BSc studies and MSc studies: full-time

COURSES:
▪ Operating systems
▪ Computer architecture
▪ Software engineering
▪ Microprocessors and embedded systems
▪ Computer networks
▪ Telecommunications network design
▪ Systems and networks safety
▪ Wireless networks
▪ Sensor networks
▪ Mobile subscriber equipment
▪ Digital transmission fundamentals
▪ Databases
▪ Cryptography
▪ Synthesis of digital systems
▪ Optical waveguide technology
▪ Computer graphics
▪ Telemedicine

CONTROL, ELECTRONIC AND INFORMATION ENGINEERING /courses in English/

BSc studies and MSc studies: full-time

SPECIALITIES
▪ Automatic control
▪ Electronics and telecommunication
▪ Informatics

POST–DIPLOMA STUDIES
▪ Information technology education
▪ Computer-integrated production management systems
▪ Networks, computer systems and databases
▪ Geo-information systems, INSPIRE and SDI
▪ Information and communication technology /within the framework of Civil Aviation Personnel Education Centre for Central and Eastern Europe/
▪ Mobile and internet technology for IT systems design
The Faculty of Automatic Control was founded in 1963, and in the academic school year of 1984/85 it adopted its present-day name. The Faculty Council is entitled to award the title of PhD Eng/ and DSc Eng/ in Automatic Control and Robotics, Electronics, Computer Science, Biocybernetics and Biomedical Engineering.

SCIENTIFIC ACTIVITY

The Institute of Automatic Control carries out research into automatic control, robotics, system analysis and signal conversion. Research is particularly focused on the following areas: theory of control with missing data, adaptive and predictive control, expert systems, artificial intelligence, intelligent control systems, visual systems with applications in robotics, computer-integrated manufacturing systems, automatic control and informatics of industrial processes, modern measurement problems, control in biomedical and biotechnological systems.

The Institute of Electronics carries out research into analysis, synthesis and design of electronic and telecommunication systems, special microelectronic technologies, digital signal conversion, applications of signal processors, programmable controllers and microwave technology. The Institute also conducts research on synthesis and automatic recognition of Polish speech, biomedical image analysis, non-destructive testing, new sensors design and easily testable electronic systems.

The Institute of Computer Science carries out research into all the major fields of computer science, including software engineering, designing database and data warehouse, micro information systems and theory of digital automatic machines, hardware design, computer networks, communications protocols, security in information technology. The Institute organizes two annual conferences: 'Computer Networks' and 'Databases - Applications and Systems' /BDAS/, and one biennial conference: 'International Conference on Man-Machine Interactions'/ICMMI/.

ACHIEVEMENTS

The Faculty has had considerable achievements in the field of academic research, both theoretical and practical as well as in the field of research and development implementation. The examples are:

- development of new control algorithms/adaptive, predictive, with variable structure/, significant contribution to the modification of the existing methods of controller design, construction of laboratory stands with active muffling and heat exchanger control,
- launching Signal Processing Laboratory and Specialized Integrated Circuits Design Laboratory, creation of 'FUZZY-FLOU' system used in decision making processes, implementation of a control system for sheet metal etching in Columbus steelworks/RSA/,
- creation of program modules to ensure security of information in computer systems, creation of modules for hospital computer systems, systems of verbal communication with a computer for blind users, algorithm visualization system, computerization of town councils, creation of the Thetos system for translation from Polish into sign language, modeling and assessment of the communication network's efficiency, designing routing protocols for the Future Internet /participation in PL-Lab/, new methods of bioinformatics data exploration.
The Faculty can also boast the Virtual Flight Laboratory, which is the most modern in south Poland and unique in Europe. It was opened thanks to RPO WSL 2007-2013 funds and cost over 4 million zlotys. The Laboratory is equipped with 14 flight simulators/12 stationary and 2 mobile ones/ which facilitate research work into the application of information systems in aviation. The simulators will also enable piloting and navigation training as well as obtaining and extending professional licenses. Since 2012 the Virtual Flight Laboratory/in cooperation with international organizations such as the European Organization for the Safety of Air Navigation EUROCONTROL/ has been running 3 projects financed by the European Union’s 7th Framework Program.

**COOPERATION**

The Institute of Automatic Control has for many years been cooperating with important centres from abroad: Rice University, Houston /USA/; University of Texas, Houston /USA/; Novosibirsk Technical University /Russia/; L.A.A.S. du C.N.R.S., Toulouse /France/; ADERSA, Paris /France/; University of Helsinki /Finland/; Nottingham Trent University /England/; University of Reading /England/; L’Universite de Montreal /Canada/; AO/ASIF Research Institute, Davos /Switzerland/; Centre for Mathematics, Amsterdamb /Holland/; Kiev University /Ukraine/; Uppsala University School of Engineering /Sweden. The Institute also participates in such international programs as: COPERNICUS /DYCOMANS, ERASMUS, POLONIUM.

The Institute of Electronics cooperates, among others, with the Institute of Biomedical Engineering in Brno, VSB in Ostrava, the Department of Biomedical Engineering at St Petersburg Electrotechnical University /Russia/, the Max-Planck Institute at Potsdam University, LAMIH Laboratory at Valencienne University /France/, Ingelectric GmbH Munich /Germany/, University of California in San Francisco, University of Rennes and CRNS Lannion /France/, Technical University of Zlin /the Czech Republic/, Brandenburg University of Technology, Cottbus Germany/, Technical University of Liberec /the Czech Republic/, Linkoping University /Sweden/, Universite Henri Poincare, Nancy /France/, Chemnitz University of Technology /Germany/, University of Tubingen /Germany/, Ecole Centrale de Lyon, Ecully /France/, University Clemont-Ferrand /France/, University of L’Aquila, Coppito /Italy/, Graz University of Technology Austria, Kyushu University, Fukuoka/Japan/, Lvov Polytechnic in Ukraine and FIAT group in Turin.

The research workers of the Institute of Electronics participate in the following international programs: COPERNICUS, SABAYECK, COLUMBUS.

The Institute of Informatics cooperates with University in Lille /France/, University in Versailles, University of Arizona /USA/, Project Automation Company /Italy/, ALDEC/USA/, CEGELEC /France/, Deutche Elektronen Synchrotron /Germany/. The Institute cooperates with companies from a wide range of business sectors. Such cooperation results in numerous project implementations. Moreover, employers offer internships for students, contribute towards dissertations, offer highly specialized equipment and software to students for free and organize training and courses with competence certificates.
FACULTY OF BIOMEDICAL ENGINEERING

STRUCTURE

- Department of Informatics and Medical Equipment
- Department of Biomaterials and Medical Devices Engineering
- Biomechatronics Department
- Department of Biosensors and Processing of Biomedical Signals

FIELDS OF STUDIES

BIOMEDICAL ENGINEERING

BSc and MSc studies: full-time

SPECIALITIES:

BSc Studies
- Computer Science and Equipment in Medicine
- Medical Products Engineering

MSc Studies
- Biomechatronics and Medical Equipment
- Computer Science in Medicine
- Electronic Medical Equipment
- Manufacturing Engineering of Implants, Hospital and Rehabilitation Equipment
- Sensors and Biomedical Information Processing
SCIENTIFIC ACTIVITY

The Faculty of Biomedical Engineering has a well-qualified academic staff and modern research laboratories equipped with new generation apparatus, ensuring high level of research. Main research is conducted in the following fields:

▪ developing and using experimental methods to study the states of mechanical strain and stress in biomechanical objects in simulated laboratory conditions
▪ optimization of shape, mechanical properties and performance of implants for prosthodontics and reconstructive and interventional surgery
▪ testing the corrosion and biodegradation resistance of metal, polymer, ceramic and composite biomaterials
▪ research on new generation of rehabilitation equipment with the use of rehabilitation supervision and control
▪ application of model tests to the analysis of loads acting on the human skeletal and muscular system with the use of MES and dynamics of multi-partial systems
▪ kinematical analysis of the human body movement with the use of Motion Capture systems
▪ support of sports training with the use of bio-mechanical tests
▪ biomedical signals and pictures stimulation activity
▪ recognition, conversion, granulation and transmission of biomedical data
▪ biomedical signals segmentation
▪ computer-aided systems for picture diagnosis and therapy (in neurology, orthopaedics, pulmonology, astroenterology and cardiology)
▪ supporting systems for laparoscopy therapy

▪ using imaging navigation when supporting low-invasive surgery
▪ application of acceleration monolithic sensors in neurology diagnosis support
▪ working out multimedia biometric systems based on behavioral and physiological biometry
▪ application of evolutionary calculations in biomedical signals processing

COOPERATION WITH INDUSTRIAL PARTNERS AND MEDICAL CENTRES

The Faculty cooperates with numerous industrial partners and national medical centres making the most of the scientific-research potential of itself as well as the cooperating centres, consisting mainly of implant and medical stuff manufacturers, the most important of which are:

▪ University School of Physical Education in Katowice
▪ University School of Physical Education, Poznan
▪ Alteris S.A., Katowice
▪ BHH MIKROMED Ltd., Dąbrowa Górnicza
▪ IT Centre Ltd, Tychy
▪ Oncology Centre, Maria Skłodowska-Curie Institute, Gliwice
▪ Paediatric and Oncology Centre named after Dr Edward Hanko, Chorzów
▪ EMC Silesia Ltd, Katowice
▪ Foundation for Cardiac Surgery Development, Zabrze
▪ “REPTY” Upper Silesian Rehabilitation Centre, Tarnowskie Góry
FACULTY OF BIOMEDICAL ENGINEERING

