

Study engineering in the heart of Europe

**BUILD YOUR FUTURE
WITH WUT**

**No. 1 technical university
in Poland**



www.pw.edu.pl

Let's start 

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About

Welcome to Warsaw University of Technology (WUT) – a technical research university with traditions in education dating back to the 19th century. We are a forward-thinking institution where high-quality education meets world-class research and innovation.

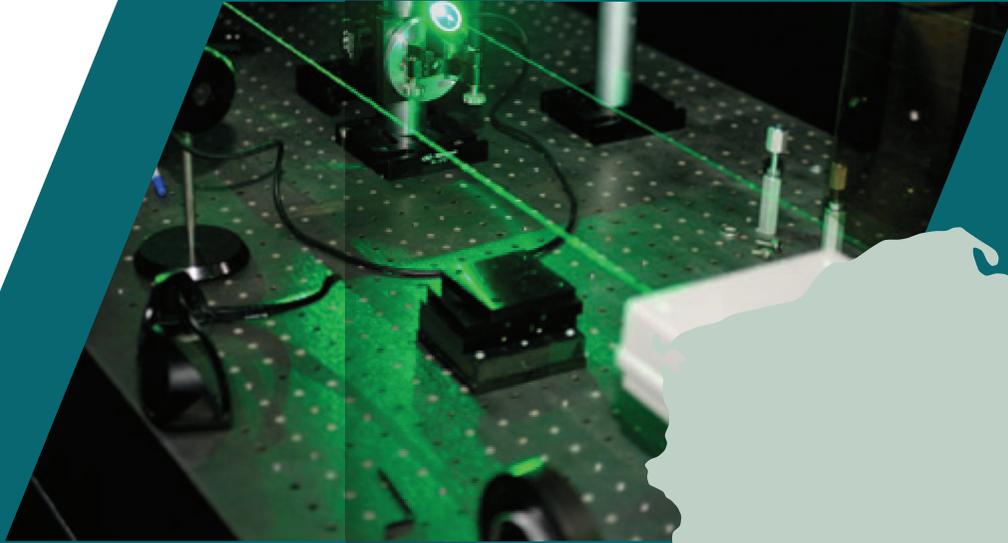
Located in the heart of Europe, WUT is not only the oldest, but also the best technical university in Poland. In the ranking of Polish universities, it has taken the first place in its category for several years.

Our priorities are multi-layered study programmes supported by an advanced scientific research. In response to market demands, we offer an exciting range of professional and technological programmes which prepare students for their future careers. WUT authorities and the entire academic staff do their best to acquaint the students with up-to-date knowledge and skills that are useful in today's world.

WUT offers programmes at B.Sc., M.Sc. and Ph.D. levels in almost every field of technology – ranging from civil engineering and architecture to optoelectronics, materials, nanotechnology, biotechnology and biomedical technology. We provide also education complementary to technical studies, in the field of economics, social sciences, management, administration and business. For the purpose of teaching and research, WUT owns 38 buildings located in two campuses in Warsaw city centre and one campus in Płock, 320 laboratories as well as other buildings (dormitories, technical infrastructure, sports centres, medical care facilities, etc.).

Our primary aims are to educate responsible professionals, committed to the values of civic life, and to contribute to the development of research and innovation, which are the driving forces of progress in the society of the 21st century.

The mission of Warsaw University of Technology always remains the same: The knowledge and skills imparted to its students and the scientific studies it conducts must always serve Man and Mankind.



History

Warsaw University of Technology is the oldest and the most prestigious technical university in Poland. Its origins date back to the 19th century, to the foundation of schools for purposes of military technology and mining.

In 1826, the first Polish multidisciplinary university of technology - the Preparatory School for the Institute of Technology was opened. The School was closed in 1831, after the November Insurrection, and was re-opened as the Emperor Nicolas II University of Technology in 1898, with Russian as the language of instruction. On the day of opening, the university consisted of three faculties: Faculty of Mathematics, Faculty of Chemistry and Faculty of Engineering and Construction. In June 1902, Faculty of Mining was opened. When the World War I broke out in 1914, Russians evacuated the Institute to Rostov and then to Lower Novogrod, taking away all the equipment.

In 1915, Warsaw was occupied by the Germans, who gained popularity among Polish people, as they allowed for the opening of a technical university in Warsaw with Polish as the language of instruction. The grand opening of Warsaw University of Technology was held on 15th November 1915. Classes started at four Faculties: of Architecture, Chemistry, Civil and Agricultural Engineering, Machine Design and Electrotechnology.