- Upper Silesia Institute of Child Health, Katowice
- HELIMED Diagnostic Imaging Ltd LPP, Katowice
- Institute of Theoretical and Applied Informatics of the Polish Academy of Sciences, Gliwice
- Institute of Medical Technology and Equipment ITAM, Zabrze
- Implantology and Esthetic Denistry Clinic, Katowice
- KSK Developments, Zabrze
- LfC Ltd, Zielona Góra
- Medicom Ltd, Wrocław
- MVS Ltd, Mikołów
- Medical Centre Paprocanie Ltd, Tychy
- Municipal Hospital Ltd, Ruda Śląska
- Traumatology and Orthopaedics Wards in Municipal Hospital, Siemianowice Śląskie
- Scientific Technological Park „TECHNOPARK GLIWICE” Ltd, Gliwice
- Philips Healthcare Poland, Katowice,
- Automotive Industry Institute, Warsaw
- Independent Public Health Care Facility, Department of Diagnostic Imaging, Sosnowiec,
- Dr Janusz Daab Independent Voivodeship Traumatology Hospital, Piekary Śląskie
- SOLVMED Ltd, Gliwice
- Specialist Maxillo – Facial and Implantology Surgery, Tychy
- County Hospital, Zawiercie
- Silesian Center for Heart Diseases, Zabrze
- Silesian Medical University, Katowice
- TECHNOMEX Ltd, Gliwice
- WASKO Ltd, Gliwice
- Zofia Tarnowska Zamoyska Vivodeship Hospital, Tarnobrzeg
- Voxel S.A., Cracow

COOPERATION ABROAD

Our Faculty Staff cooperate with many centres abroad both in the scope of didactics and research in biomedical engineering, e.g.:
- CISM International Centre for Mechanical Sciences, Udine (Italy),
▪ Czech Technical University in Prague (The Czech Republic),
▪ Ecole Nationale Supérieure des Mines, Saint Etienne (France),
▪ Materialise N.V., Leuven (Belgium)
▪ Otto von Guericke Universität, Magdeburg (Germany),
▪ Slovak University of Technology in Bratislava (Slovakia),
▪ Sultan bin Abdulaziz al Saud Foundation in Riyadh (Saudi Arabia),
▪ The University of Bradford (UK),
▪ Universidade da Beira Interior, Covilha (Portugal),
▪ Università di Pisa (Italy),
▪ Universität Siegen (Germany),
▪ Západočeská Univerzita, Pilzno (The Czech Republic),
▪ Žilinská Univerzita, Žilina (Slovakia).

ACHIEVEMENTS

The Faculty staff have considerable scientific, publication and implementation achievements in the field of biomechanics, biomaterials and rehabilitation engineering, medical informatics and biomedical signals processing, which have been crowned with successful publications in numerous monographs. A lot of the scientific – research works have been honoured with prizes on international innovative technology and medical product fairs (e.g., in France, USA, UK). These works have also been awarded by the Minister of Science and Higher Education and the Rector of SUT. Numerous works concerning production technologies, construction as well as diagnostic systems used in medicine have been successfully implemented in industry and clinical practice. It should be emphasized that a lot of young Faculty employees have been awarded for their doctoral thesis.
STRUCTURE

- Department of Chemistry, Inorganic Technology and Fuels
- Department of Organic Chemistry, Bioorganic Chemistry and Biotechnology
- Department of Chemical and Process Engineering
- Department of Physical Chemistry and Technology of Polymers
- Department of Chemical Organic Technology and Petrochemistry

FIELDS OF STUDIES

BIOTECHNOLOGY
BSc studies, MSc studies, PhD studies: full-time
SPECIALITY:
- Industrial biotechnology

CHEMISTRY
BSc studies, MSc studies, PhD studies: full-time
SPECIALITIES:
- Bioanalysis
- Special materials and substances
- Bioorganic chemistry

CHEMICAL AND PROCESS ENGINEERING
BSc studies, MSc studies, PhD studies: full-time
SPECIALITIES:
- Chemical engineering
- Equipment in chemical industry and in environmental protection
CHEMICAL TECHNOLOGY
BSc studies, MSc studies, PhD studies: full-time
SPECIALITIES:
- Inorganic chemical technology and environmental protection
- Organic chemical technology
- Technology of polymers and plastics
- Analysis in quality control and environmental protection
- Technology of fuel processing
- Chemical technology in industry and environmental protection /BSc courses in Dąbrowa Górnicza/

INDUSTRIAL AND ENGINEERING CHEMISTRY/COURSES IN ENGLISH/
BSc studies, MSc studies, PhD studies: full-time
SPECIALITIES:
- Process engineering and green chemical technologies
- Fine chemicals and nanomaterials

GRADUATE PROFILE

Having completed courses at the Faculty of Chemistry, our graduates are well acquainted with general knowledge and understanding of chemical and technical processes and they are equipped with the necessary skills to use that knowledge in their future careers as engineers and managers. Our graduates are prepared to take employment in chemical industry and related industries in all positions connected with organizing and supervising a production process.

BSc studies allow our graduates to work as engineers supervising different types of industrial installations and taking part in design work for industry. Alternatively, they can continue education and start an MSc course. To make the choice of a speciality of their MSc course easier, students are offered the so called “specializing subject groups’ during their 6th and 7th semester of the BSc studies. These subject groups include environmental protection, chemistry, inorganic technology, organic technology, polymer processing technology and computer science in chemical industry.

Chemical engineering studies aim to prepare specialists in the field of chemical and process engineering for work in engineering contractor firms, technological centres, chemical manufacturing companies, processing plants, commercial firms and others.
FACULTY OF CHEMISTRY

A BRIEF HISTORY

The Faculty of Chemistry started 67 years ago on 1 June 1945 when the first semester was inaugurated. The Faculty was founded by a group of outstanding professors of the Lvov Polytechnic as one of the first faculties of the new Silesian University of Technology. Now the Faculty comprises 7 departments and it employs 33 professors and Doctors of Science and 72 PhD degree holders. The Faculty is entitled to award the PhD /Eng/ and DSc/Eng/ degrees in the field of chemical technology and chemical engineering, and the PhD /Chem/ and DSc /Chem/ degrees in the field of chemistry. The Faculty is also entitled to apply for conferment of a degree of professor.

SCIENTIFIC ACTIVITY

Research and scientific activity is focused on bioorganic chemistry, industrial biotechnology, chemistry of heterocyclic compounds, chemistry of oxidation processes and peroxide compounds, physical chemistry and polymer technology, synthesis and modification of polymers, transport of gases and ions in polymeric membrane, catalytic processes in technology and environmental protection, processing of coal derived raw materials, industrial waste management. Our employees have had considerable achievements in work on substances of special purity and properties. Detailed research is also carried out into new solutions for bioprocess engineering, into technologies of obtaining nano- and ferro-fluids, and into enzyme biocatalysts for biotransformation technologies. Other fields of research covered by our Faculty include: corrosion and corrosion prevention; pneumatic transport; gas purification; dynamics of chemical reactors; optimization of technical solutions for industrial processes; industrial chemical analysis; eco-analysis and biological material analysis.

ACHIEVEMENTS

The research conducted by our academic staff is varied and most up-to-date. It mainly deals with health and natural environment. Our employees actively publish in leading scientific journals, they are authors of patents and initiators of solutions implemented in industry, e.g., green method of wet coke quenching, titanium dioxide recovery from electrolytic residues, new type of low power boiler for central heating, processing of waste polyolefins for raw fluid fuel fractions, technologies for platinizing turbine blades in aircraft engines, and such modernization of galvanic processes that the use of cadmium and chrome compounds might be eliminated /VI/.

COOPERATION

The Faculty of Chemistry cooperates with many academic centres, e.g., with Iowa State University, University in Trondheim, Université de Rennes, Universita La Sapienza, Universita di Bologna, London University College, University of Cambridge, University of Southern Denmark, TU Bergakademie Freiberg, Hubei Polytechnical University, polytechnic in Kiev, Lvov Polytechnic, Vysoka Technicka
Skola in Bratislava, Pammukale University. The cooperation involves joint scientific research in a lot of areas and exchange of professors, junior lecturers with PhD, PhD students and students. The Faculty has signed numerous agreements on academic staff and student exchange within the framework of LLP ERASMUS.
FACULTY OF CIVIL ENGINEERING

STRUCTURE

- Department of Building Structures
- Department of Roads and Bridges
- Department of Building Materials and Processes Engineering
- Department of Theory of Building Structures
- Department of Structural Engineering
- Department of Geotechnics
- Department of Theoretical Mechanics
- Department of Buildings and Building Physics
- Laboratory of Civil Engineering Faculty

FIELDS OF STUDIES

CIVIL ENGINEERING

BSc studies and MSc studies: full-time and part-time /extra mural/
PhD studies: full-time and part-time

SPECIALITIES available during BSc studies:
- Structural Engineering
- Building Processes
- Transportation Engineering and Infrastructure
- Structural Engineering /full-time course in English/
- Architectural Construction /full-time course in CKI in Rybnik/
- Engineering of Municipal Infrastructure /courses in CKI in Rybnik/

SPECIALITIES available during MSc studies:
- Structural Engineering:
  - Civil and Industrial Structures
  - Geotechnics and Underground Structures
  - Bridges
▪ Building Processes:
  - Technology and Management
  - Building Ecology
▪ Transportation Engineering and Infrastructure:
  - Roads construction
  - Railroads
▪ Structural Engineering /full-time studies in English/:
  - Civil and Industrial Structures
  - Geotechnics and Underground Structures
  - Bridges

POST–DIPLOMA STUDIES

Energy audits and certification in civil engineering for thermo-modernization and energy appraisal of buildings.

ABOUT THE FACULTY

The Faculty of Civil Engineering was one of the four faculties which gave rise to the Silesian University of Technology. The Faculty Council is entitled to award the title of PhD /Eng/ and DSc /Eng/.

Full-time studies offer a very modern form of education and training – the so-called integrated projects, which allow the transition from traditional subject teaching to a broad approach of problem-solving in the field of design and investment implementation.

Teaching incorporates the most up-to-date multimedia techniques and e-learning platform. There is a widely-available multi-station Computer Laboratory, several specialist computer-rooms with cutting-edge computer-aided design software which allows specialist numerical analysis in the field of civil engineering.

All full-time BSc studies include a semester of apprenticeship, taken up by students during their 7th semester, which involves employment in companies in Poland or abroad. The aim of such apprenticeship is to acquaint students with the process of preparing investment documentation and with the overall execution of the building project.
SCIENTIFIC ACTIVITY

The employees of the Faculty carry out research into all the fields of construction design, building materials, building technologies, transport services engineering and infrastructure:

- development of construction theory, especially construction of buildings exposed to the effects of mining,
- reinforced concrete, pre-stressed concrete and steel constructions,
- timber frame building,
- testing of soil, foundations and building constructions,
- continuous media mechanics and mechanical systems dynamics in non-classical approach,
- developing the scientific basis for wear and tear, renovations and repairs, new technologies and methods in bridge building and the wear and tear of bridges in coal mining areas,
- engineering of transport services which takes into account the theory of road surface construction and the construction of subgrade in coal mining areas,
- design, construction and wear and tear of municipal infrastructure in areas of mining deformation,
- durability testing of materials and buildings,
- basics in eco-friendly buildings,
- information and decision-making systems, organization systems and management systems for a building company,
- techniques and testing of building materials and products.

The employees of the faculty are also interested in the latest developments of building engineering, especially the computer simulation of structures under load (using MES and MEB), elastic-plastic modelling of construction materials and soil, applied rheology of 3-phase media (mainly mortar and concrete mix), probabilistic methods and theories of stochastic processes used for design analysis, artificial intelligence systems combining fuzzy sets, genetic algorithms and neural networks.

The employees of the Faculty actively publish in leading journals and they participate in many conferences both in Poland and abroad. The Faculty organizes all-Poland science and technology conferences: ‘Rheology of concrete’, ‘Encounter with a monument of history’ and ‘Academic conference of the Faculty’s PhD students’.

The Faculty has a strong track record of collaborating with the construction industry of the Silesia region and it interacts with industry and commerce in a variety of ways: it prepares the expert opinions on the types of building and engineering constructions while taking into account mining deformations, it supervises and offers consulting services on building projects, reconstruction, strengthening and modernization of building and engineering constructions, designing transport systems in urban areas and motion engineering and environmental protection. The Faculty actively cooperates with the following trade organizations: Silesian District Chamber of Civil Engineers, Civil Engineering Chamber with and Technicians. In 2003 the Faculty was awarded The Grand Prize of the President of Civil Engineering Chamber for the modern multistage system of courses.

ACHIEVEMENTS

The Faculty has had considerable achievements in the field of scientific research, didactic activity and cooperation with industry. Over 15,000 graduates have received a degree since 1945 when it was established.
The Faculty Council has awarded 260 PhD /Eng/ degrees and 30 DSc /Eng/ degrees. The employers of The Faculty have received numerous awards and honorable mentions presented by the Minister of Science and Higher Education, the Minister of National Education, the Minister of Education and Sport, the Minister of Spatial Planning and Construction, the Minister of Infrastructure, the Minister of Regional Development and Construction for didactic, educational and scientific achievements which include doctoral thesis, post-doctoral thesis and publications. Moreover, students of our faculty have invariably been taking top places in competitions for the best master’s thesis.

INTERNATIONAL COOPERATION

Students of our Faculty can spend a semester of their course at one of partner European universities or they can take up a semester of apprenticeship abroad /student exchange program ERASMUS/. Student and academic staff exchange program is run in cooperation with universities in England, Germany, Italy, Spain, France, Denmark, Portugal, Slovakia, Turkey, Norway, Kazakhstan, South Korea and Brazil. Foreign students can take structural engineering course /entirely in English/. Moreover, students of structural engineering and architectural construction can obtain Polish-Danish diploma in engineering as part of bilateral agreement with VIA University College Horsens in Denmark.

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FACULTY OF ELECTRICAL ENGINEERING

STRUCTURE

- Institute of Power Systems and Control
- Institute of Measurement Science, Electronics and Control
- Institute of Electrical Engineering and Informatics
- Department of Optoelectronics
- Department of Power Electronics, Electrical Drives and Robotics
- Department of Mechatronics

FIELDS OF STUDIES

ELECTRONICS AND TELECOMMUNICATIONS  (ALSO IN ENGLISH)
BSc, MSc studies: full-time and part-time /extramural studies/
SPECIALITIES:
- Computer Control Systems
- Optoelectronics and Fibre Optics
- Telecomputing Systems
- Electronic Systems Engineering

ELECTRICAL ENGINEERING  (ALSO IN ENGLISH)
BSc studies: full-time and part-time /extramural studies/
MSc studies: full-time and part-time /evening studies/
PhD studies: full-time and part-time
SPECIALITIES:
- Electrical Engineering
- Automatic Control and Electrical Measurement
- Electrical Power Engineering
- Electromechanical Systems for Industry and Transportation
- Processing and Utilisation of Electricity
- Mechatronic Systems
COMPUTER SCIENCE
BSc studies: full-time and part-time /extramural studies/
SPECIALITIES:
- Computer Science in Electrical Systems

MECHATRONICS
BSc, MSc studies: full-time and part-time /extramural studies/
SPECIALITIES:
- Mechatronics Applications in Electrical Engineering
- Industrial Mechatronics

POST-DIPLOMA STUDIES
- Innovative Technologies in Power Engineering
- CAD Computer-aided Electronic Engineering
- Organization and Accreditation of Laboratories
- Power Market. Power Audit. Distributed Power and District e-Infrastructure
- SIMATIC Automatic Systems and Power Electronics Transmission Systems
- Measurement Systems and Programmable Controllers
- Power Engineering Company Management and Computer Methods in Electrical Engineering

ABOUT THE FACULTY
The Faculty of Electrical Engineering was founded in 1945 as one of the first four faculties of the Silesian University of Technology. The first research personnel came from, among others, research workers of the Technical University in Lvov. The Faculty is named after professor Stanislaw Fryze – a pioneer of Polish electrical engineering.

The Faculty is eligible to confer the PhD/Eng/ degree in Electrical Engineering and Electronics, and the DSc/Eng/ degree in Electrical Engineering.
Our Faculty alumni are sought-after specialists who find employment on job markets both in Poland and abroad. This is due to an increase in electric energy utilisation in contemporary economy and a universal preparation of the graduates, which makes them excellent employees in numerous fields based on the newest form of energy processing. Knowledge acquired by the students in the course of their studies deals with electronics, electrical engineering, robotics, computer science and mechatronics and gives a thorough fundamental theoretical basis. Moreover, students internship in local companies and their diploma works dealing with particular problem solutions for the industry provide proper working knowledge. Over sixty laboratories equipped with modern apparatus give the opportunity to learn about and familiarize with the equipment that is used by their future potential employers.

**SCIENTIFIC ACTIVITIES**

Scientific research carried out at the Faculty includes the following subjects: information and telecommunication systems in the field of production, transmission and distribution of electrical energy, the diagnosis of electric power devices, electric metrology, calibration and electric quantity comparators, automatics and control, digital-circuit and microprocessor engineering, the rudiments of electronics, electromagnetic compatibility, projects of electric and electronic systems, signal processing methods, projects of commutator engines admission systems, electric and hybrid cars, the analysis of electromagnetic fields of electric machines, application of signal processing in control systems, modernization of the construction of electric engines, power electronics electric drives, electrothermal systems, microprocessor control of drive systems, energy generation in wind and solar power stations, mobile, walking and industrial robots, mechatronics, and computer science in electric systems.

**ACHIEVEMENTS**

Some of the greatest achievements of the Faculty of Electrical Engineering include: Digital Unit of Protection Automatics of the Block-Generator-Transformer type CZAZ-GT, the comparator of etalons of self-inductance (which received the Siemens award in 2003), a device for the testing of the latest generation measurement standards for GUM, the control system for the resistance and arc furnace of great power, new technology for the optimization cause of the optimum shape and minimization of active power losses, turbogenerators for the national electric power system, methods of defining electromagnetic parameters for electric machines on the basis of the measurement results, microprocessor power electronics electric drives, the simulator – UMSA-Windsor University, 160 kW wind power station, HTS superconductors engineering, the HEXOR mobile robot, an OKTOPOD eight-leg robot, drive for an ELIPSA electric vehicle.