At that moment, an uninterrupted period of development of the University began. Even the World War II, when the University was delegatized and its buildings were destroyed, did not stop its activity. Teaching was continued in form of clandestine and open courses. Scientific research was also conducted, and 20 Ph.D. and 14 D.Sc. theses were written. Many works by WUT academics contributed to the reconstruction of Poland after the war, and constituted the foundation for the development of science in the future.

After the war, classes started in improvised conditions in January 1945, and by the end of the year all the remaining faculties were re-opened. Old, demolished buildings were rebuilt quickly and the new ones erected. University was expanding - faculties were opened as a result of growing number of academic disciplines and students.

Over all these years, the university has been a leading scientific centre, educating highly qualified staff for all sectors of industry, achieving outstanding research goals and playing a significant role in Polish science and economy.

QS ranking

QS Best Universities by Subject 2024

the 1st place in Poland

in the following subjects:

- Architecture
- Engineering – Chemical
- Engineering – Electrical and Electronic
- Engineering – Mechanical, Aeronautical and Manufacturing
- Materials Science

20



faculties

over 30



study programmes offered in English

over 20 000



students

over 2 500



academic staff

over 600



professors

over 2 600



staff in administration, libraries, central institutions

More than 50 people from Warsaw University of Technology were included in **the World's TOP 2% Scientists 2023 ranking**.

Ranked No. ONE in Poland among 24 universities of technology in "Perspektywy" 2023 ranking.

The 3rd place in Poland in **EngiRank 2023** – the European Ranking of Engineering Studies.

WUT's graduates are the ones **most wanted** by Polish employers – far ahead of many other Polish universities in "Perspektywy" 2023 ranking.

W

WUT is part of the ENHANCE Alliance – the alliance of ten European Universities of Technology

Thriving Careers Service, which helps students find their first jobs

Active cooperation with over 120 foreign universities

Reasonable prices

High-quality education

competitive costs of living in Poland

Numerous cultural and entertainment initiatives: concerts, events, festivals, exhibitions

over 4000 places in halls of residence, rich sport and tourist base

Located in the heart of Europe

The highest percentage of graduates who take managerial positions

Over 100 registered student research groups, organisations and student associations

We're the best! – the title of the best Polish technical university

over 30 programmes of studies in English



WUT Careers and Employment

Employers seek well-rounded graduates who can demonstrate relevant studies, work experience and extra-curricular involvement.

Our dedicated Careers Services team supports students and alumni of WUT in their personal and professional development.

Students and graduates are welcome to meet Career Advisors to get information about the Polish labour market, to learn how to prepare an effective CV and Cover Letter and how to get ready for a job interview.

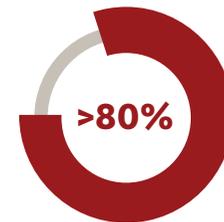
They can also take part in a career coaching session or in training courses focused on skills which are crucial for their further development (e.g.: communication skills, assertiveness, team work, self-presentation, coping with stress, time management and entrepreneurship).

To support the idea of professional networking, the Career Services' Team organises career events such as: "Meeting with Employer", "CareerDate", local job fairs, trial job interviews, etc.

According to WUT Alumni Career Study conducted from Dec. 2023 to March 2024:

graduate average net salary

PLN 10 550



over 80% of WUT alumni were already employed or conducted their own business activity at the time of graduation

To what extent is the work you do compatible with your education?

not compatible at all - 10,6%

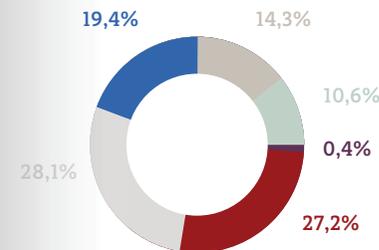
slightly compatible - 14,3%

moderately compatible - 19,4%

highly compatible - 28,1%

fully compatible - 27,2%

I don't know / difficult to say - 0,4%



The majority of WUT alumni are employed in the following sectors:

- IT - software development
- engineering / designing
- civil engineering / geodesy
- analytics
- research and development
- power industry

WUT is international

Warsaw University of Technology puts special emphasis on its students' and workers' participation in international exchange programmes and internships to make studies at WUT open doors to global labour markets.