**COOPERATION**

The Faculty cooperates with universities and scientific centres on all the continents. They include, for example, SVST Bratislava - Slovakia, Vysoka Skola Banska, Ostrava, Pilzno-The Czech Repu-
The Faculty actively participates in many international students training programs: Socrates, Erasmus and Leonardo, which enable the students to undergo training or study abroad. The Faculty is an organizer or a co-organizer of international conferences and scientific workshops carried out as a part of International PhD Workshops, Summer School CEEPUS, TEMPUS-MEDA, International Network of Mechatronics Universities (REM), Distance Learning and Remote Control (DILARC).
FACULTY OF ENERGY AND ENVIRONMENTAL ENGINEERING

STRUCTURE

- Department of Heating, Ventilation and Dust Removal Technology
- Department of Air Protection
- Department of Technologies and Installations for Waste Management
- Department of Environmental Biotechnology
- Institute of Water and Wastewater Engineering
- Institute of Power Engineering and Turbomachinery
- Institute of Thermal Technology
- Division for the Diagnostics and Testing of Combustion Engines

FIELDS OF STUDIES

BIOTECHNOLOGY
BSc, MSc studies: full-time
SPECIALITIES:
▪ Biotechnology in Environmental Engineering

POWER ENGINEERING
BSc, MSc and PhD studies: full-time and part-time /extramural studies/
SPECIALITIES:
▪ Alternative Power Engineering Technologies and Environment Management
▪ Thermal Diagnostics in Power Engineering
▪ Diagnostics, Operating Control and Risk Management
▪ Gas Energy Engineering and Modern Power Engineering Technologies
▪ Distributed and Gas Power Engineering
▪ Nuclear Power Engineering
▪ Operational Engineering in Power Industry
▪ Computer Methods in Power Engineering
▪ Modernization of Installations in Power Industry
▪ Processes and Systems in Power Industry
▪ Renewable Energy Sources and Modern Power Engineering Technologies
▪ Thermal Power Systems
▪ Clean Coal technologies
▪ Computer Aided Energy Engineering

SAFETY ENGINEERING
BSc studies: full-time
SPECIALITIES:
▪ Safety of Technology, Processes and Machines ▪ Occupational Health and Safety

ENVIRONMENTAL ENGINEERING
BSc, PhD studies: full-time and part-time /extramural studies/
MSc studies: full-time and part-time /evening studies/
SPECIALITIES:
▪ Waste management ▪ Atmospheric Air and Climate Protection ▪ Water, Sewage and Soil Technology ▪ Heating, Ventilation and Air-conditioning

MECHANICS AND MACHINE DESIGN
BSc, MSc studies: full-time
PhD studies: full-time and part-time /extramural studies/
SPECIALITIES:
▪ Automatics and Processes Control ▪ Cooling and Air-conditioning ▪ Diagnostics and Construction Safety ▪ Nuclear Engineering ▪ Power Machines and Systems ▪ Machines and Systems of Environmental Protection ▪ Computer Method in Thermomechanics ▪ Environmental Protection Systems ▪ Automotive Engineering ▪ Cooling

ENVIRONMENTAL PROTECTION
BSc studies: full-time
MSc studies: full-time
SPECIALITIES:
▪ Ecotoxicology and Biomonitoring ▪ Environmental Protection in Power Engineering ▪ Air Protection Systems ▪ Water and Soil Protection Systems

POST-DIPLOMA STUDIES
ABOUT THE FACULTY

The Faculty of Energy and Environmental Engineering was established in 1993 as a result of a merge of the former Faculty of Mechanics and Power Engineering. The Faculty Board has full academic rights in two fields: Environmental Engineering and Machinery Operation. It is also eligible to grant a PhD degree in Power Engineering. Since its beginnings the Faculty boasts the highest scientific category according to the Ministry of Science and Higher Education and the course of Environmental Engineering was recognized as one of the leading ones in Poland in 2012.

GRADUATE PROFILE

Our Faculty graduates are prepared to deal with issues related to environmental engineering. They know how to operate and use equipment in proper and optimal way, maintaining health and safety procedures. What is more important, they are ready to solve any issues connected with mechanics and machinery design. Our graduates are specialists in widely understood power engineering, the latest power engineering technologies, and machinery and equipment diagnosis and usage. They get education in the following fields: heating, ventilation, air conditioning, air protection, water technologies, sewage and soil treatment, waste management, clean coal technologies implementation in power engineering and motorization, as well as environmental contamination protection caused by living and economic and industrial human activities.

Our graduates are trained to work in many sectors of our economy: industry, design and consulting offices as well as in scientific research units.

COOPERATION

The Faculty staff are very actively involved in international scientific research centres cooperation and international co-operation projects within the European Commission framework programs. The Faculty units coordinate a few of European research projects. Furthermore, the Faculty cooperates with Russian Academy of Science and American Industrial Hygiene Association. It has also carried out collaborative research projects with other foreign centres: Polish-German agreement on cooperation (No-Border University), IEA Cooperation Agreement in Paris, cooperation with European Research Community on Flow, Turbulence and Combustion ERCOFACT, Marie Curie research project (together with European and American universities), EUREKA program dealing with the development of technologies based on waste to energy systems in small and medium enterprises. Moreover, our Faculty prides itself on successful international cooperation with the European universities following SOCRATES-ERASMUS students exchange program. Other forms of staff international cooperation include permanent contacts with a number of foreign research centres including universities in Berlin, Dresden, Stuttgart, Clausthal, Zittau, Halle, Wittenberg, Magdeburgh, Bohum, Merserburgh, Munich, Gent, Lyngby, Orlando(USA), Ijmuiden, Cottbus, Erlangen, Wessex, Florence, Athens, Kassel, Louvain, Coleraine, Brunnel, Vienna, Ostrava, Prague, Brno, Glasgow, Sophia. The cooperation involves collaborative research, participation in conferences and student and staff exchange programs.
ACHIEVEMENTS

The Faculty offers ‘ordered studies’ (of a strategic importance for the country’s economy) in: Environmental Engineering, Power Engineering and Machines and Machinery Design. The course of Environmental Engineering received an outstanding assessment by the Polish Accreditation Committee and got a title of ‘The Best Field of Study’ in 2012. This title was given to the best faculties from among all the kinds of studies of all Polish universities, academies, technical universities. The Dean was awarded a diploma from the Prime Minister Mr Donald Tusk and the Minister of Science and Higher Education prof. Barbara Kudrycka. The staff of the faculty are board members of numerous European scientific organizations, such as European Research Community on Flow, Turbulence and Combustion, European Membrane Society, and European Biotechnology Federation.

Our staff include: prof. Tadeusz Chmielniak - an ordinary member, a corresponding member of Polish Academy of Science, a member of Scientific Board of Ministry of Science and Higher Education and a member of Central Commission for Academic Titles and Degrees, members of foreign scientific centers as the Russian Academy of Science, members of Scientific Boards of Institutes of Polish Academy of Science, New York Academy of Science, editors and members of editorial boards of numerous local and foreign scientific publications e.g. International Journal of Thermodynamics, Energy INT. J. Exergy, Int. J. Environment and Pollution and many other.

Prof. T. Chmielniak has been awarded an honorary title of Doctor Honoris Causa of both the Silesian University of Technology and the Czestochowa University of Technology. Furthermore, in recent years the faculty staff have been honoured with many valuable prizes and awards, e.g. a gold medal on International Exhibition of Technological Innovations in Brussels, a silver ASME Westinghouse Medal. In 2011 one of the staff members received a prestigious ASHRAE Ralph G. Nevins Award in physiology and human environment. Award from the American Society of Heating, Refrigerating & Air-Conditioning Engineers is given yearly to young scientist for outstanding achievement in this field.

In recent years our faculty staff have been repeatedly awarded by the Minister of Science and Higher Education as well as by the Minister of the Environment. Many of our students and graduates have been given the scholarships from the Minister of Construction, Ecological Foundation Silesia, Fiat Avio, to mention only a few. Moreover, our faculty students being part of the team Silesian Greenpower won the first two places in The Greenpower Corporate Challenge which took place in 2012 on the Silverstone Circuit in the United Kingdom.

Our Faculty is a national leader in strategic programs, e.g. ‘Advanced Technologies for Energy Generation’ ‘Integrated System for Reducing Energy Consumption in the Maintenance of Buildings’. It also participates in Knowledge and Innovation Community – KIC InnoEnergy project. Within the framework of the Lifelong Learning Program ERASMUS the Faculty actively participated in organizing of ‘Intensive Programme’.
STRUCTURE

- Department of Metallurgy
- Department of Materials Technology
- Department of Materials Science
- Department of Management and Computer Science

FIELDS OF STUDIES

INDUSTRIAL COMPUTER SCIENCE
BSc, MSc studies: full-time

SPECIALITIES:
- Safety of Computer Systems
- Industrial Real-Time Systems
- Production Management Information Systems
- Intelligent Industrial Systems

MATERIALS ENGINEERING
BSc, MSc studies: full-time
MSc studies: part-time/evening studies/

SPECIALITIES:
- Quality Engineering
- Surface Engineering
- Construction Materials
- Functional Materials
- Means of Transport Materials
- Natural Resources for Power Engineering
- Natural Resources for Building Industry
- Composites and Plastics
ABOUT THE FACULTY

The Faculty came into being in 1969 as the Faculty of Metallurgy. It gained its present structure when the Institute of Organisation and Company Management was sectioned and transferred into an independent Faculty of Organization and Management in 1995, and the Institute of Transport was transferred into an independent Faculty of Transport in 2002. The Faculty has full academic rights within the range of Materials Engineering and Metallurgy.

METALLURGY
BSc, MSc studies: full-time
SPECIALITIES:
▪ Extractive Metallurgy
▪ Plastic Working of Metals
▪ Foundry Technologies

MANAGEMENT AND PRODUCTION ENGINEERING
BSc studies: full-time and part-time /extramural studies/
MSc studies: full-time and part-time /evening studies/
SPECIALITIES:
▪ Occupational Health and Safety
▪ Production Engineering
▪ Company Management
▪ Industrial Logistics
▪ Technologies of Environmental Protection

Full time and part time PhD studies are also available in the field of Materials Engineering and Metallurgy.
FACULTY OF MATERIALS ENGINEERING AND METALLURGY

COOPERATION

The Faculty maintains didactic and scientific cooperation with about 30 oversees universities and research institutes from the Czech Republic (e.g. Vysoka Skola Banska-Ostrava), Estonia, France (e.g. Ecole Centrale Paris), Holland (e.g. Technical University-Eindhoven), Lithuania, Germany (e.g. Martin Luter University, TU Bergakademie Freiberg, TU Dersden, TU Magdeburg, FH Muenster, FH Osnabruceck), Russia, Slovakia (e.g. Technicka Univerzita Kosice), Sweden, Ukraine, USA (e.g. University of Minnesota, University of Tennessee), United Kingdom (e.g. Brunel West London University) and Italy. The cooperation with overseas research centers involves also such European programs as Socrates-Erasmus, French-Polish ‘Formation Recherche Est’ Inco-Copernicus and Ceeptus. Additionally, the Faculty cooperates with many domestic universities and institutes (e.g. AGH University of Science and Technology, Warsaw University of Technology, Czestochowa University of Technology, Wroclaw University of Technology, Foundry Research Institute, Institute of Non Ferrous Metals, Institute for Ferrous Metallurgy, Polish Welding Centre of Excellence, Institute of Fundamental Technological Research Polish Academy of Sciences, Metal Forming Institute) as well as with production plants of automotive industry, aircraft industry and metallurgy and power industries.

SCIENTIFIC RESEARCH

The research carried out at the Faculty involves materials engineering and metallurgy. The research studies focus on the following: waste-free technologies, development and utilization of waste materials, mathematical modeling and optimization of metallurgic processes, environment management, computer aided design processes, theory and technology of metallic materials, cracking mechanics, modeling of heat flow processes, kinetics of welding processes, kinetics of waste formation and destruction, technologies of composite formation, surface engineering, foundry, structure analysis and properties, designing of chemical composition and technologies of materials subjected to complex mechanical and thermal load and corrosion environment, ceramics technologies of special properties ceramics, stereological methods.

ACHIEVEMENTS

Our Faculty has promoted more than 10,000 graduates, over 70 DSc /Eng/ degree holders and more than 300 PhDs. Every year our Faculty staff actively publish over 300 articles and papers (including about 20 books, course books and monographs). They carry out over 200 scientific research financed by the Ministry of Science and Higher Education as well as implementation and service works for industry, and projects financed by the European Commission. Moreover, every year the employees of the Faculty organize over 10 domestic and international conferences and seminars. Scientific achievements have been repeatedly awarded on international fairs and exhibitions (e.g. LIIF London, IMPEX XIII Pitsburg, Poznan International Fair, Brussels Eureka). Students’ special interests group ‘MATER-TECH’ is very active. Our students were given, among others, HM Rector’s award in 2010 and 2011. They also received numerous awards and honourable mentions for their papers delivered at domestic and international conferences and sessions for students. Since 1970 our Faculty has been looking after a historic metallurgical
complex, a relic of technology in Maleniec. What is more, an annual convention of Faculty graduates is being organized for over 40 years on the occasion of Foundry Worker Day. The Faculty education is conducted by highly qualified teaching staff with considerable and outstanding scientific achievements on both domestic and international scale including: 16 full professors, 13 associate professors in SUT, 6 DSc /Eng/ degree holders and 80 PhDs supported by 15 PhD students.

**OTHER ACHIEVEMENTS**

Students of the Faculty of Materials Engineering and Metallurgy are very active in sporting events of the Silesian University of Technology, succeeding significantly in various academic competitions. In the academic year 2011/2012 our students in our University team won the Championship of Poland and took part in final Academic Championship of Poland in horse riding, handball, athletics and swimming of ACP. In Academic Championship of Silesia our Faculty students represented our University in the following sports disciplines: volleyball, beach volleyball, alpine skiing, table tennis, football, futsal, athletics, and handball.
STRUCTURE

- Institute of Engineering Materials and Biomaterials
- Institute of Engineering Processes Automation and Integrated Manufacturing Systems
- Department of Theoretical and Applied Mechanics
- Institute of Computational Mechanics and Engineering
- Department of Welding Engineering
- Institute of Fundamentals of Machinery Design
- Department of Machine Technology
- Department of Foundry Engineering

FIELDS OF STUDIES

AUTOMATIC CONTROL AND ROBOTICS
Bsc and MSc studies: full-time and part-time (extramural)

SPECIALITIES:
- Biomechanics and Medical Equipment
- Mechatronics of Robots and Machines
- Computer Modelling of Systems and Processes
- Design and Automation of Machines and Technological Processes
- Design and Operation of Machines
- Automation and Robotics in Metal Processing
- Automation and Robotics in Casting Processes
- Automation and Robotics in Welding Processes
- Computer Integrated Manufacturing Systems
- Quality and Material Processes Management
- Planning and Organization of Automated Production

APPLIED COMPUTER SCIENCE AND COMPUTATIONAL MATERIALS SCIENCE
BSc and MSc studies: full-time and part-time (extramural)

Profiles of education (BSc studies)
- Computer-aided Materials Processes
- Materials Design

Specialities (MSc studies)
- Computer-aided Materials Processes Management
- Materials Processing Modelling
- Computer Techniques in Materials Engineering
- Engineering Materials Modelling
MATERIALS ENGINEERING
BSc and MSc studies: full-time and part-time (extramural)

Profiles of education (BSc studies) full-time
- Dental Engineering
- Surface Engineering
- Automation and Robotics
- Management Engineering

Profiles of education (BSc studies) part-time
- Dental Engineering
- Surface Engineering

Specialities (MSc studies) full-time
- Dental Engineering and Maxillofacial Implants
- Materials and Technology in Prosthodontics
- Materials Science Researches
- Surface Engineering and Heat Treatment
- Photovoltaics
- Automation and Robotics of Materials Processes
- Polymeric and Composite Materials Processing
- Knowledge and Materials Science Research Management

Specialities (BSc studies) part-time
- Dental Engineering and Maxillofacial Implants
- Materials and Technology in Prosthodontics
- Surface Engineering and Heat Treatment
- Materials Science Research

MECHANICS AND MACHINE DESIGN
BSc and MSc studies: full-time and part-time (extramural)

Specialities (MSc studies) full-time
- Biomechanics and Engineering of Rehabilitation Equipment
- Computer-aided Design and Operation of Machines
- Working Machines
- Computational Mechanics
- Machine Tools, Tools and Machine Design Technology
- Design, Automation, and Robotics of Technological Processes
- Computer-aided Design of Electromechanical Systems
- Virtual Modelling of Design and Operation of Machines
- Design of Manufacturing Systems
- Metal Materials Engineering
- Computer-aided Metal Materials Engineering
- Quality Control in Welding
- Metal and Polymer Processing
- Welding Technologies
- Quality Management and Computer-aided Materials Processing
- Art and Precision Casting

Specialities (MSc studies) part-time
- Biomechanics and Engineering of Rehabilitation Equipment
- Computer-aided Design and Operation of Machines
- Working Machines
- Computational Mechanics
- Machine Tools, Tools and Machine Design Technology
- Design, Automation, and Robotics of Technological Processes
- Computer-aided Design of Electromechanical Systems
- Virtual Modelling of Design and Operation of Machines
- Metal Materials Engineering
- Computer-aided Metal Materials Engineering
- Quality Control in Welding
- Metal and Polymer Processing
- Welding Technologies
- Quality Management and Computer-aided Materials Processing
- Art and Precision Casting
MECHATRONICS
BSc and MSc studies: full-time and part-time (extramural)
Specialities

NANOTECHNOLOGY AND MATERIALS PROCESSING TECHNOLOGIES
BSc and MSc studies: full-time and part-time (extramural)
Profiles of education (BSc studies)
▪ Nanotechnology ▪ Materials Science Researches
Specialities (MSc studies)

MANAGEMENT AND PRODUCTION ENGINEERING
BSc and MSc studies: full-time and part-time (extramural)
At this field, during the MSc studies there is a possibility of individual study program by selecting some specialization modules listed in the program of studies. Each student chooses one specialization module out of three groups, two technical and one about management, while each module has its own name and consists of a few subjects. The student himself creates his own profile and the name of his speciality by selecting the right three specialization modules out of fifteen modules available.

Specialities:
Management:
Materials Engineering
Mechanics and Machine Design
- Technological Machines and Equipment
- Computer Techniques in Production Engineering
- Applied Mechanics
- Design and Operation of Machines
- Machine Technology

Specialities (MSc studies) part-time
- Quality, Health and Safety Management Systems
- Industrial Enterprise Management
- Production Management

PhD studies, full-time
PhD studies are run in the disciplines where the Faculty Council of the Faculty of Mechanical Engineering is entitled to confer scientific degrees
- Design and Operation of Machines
- Materials Engineering
- Mechanics

POST-DIPLOMA STUDIES
- Automation and Robotics of Technological Processes
- Mechatronics and Technological Process Control
- Welding Technologies and Quality Control

ABOUT THE FACULTY
The Faculty of Mechanical Engineering is one of the four oldest faculties founded in the same year as the Silesian University of Technology on 24th May, 1945. The roots of over 65 year tradition of the faculty lie in the Faculty of Machine Construction at Lvov Technical University, the biggest prewar Polish technical university.

The Faculty Council is entitled to confer PhD and DSc degrees in Materials Engineering, Design and Operation of Machines and Mechanics.
SCIENTIFIC AND DIDACTIC COOPERATION

The Faculty enjoys the wide scientific and didactic cooperation with over 150 universities located on every continent. Moreover, it has one of the greatest foreign students exchange system (almost 100 students and PhD students join annually one-semester studies in almost all European countries, mainly within ERASMUS programs). The Faculty participates in the most important science research and didactic programs. The Faculty has long term cooperation agreements, students and PhD students exchange with numerous foreign centres. Every year the number of scientific and didactic partners of the Faculty increases. The Faculty prides on traditionally good collaboration with numerous firms and companies operating in the field of industrial automation and robotics, machinery design, production engineering, as well as scientific research centres. This collaboration is one of the factors that determines the motivation to develop the faculty laboratory which gives students access to the latest technologies and facilities applied in industrial production, including those used in the biggest companies in the world. It also enables the faculty staff to verify theoretical knowledge and carry on interesting scientific research. Current cooperation with industry embraces among others the following assignments: carrying out mutual research and development works, developmental and goal oriented projects, participation of firms in delivering equipment to the research and didactic laboratories at the Faculty, transfer of new technologies from science to industry and from industry to didactics, organizing post-diploma studies for all candidates willing to raise their professional qualifications, giving expertise and doing research in the laboratories at the Faculty and giving opinions concerning the innovative character of undertakings carried out by business enterprises, carrying joint projects within the mid-semester projects and BSc and MSc theses, organizing production placements. This versatile cooperation results in very profound preparation of the Faculty graduates to work in modern industry, ease in finding a good job, and chances of fast promotion. Over the last few years there has been growing demand on the labour market for well qualified specialists in automation, robotics, mechanical and material engineering.