WUT offers a broad range of international and European exchange programmes for the students, teaching staff and researchers. We participate actively in various European educational programmes: Erasmus+, Erasmus Mundus, ATHENS and many others as well as hold over 30 active bilateral agreements focused on student exchange. WUT's acclaimed reputation is proved by more than 180 international academic and research cooperation agreements with universities, research centres and high-tech industries from 40 countries all around the world.

Each year around 600 international students from all around the world start their regular full-time studies at WUT. Another 300 international students come to WUT each year as exchange students, while the same number of Polish students are sent as exchange students to partner universities abroad. International students at WUT represent approximately over 100 different nationalities. We place great importance on strengthening international knowledge exchange relations and stimulating understanding, tolerance and respect for different ideas and cultures.





STUDENT LIFE

Various student organisations such as Students Union, Erasmus Student Network and International Students Association come up with many initiatives to make sure studying at WUT is not just about lectures and exams.



They organise a great variety of cultural, sports and tourist activities such as concerts, sightseeing tours, trips to different cities and countries, theatre and cinema nights out, sport competitions, sailing or skiing camps, local cuisine dining, and many other social events. They are here for you to help in day-to-day issues and to make sure your life at in Warsaw is easy and fun!

Each new international student can apply for a Buddy – a current student of WUT who will support you during your first days in Warsaw and introduce you to colleagues from the University and dormitory.

DORMITORIES

Warsaw University of Technology offers places in 12 dormitories.

Cost of dormitories varies from €100 to €150 per month.

Most rooms are double or triple, equipped with a little kitchenette

Most dormitories are located around the central campus (max 20 minutes distance by public transport).

12 X 

100 ≤ € ≤ 150



 ≤ 20 min



Foundation Year

Starts in: October

We know from experience that the educational systems around the world vary a lot. We fill this gap by inviting you to the Foundation Year, which will prepare you to study at WUT. The Foundation Year is a two-semester introductory course to Bachelor studies at WUT. It is addressed to students who have applied to study at the Bachelor level at WUT but did not show sufficient knowledge in the diagnostic Placement Tests in Mathematics and Academic English. The Foundation Year is a chance for them to fill the gap between their current level of qualification and knowledge and the level needed to begin Bachelor studies at WUT. During this Preparatory Course, students improve their skills and create a solid base in Mathematics, Physics, Chemistry, IT, which will help them later during their Bachelor studies at WUT. The Foundation Year is a form of entry to the University which later makes your studies easier and allows you to fit in.

Duration: 1 year



600 academic hours divided in the following modules:

- Mathematics
- Physics
- Chemistry
- Introduction to Information Technologies
- Introduction to Engineering
- Academic English
- Polish for Foreigners and Polish Culture

B.Sc. Environmental Engineering

Faculty of Building Services,
Hydro and Environmental
Engineering

Duration: 4 years



Starts in: October

The major objective of the Environment Engineering Programmes is to provide a high quality, interdisciplinary knowledge and skills to people searching for solutions to the environmental problems of today and the future, concerning: water resources protection, air pollution control, solid waste management, environmental impact assessment, renewable energy systems and others.

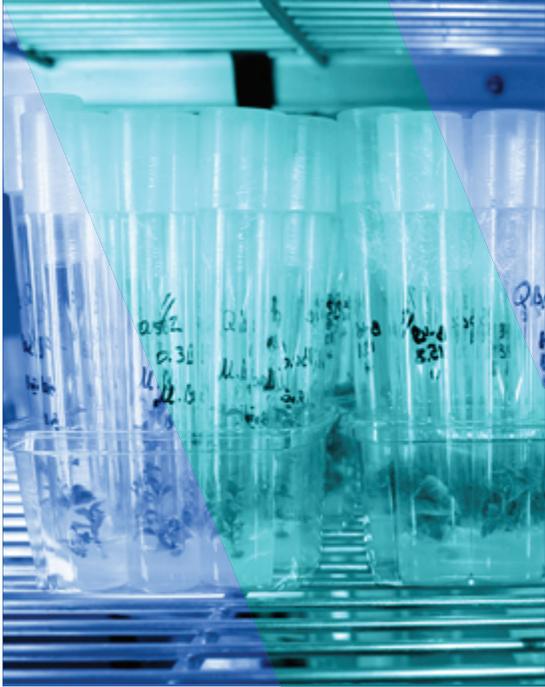
At the undergraduate level of Environmental Engineering, principal engineering skills are taught together with achievement of knowledge of basic subjects such as mathematics, physics, chemistry and biology. All the students of the Faculty are given general knowledge of processes in major constituents of environment as well as in basic environmental technologies, e.g.: atmospheric physics and chemistry, air pollution control, hydrology, water resources and water protection, water and sewage processing, groundwater, soil protection and land reclamation, waste management. Modern methods of natural resources protection through the use of best available technologies and production practices, recycling and reuse of wastes are thoroughly taught. In addition, environmental aspects of the energy production and use are stressed throughout all engineering courses. Students are also familiar with some global environmental issues such as climatic change, ozone layer depletion, land use changes and global water scarcity and contamination.