ACHIEVEMENTS

Academic staff of the Faculty consists of nearly 200 academics, including almost 40 full and associate professors as well as 160 PhD academics. Scientific achievements comprise nearly 600 annual publications, including 200 publications in worldwide journals, usually in the so called ISI Master Journal List, and from 20 to 30 book publications awarded at book fairs. Among the professors employed at the Faculty there are academics awarded with Doctor Honoris Causa degree, members of Polish Academy of Sciences, Specialist Groups, including Information Infrastructure, foreign scientific societies, numerous national scientific centres, program and editorial committees of several foreign and national scientific magazines, as well as members of organization and program committees for foreign scientific conferences and international scientific conferences in Poland.
STUDENTS AND PHD STUDENTS’ ACHIEVEMENTS

The Faculty of Mechanical Engineering educates nearly 3000 students and 70 PhD students. Every year a few graduates receive a diploma with honours and some others get scholarships from the Ministry of Science and Higher Education for outstanding academic performance. Theses of the Faculty of Mechanical Engineering are frequently distinguished with prestigious awards (e.g. Fiat Group Award). Likewise, a big group of students and PhD students get their diplomas with honours and receive e.g. Fiat Group Awards for “The Best PhD Thesis in Automotive Field” or Foundation Scholarship of Polish Science.

Race cars of the Silesian Greenpower Team constructed by second prize in the race of light electric cars in the Greenpower Corporate Challenge 2012 on Silverstone car track in Great Britain. The success was the result of cooperation of students of three faculties at the Silesian University of Technology: the Faculty of Mechanical Engineering, the Faculty of Automatic Control, Electronics and Computer Science and the Faculty of Environmental Engineering whose students joined their forces while working on these race cars. The project in 2012 and construction of race cars was coordinated and supervised by Assoc. Prof. Wojciech Skarka, PhD, DSc, Eng. (Faculty of Mechanical Engineering).

Smart Power Team constructed a vehicle that crossed 425 km/kWh. This result equals 3650 km/liter of petrol. The cost of energy needed to drive this vehicle is less than 10 groszy/100 km. Smart Power Team from the Faculty of Mechanical Engineering at the Silesian University of Technology was 10th in this competition. The project was coordinated by Assoc. Prof. Wojciech Skarka, PhD, DSc, Eng. (Faculty of Mechanical Engineering).
FACULTY OF MINING AND GEOLOGY

STRUCTURE

- Department of Electrical Engineering and Control in Mining
- Institute of Mining Mechanization
- Department of Mining Management and Safety Engineering
- Department of Geomechanics, Underground Construction and Management of Mining Areas Surface Protection
- Department of Mineral Processing and Waste Utilization
- Institute of Mining
- Institute of Applied Geology
- Museum of Deposit Geology in Memorial of Czesław Poborski

FIELDS OF STUDIES

MINING AND GEOLOGY

BSc, MSc studies: full-time and part-time /extramural studies/
PhD studies: full-time and part-time

SPECIALITIES:

- Electrical Engineering and Automatic Control in Mining
- Underground Engineering and Land Surface Protection
- Mining of Deposits and Waste Utilization
- Mine Surveying
- Exploration and Mining Geology
- Environmental Engineering in Mining Areas
- Mining Machinery, Building and Road Machines
- Mining and Drilling Machinery and Equipment
- Solid Mineral Processing and Marketing
- Geotourism
- Executive Management in Mining
SAFETY ENGINEERING
BSc studies: full-time and part-time /extramural studies/
MSc studies: full-time

SPECIALITIES:
▪ Industrial Safety Organization and Engineering
▪ Protection Engineering and Crisis Management
▪ Water Management and Flood Hazards

POST-DIPLIPMA STUDIES

▪ Aerology and Mine Rescue Work
▪ Occupational Health and Safety – Safety Engineering and Management and Occupational Hazard Assessment and Reduction
▪ Power Supply for Highly Efficient Longwall Complex in Hard Coal Mines
▪ Shaft Transport
▪ Mine Machinery Diagnostics and Repair

ABOUT THE FACULTY

The Faculty of Mining and Geology was founded in 1950 as The Faculty of Mining. It is eligible to confer the academic degree of PhD /Eng/ (535 conferments) and DSc /Eng/ (a postdoctoral degree of habilitated doctor -101 conferments) as well as to initiate the proceedings of conferring the scientific and honorary titles. Since its beginnings, the Faculty has educated over 18,800 MSc (Eng) and BSc (Eng) graduates of Mining and Geology as well as Management and Production Engineering (2000-2011). Education in the field of Safety Engineering started in 2008.
There are eight Students’ Special Interests Groups: ‘Agrimensor’, ‘Konstrukcja i Eksploatacja Maszyn’, ‘Gwarek’, ‘Silesian’, ‘Bezpieczenśna Ściana’, ‘Wodnik’, ‘Bezpiecznik’ and ‘Geoturysta’. They organize educational-scientific trips (e.g. to Iceland, Montenegro, Crimea, and the Baltic Sea voyages) and scientific film shows. Furthermore, they prepare and present papers at annual Faculty Students Scientific Groups’ Sessions as well as nationwide scientific groups conferences being awarded prizes and honorable mentions. Every year our Faculty students are invited to compete with students from AGH University of Science and Technology and Wroclaw University of Technology in Mining Knowledge Tournament which is organized by The School of Underground Mining. Every year, during Sports Day, professors play football matches with Faculty students. The Student Self-Government organizes ‘Dzien Karlika’ for the residents of Student’s Hostel and ‘Karczma Piwna’ on Miner’s Day. On the same occasion there is a tradition for the Faculty Staff to play futsall with the Faculty doctorate students. What is more, prof. M. Dolipski has played a couple of times in charity football matches where senators of the Republic of Poland played against various Universities Senates representatives.

COOPERATION

Within the framework of the Lifelong Learning Program (LLP) ERASMUS, the Faculty takes part in a students exchange program. Students from faculties of mining from universities of technology in Madrid, Vigo and Oviedo from Spain come to our Faculty to study for one or two semesters having an opportunity to prepare their diploma works. The classes with Spanish students are conducted in English and Spanish. In return, our Faculty students go to Spain, Portugal, Germany and The Czech Republic for one semester to study at local Universities.

Following the LLP ERASMUS, the Staff have delivered numerous lectures at universities in Germany (Munster, Bochum), Spain (Vigo, Oviedo), Finland (Kajaani) and Portugal (Lisbon). What is more, within the scope of scientific collaboration, our Staff have been invited to deliver lectures in Germany (Aachen, Munster, Bochum, Tübingen, Darmstadt), The Czech Republic (Ostrava, Brno), Spain (Madrid, Vigo, Oviedo), Portugal (Lisbon, Porto), Sweden (Stockholm, Lulea), Greece (Patras), Romania (Petrosani, Baia-Mar re), Estonia (Tallin), Turkey (Pammukale), Russia (St. Petersburg, Moscow), Ukraine (Donieck), China (Qindao, Beijing, Zhengzhou, Sihuan, Jiaozuo), Japan (Sukuba, Ito, Osaka, Matsuyama), India (Kharagpur), Vietnam (Hanoi, Ha-Long), Chile (Antofagasta, La Serena, Coquimbo), Brasil (Santa Catharina).

As a part of international cooperation, Marcin Lutyński MSc (Eng) conducted his doctoral’s thesis: ’Model Analysis of CO2 High Pressure Storage in Underground Abandoned Mine’ which was supervised by prof. Satya Harpalani from Southern Illinois University Carbondale, USA. Iwona Jończy PhD (Eng) was awarded 3rd prize for the best scientific paper at „Forum Junge Ingenieurgeologen” (Young Engineers Geologists) presented at the scientific conference 16 Tagung fUr Ingenieurgeologie“ in TFH Georg Agricola zu Bohum (Germany) in 2007. She was also awarded 3rd prize at The International Forum of Young Researchers ‘Topical Issues of Subsoil Usage’ for her scientific achievements in “Glaze as one of the main components of waste material” in Petersburg in 2008.
ACHIEVEMENTS

Scientific and research achievements of the Faculty concern all the pillars of modern mining. Many of our graduates serve advisory duties in local, provincial and central authorities. Our Faculty workers held the positions of rectors and vice-rectors. Five professors were awarded the Honoris Causa honorary degree: prof. Mirosław Chudek, PhD, DSc /Eng/, prof. Walery Szuścik, PhD, DSc /Eng/, prof. Bernard Drzęźła, PhD, DSc /Eng/, prof. Krystian Probierz, PhD, DSc /Eng/, Józef Sułkowski, PhD, DSc /Eng/.

Our employees are appointed experts by the State Mining Authority to explain crucial issues in mining. Moreover they share their expertise in problem committees of the Minister of Economy. The staff of the Faculty are members of numerous societies and scientific organizations as well as committees of the Polish Academy of Sciences. What is more, they sit in editorial and program boards of numerous local and foreign leading scientific journals.

The team under the supervision of prof. Marek Haszczuk (prof. M. Dolipski, P. Cheluszka, PhD /Eng/, P. Sobota, PhD /Eng/, M. Bochenek, MSc /Eng/, A. Skrzypiec, MSc /Eng/, and S. Wysocki, MSc /Eng/) was given by the Prime Minister a third degree award in recognition for remarkable national scientific and technological achievements, namely for the new solutions of longwall heading machines in mining units. This particular solution that was patented 192808 was also awarded a gold medal at the International Innovations Exhibition IWIS 2007 in Warsaw.

Another solution by prof. M. Jaszczuk and J. Kania, PhD /Eng/ ‘Method for the determination of mining production concentration in longwall panel, especially for exploration with caving, and equipment for its realization’, was awarded: a gold medal in the category of mechanics and general engineering at the 59th International Ideas, Inventions and Innovations Trade Fair – IENA 2007, in Nuremberg, Germany, a silver medal at the 56th Brussels Innova Expo ‘Brussels-Eureka’ 2007 in Brussels, a gold medal at the International Innovations Exhibition IWIS 2007 in Warsaw, a medal at the International Scientific and Economy Fair INTARG 2007, in Katowice, a diploma for excellent scientific and technical level of the solution by the Ministry of Education and Science of the Russian Federation at the 59th International Exhibition IENA 2007 in Nuremberg and a medal for high scientific level awarded by the Ministry of Education of Romania at the 56th International Brussels Innova Expo ‘Brussels-Eureka’ 2007.

A consortium of the Faculty with BOB-RME KOMEL, Katowice, has developed ‘Novel design of electric vehicle drive utilizing BLDC motor with two-range speed control’. Within the scope of cooperation with the Institute for Sustainable Technologies in Radom, a prototype of a scientific implement for carrying out research on fracture toughness and tool construction materials abrasive wear was built. The achievement ‘Robotised technology for manufacturing mining machines working units’ was awarded a gold medal at the International Scientific and Economy Fair INTARG 2007, in Katowice. What is more, a project conducted as a scientific consortium with IMBiGS, Warsaw and AGH, Cracow: ‘Foresight on priority and innovative technologies for handling hard coal mining waste’ made it possible to identify key directions for both scientific research and development works concerning the improvement of the existing ‘waste’ technologies and working out the new ones in the fields of: hard coal mining, processing and developing deposits.
FACULTY OF ORGANIZATION AND MANAGEMENT

STRUCTURE

- Department of Management and Marketing
- Department of Applied Social Sciences
- Institute of Production Engineering
- Institute of Management and Administration
- Institute of Economics and Computer Science

FIELDS OF STUDIES

Specialities in particular fields of studies for the academic year 2012/2013. The offer of the specialities may be modified according to the demand.

**ADMINISTRATION**
BSc studies: full-time and part-time (extramural)

**SPECIALILITIES:**
- Public Administration
- Local Government

**LOGISTICS**
BSc studies: full-time and part-time (extramural)

**SPECIALITIES:**
- Management of Chain Supply
- Industrial Enterprise Logistics

**SOCIOLOGY**
BSc and MSc studies: full-time and part-time (extramural)

**SPECIALITIES:**
- Sociology of Industrial Regions
- Market and Advertisement Research
- Social Communication and PR
- Sociology of Local Communities
MANAGEMENT
Bsc and Msc studies: full-time and part-time (extramural)
SPECIALITIES:

MANAGEMENT AND PRODUCTION ENGINEERING
BSc and MSc: full-time and part-time (extramural)
SPECIALITIES:

PhD studies: full-time and part-time (extramural)
▪ in the field of economics – Management Science
▪ in the field of technical science – Production Engineering

POST-DIPLOMA STUDIES
FACULTY OF ORGANIZATION AND MANAGEMENT

ABOUT THE FACULTY

The Faculty of Organization and Management was separated from the Faculty of Materials Engineering and Metallurgy, Transport and Management on 1st September, 1995. The Faculty is situated in Zabrze and classes are conducted also in Katowice and Rybnik. The Faculty is entitled to confer PhD degree in Economics in the field of management and PhD degree in Applied Sciences in the field of Production Engineering.

COOPERATION

International cooperation is a vital element of scientific and didactic activity of the Faculty of Organization and Management. The employees join different forms of professional training in France, Greece, Germany, Spain, Great Britain where they give lectures and cooperate in research work. The Faculty has signed continuous cooperation agreements with numerous foreign scientific centres like:

- Ecole de Mines de Saint Etienne, France
- Fachhochschule Bielefeld, Germany
- Bergische Universitat - Gesamthochschule Wuppertal, Germany
- VIA University College, Horsens, Denmark
- Karel de Grote Hogeschool, Antwerp, Belgium
- Copenhagen University College of Engineering, Denmark
- Technische Universiteit Eindhoven, Faculty of Technology Management, Holland
- Technische Universitat Bergakademie Freiberg, Germany

Thanks to ERASMUS Lifelong Learning Program students of the Faculty can study for one or two semesters at one of the cooperating universities abroad. The Faculty also receives foreign students (Germany, Spain) and lecturers from abroad.

SCIENTIFIC ACTIVITY

The employees of the Faculty conduct research in:

- Strategic Management in Company and Economic Regions
- Values in Contemporary Company Management
- HR Management
- Personnel Marketing Theory and Practice
- Financial Services Marketing
- Company Assets Management
- International Expansion of Companies
- Urban Logistics
- International Logistics
- Project Management
- Product Technology and Quality Management
- Processes of Change and Strategies of Company Development
- Computer – Aided Engineering Tasks
- Creation and Exploitation of Acoustic Maps
- Political and Legal Problems of Upper Silesia Region
- Promotion of Employment in Local Government
- Public Safety
- Rescue Systems and Emergency Management
- Quality Management in Manufacturing, Service and Administrative Companies
- Management of Environmentally Friendly Processes
- Safe Work Conditions in Industry and Health Services
Address: ul. Roosevelta 26-28, 41-800 Zabrze, tel. +48 32 277 73 05, +48 32 277 73 14, e-mail: roz@polsl.pl

- Access to Public Spaces for Disabled People
- Knowledge Transfer in Product Life Cycle

**ACHIEVEMENTS**

The Faculty has gained accreditation from the Polish Accreditation Commission for the following fields of studies: Management, Management and Production Engineering, Sociology and Administration as well as a positive institutional opinion from the Polish Accreditation Commission. From the beginning of its existence the Faculty has promoted over 12078 graduates.
FACULTY OF TRANSPORT

STRUCTURE

- Department of Automotive Vehicle Service
- Department of Automotive Vehicle Construction
- Department of Logistics and Industrial Transport
- Department of Railway Engineering
- Department of Traffic Engineering

FIELDS OF STUDIES

BSc and Msc studies: full-time and part-time (extramural)
The Faculty is situated in Katowice but some lectures and classes take place in didactic centres of the University in Tychy and Bytom.

SPECIALITIES:
- Vehicle Service
- Technology and Management in Road Transport
- Industrial Transport
- Transport Logistics
- Railway Transport Service
- Traffic Engineering
- Air Navigation
- Mechanics and Aircraft Service
- Computer Systems in Air Transport

Studies at any of the mentioned above specialities are available on condition that there are enough students applications.
ABOUT THE FACULTY

The Faculty of Transport has existed at the Silesian University of Technology since 1969. It was founded in 2002 and has continued the education earlier conducted by other units: Department of Transport and Communication at the Faculty of Energy and Mechanical Engineering, Institute of Transport and Communication, Institute of Transport at the Faculty of Transport which existed in 1978-1984. The Faculty is entitled to confer the PhD degree. In 2008 the Faculty gained the six year accreditation from the Polish Accreditation Commission.

GRADUATE PROFILE

The graduates of the Faculty have a profound knowledge of modern transport, particularly of vehicle engineering, traffic engineering, analysis of transport systems. The graduates are prepared to solve problems of traffic organization, planning and design, to organize, supervise and manage transport systems, to work with people, to manage teams and transport facilities, to work creatively in didactic and research centres. The graduates know the foreign language at B2 level according to European Framework of Reference for Languages of the Council of Europe and know the specialist language in the field of study. The graduates can work in: units related to road, rail and air transport, service and repair of means of transport, organizational units of road, rail and air transport, industrial and shipping companies.
FACULTY OF TRANSPORT

COOPERATION

Following the ERASMUS Program the Faculty cooperates with twenty foreign universities from Belgium, Bulgaria, the Czech Republic, France, Greece, Lithuania, Macedonia, Germany, Portugal, Romania, Slovakia, Slovenia, Hungary, Great Britain: Karel de Grote Hogeschool, VSB Technical University of Ostrava, Czech Technical University in Prague, Cologne University of Applied Sciences, ESIGETEL - École Supérieure d'Informatique et en Ingenieurs Génie des Télécommunications, Technological Education Institute of Piraeus, University of Szeged, Vilnius University of Applied Sciences Engineering, The University of Beira Interior, Vocational College of Traffic and Transport Maribor, The Technical University of Košice, The University of Žilina, The University of Zagreb; Faculty of Transport and Traffic Sciences, University of Pardubice, Jan Perner Transport Faculty, Cranfield University, The University of Architecture, Civil Engineering and Geodesy (UACEG) in Sofia, The University St. Kliment Ohridski in Bitola, The University Politechnica of Bucharest, University of Ljubljana, Faculty of Maritime Studies and Transport (Portorož).

Moreover, following international cooperation agreements the Faculty cooperates with universities in Kazakhstan, Latvia, Russia and Ukraine: Riga Technical University, Petersburg State Transport University, Donetsk Academy of Motor Transport, East-Ukrainian National University named after Volodymyr Dahl, Pryazovskyi State Technical University, Faculty of Transportation Technologies, Rostov State Transport University, Kama State Academy of Engineering and Economics, Samara State Technical University, Kazakh Road Vehicle Academy, Kazakh National Technical University after Kl Satpaev.

In Poland the Faculty develops cooperation with numerous Polish universities (AGH University of Science and Technology, Warsaw University of Technology, Faculties of Transport at various universities) and institutes and research centres, especially in Silesia. Furthermore, the Faculty cooperates with many firms and companies in Poland and abroad: Fiat Auto Poland, General Motors, Alstom, Bombardier, Lucchini, Siemens.

SCIENTIFIC ACTIVITY

Research activity focuses on the following topics:

- transport studies
- traffic control
- vehicle operation
- machinery and vehicles construction
- machines and vehicle diagnostics
- industrial transport
- transport logistics
- telematics applications in transport

Within these topics, research studies are conducted in the field of:

- optimization of transport networks
- microprocessor technique and simulation tests in transport
- mathematical modelling of the combustion processes in engines
- alternative fuels in road transport
- transport equipment wear and tear
- computer aided design transport machinery
- gears, couplings and conveyor belts tests
- vibroacoustic diagnosis of machines and vehicles
- dynamics of vehicles suspension
▪ application of numerical methods in design and optimization of wheel units and wheel-rail system
▪ design and management of logistic centers
▪ videodetection of transport events
▪ transport safety

ACHIEVEMENTS

Every year the Faculty employees publish over 200 articles and perform approximately 90 scientific research projects including grants financed by the Ministry of Science and Higher Education. They also carry out implementation work and service. A number of faculty employees are members of national and international scientific organizations (Polish Academy of Sciences, International Institute of Acoustic and Vibration, Comite Europeen de Normalisation) and editorial staff of scientific magazines. The Faculty also organizes 11 cyclic international conferences. The Faculty participates in designing new communication solutions, conducts organization and traffic research in the Silesian region. The Faculty carries out analyses and issues opinions on vehicle technology and traffic by order of the court or prosecutor’s office. A lot of scientific achievements conducted by the employees of the Faculty have been awarded prizes by the Polish Prime Minister, ministers or industrial companies such as Fiat Auto Poland or ABB. The Faculty is responsible for certification of equipment and vehicles intended for use in the rail industry. It has also been got accreditation for conducting post-diploma studies to raise pedagogical qualifications of teachers of technical courses in accordance with the requirements of the European Association IGIP.
STUDIES

PHILOLOGY

PROGRAMMES:
- English
- French
- Italian

SPECIALIZATIONS:
- Teacher Training
- Business and Translation

ABOUT THE COLLEGE

The College of Foreign Languages is one of the youngest units at the Silesian University of Technology and functions as a faculty. It was created in 2010 as a result of acquisition of the Teacher Training College of Foreign Languages which had existed in Gliwice since 1990. At present there are over 40 lecturers and over 400 students of BA programmes (full-time and part-time) in Modern Languages and Letters in three subdisciplinary areas: English, French and Italian. In 2012 the college introduced preparation courses for future MA philology students.
COOPERATION

The college cooperates with secondary and lower secondary schools in the region. Students are invited to take part in numerous events such as annual Santa Claus Dictation, French Song Competition and language workshops. “Open Days” allow secondary school students to participate regularly in classes at the college. The lecturers of the college are often invited to give lectures to students interested in topics related to culture and foreign languages. Educational offer of the college is directed to a wide group of people willing to broaden their professional competence. For them in the academic year 2012/2013 the college started post-graduate programme of foreign languages with specialist applications. The programme includes modules of technical, medical, legal, tourist and business language. The college is also home to Gliwice unit of PROF-EUROPE, Association of French Language Teachers which organizes workshops for teachers and supports the integration of the local teaching community.

SCIENTIFIC ACTIVITY

The two specializations offered by the college (Teacher Training and Business and Translation) reflect its lecturers’ fields of interest. They focus on the pragmatic language use, translation and business. The three language specializations form three pillars of scientific activity of the college. The University College of Foreign Languages is the organizer of a scientific conference titled “European Bridges”. Its wide formula is to become a springboard to cyclic meetings devoted to exchanging ideas on European cultural studies. These conferences can bring the technical and humanistic studies closer together. By such regular meetings of scientists it may be proved that these two disciplines complement each other. Advanced language studies would not be possible without research methods derived from strict sciences. On the other hand, cultural studies provide some reflection on the fast changes in the modern world resulting from the rapid technical revolution and progress.
ABOUT THE INSTITUTE

The history of the Institute of Physics at the Silesian University of Technology dates back to 1969 when the Faculty of Mathematics and Physics was founded. As a result of union of then present at the university Department of Physics A and Department of Physics B, the Department of Technical Physics was created. The latter together with the Department of Applied Mathematics and the Department of Descriptive Geometry formed a new faculty. The main task of the faculty was the didactic work related to physics in all types of studies at the university as well as education of its own research and didactic employees.

On 1st September, 2010 the Institute of Physics was excluded from the structure of the Faculty of Mathematics and Physics and transformed into an independent unit called the Institute of Physics – Center for Science and Education at the Silesian University of Technology. Resulting from the change of Law of Higher Education in 2011 that accepts the presence of basic units of scientific character in the structure of the university, on 1st March, 2012 the Institute was transformed into the basic unit.

The Institute employs over 50 didactic, research and assistant workers and 10 PhD workers. 8 independent workers, including 5 titular professors prove the scientific potential of the Institute. A few retired professors also support and participate in the research works of the unit.

SCIENTIFIC ACTIVITY

The Institute of Physics conducts research on:

- determination of thermal properties of materials, including the local ones in micrometer scale and representation of thermal properties on nanometer scale with the help of atomic force microscope attachment
- determination of diffusivity and conductivity of solid state materials, layer structures and thin layers with the use of photothermal, radiometric and photoacoustic methods
- semi-conduction electronics and magnet electronics, including determination of thin layers depth profile, determination of optical properties using luminescence method and laser spectroscopy, production of nanostructures using ultrasound
- determination of composition using Auger electron spectroscopy with digesting ion element (including composition depth profiles and chemical surface maps)
numeric modelling of non-equilibrium phenomena in lighted semiconductors (photoluminescence, surface phototension) including surface states
measurement and analysis of structures: metal/insulator/semiconductor admittance spectroscopy and DLTS spectroscopy, mathematical modelling of nanostructure obtaining processes and simulation of remagnetization processes of magnetic objects using finite element method
use of nuclear physics and isotope methods for examination of natural and anthropogenic environment changes as well as for radioisotope and luminescence dating in Earth sciences and archeology (including specialist services)
use of nuclear physics and isotope methods for examination of natural environment, new food manufacturing and packaging technologies, construction materials, contamination and pollution control in natural and transformed by a man environment, carbon dioxide emission control as a result of fossil fuels burning
use of isotope methods in fuel production industry, energy, pharmaceuticals and preventive medicine

**COOPERATION**

The faculty employees cooperate with tens of Polish and foreign research centres as part of both joint research projects as well as bilateral agreements. These centers include the following:
- CEA Commissariat a l’Energie Atomique, Paris, France
- Eidgenossische Technische Hochschule, Zurich, Switzerland
- Institute of Physics, University of Camerino, Italy
- High-Tech International Services, Rome, Italy
- Hochschule Niederrhein, University of Applied Sciences, Germany
- Leibniz Institute of Applied Geosciences, Hannover, Germany
- Research Center for Integrated Quantum Electronics, Hokkaido University, Sapporo, Japan
- Risoe National Laboratory, University of Aarhus, Denmark
- RWTH Aachen, Germany
- Scottish Universities Environmental Research Center, East Kilbride, Great Britain
- Universitat fur Bodenkultur, Vienna, Austria
- University of Wales, Aberystwyth, Great Britain
- Blaise Pascal University, Clermont-Ferrand, France
- Fredrich Schiller University of Jena, Germany
- Martin Luther University of Halle and Wittenberg, Germany
- AGH University of Science and Technology, Cracow, Poland
- Institute of Archeology and Ethnology of Polish Academy of Sciences, Warsaw, Poland
- Institute of Nuclear Physics of Polish Academy of Sciences, Cracow, Poland
- Institute of Physics at University of Silesia, Katowice, Poland
- Institute of Technical Physics of Military University of Technology, Warsaw
- Institute of Geography and Spatial Organization of Polish Academy of Sciences, Cracow
- Institute of Materials Engineering, University of Silesia, Katowice
- Institute of Optoelectronics, Military University of Technology, Warsaw
- Institute of Electron Technology, Warsaw
- Institute of Electronic Materials Technology, Warsaw
- Institute of Electronics, Silesian University of Technology
ACHIEVEMENTS

- Grand Prix, Brussels EUREKA 2007 and Gold Medal, Brussels EUREKA 2007 won at the International Competition of Innovation, Brussels EUREKA 2007 for Spectrometric Method of Early Tumor Detection and Diagnosis. It is the highest distinction for the Polish invention in the 56 year history of this competition.
- Publication of the scientific magazine Geochronometria Journal on Methods and Applications of Absolute Chronology which has been included in the Science Citation Index Expanded since 2005 (the so called ISI Master Journal List)
- Acquisition of the status of Centre of Excellence in 2005 (Gliwice Absolute Dating Methods Centre of Excellence, GADAM) by the Department of Applied Radioisotopes in the 5th UE Framework Programs
Boosting the scientific excellence and innovation capacity in organic electronics of the Silesian University of Technology

http://www.orzel-project.com/

Prepared by the Promotion Office of the Silesian University of Technology

Photo: archives of the SUT, Patryk Pohl, Marek Szum