The first three semesters of the programme provide students with basic knowledge of mathematics, physics, chemistry and biology at the university level. In addition, several engineering basic courses are offered to give students comprehensive understanding of environmental issues. The next four semesters cover specific topics within the field of environmental engineering. The eighth semester is

devoted mostly to the professional internship, working on the final project and preparation of the B.Sc. thesis, in which students use their knowledge to analyse and find a proper solution to a given problem.

Examples of modules:

- Biology and Ecology
- Information Technology
- Strength of Materials and Structural Mechanics
- Material Engineering
- Fluid Mechanics
- Civil Engineering and Constructions
- Statistics in Environmental Sciences
- Hydrology
- Meteorology
- Soil Protection
- Engineering Hydrology and Hydrogeology
- Environmental Chemistry
- Air Pollution Control
- Solid Waste Management
- Water Resources Protection
- Municipal and Industrial Wastewater Treatment
- Renewable Energy Systems



M.Sc. Environment Protection Engineering

Faculty of Building Services,
Hydro and Environmental
Engineering

Duration: 2 years



Starts in: October & February

The graduate programme in Environment Protection Engineering lasts four semesters and leads to Master of Science in Engineering (MSc Eng) Degree. The whole programme comprises 1410 hours and 120 ECTS credits. It focuses on research and engineering activities which aim at mitigating the negative impacts of human activity on the environment. It is primarily addressed to the alumni of the undergraduate programme in environmental engineering or other undergraduate engineering programmes, such as civil, mechanical or chemical engineering.

The first year of the programme gives in-depth knowledge in computational methods, environmental fluid mechanics, chemistry, scientific programming, data analysis and management. Moreover, several specialized engineering courses cover specific topics within the field of environment protection engineering. The main topics are as follows: environmental protection management, surface and groundwater protection, soil diagnostic techniques, monitoring of the environment, applied climatology and global climate change, municipal solid waste treatment technologies. In the second year, further courses in environment protection engineering are offered: land reclamation and development, irrigation and drainage, remote sensing of environment, pro-ecological technologies, energy systems modelling and optimization. These compulsory courses are supplemented by some elective courses. Moreover, in the third and fourth semester students work on the final project and prepare a master thesis in a proposed topic. The completed Master Thesis should demonstrate acquired scientific and technical skills and understanding of environmental issues. The thesis is presented for review, assessment and examination by the Faculty Examination Board. The master thesis is credited with 20 ECTS points.

Graduate Profile – job opportunities:

The undergraduate programme in Environmental Engineering aims at a general engineering practice related to the protection of environment and sustainable development. Students are trained for positions as consulting engineers, environmental affairs engineers for industrial and transportation companies, land reclamation and waste management companies, water and sewer companies, engineering design studios and consulting companies, civil servants in national, regional and local environmental agencies and services, environmental inspection and monitoring units.

At Masters level, the programme in Environment Protection Engineering aims at research and engineering activities concerning the mitigating of negative impacts of human activity on the environment. Graduates receiving the Master of Science in Engineering degree will be able to develop their individual/independent professional practices, carry out environmental impact assessment, design and execute or supervise environment protection measures in companies, maintain monitoring networks and provide expertise to local and regional authorities for decision making.

In 2018, both our programmes in Environmental Engineering, BSc and MSc, were accredited by the Accreditation Commission of Universities of Technology and received the EURO-ACE® label which means that the programmes satisfy ENAEE standards specified in the EUR-ACE Standards and Guidelines for Accreditations of Engineering Programmes. EUR-ACE is the European quality label for engineering degree programmes at Bachelor and Master level and gives international value and recognition to that engineering qualifications.

ENAEE (European Network for Engineering Accreditation) is the European body responsible for awarding authorisation to accreditation agencies to award the EUR-ACE® label at Bachelor and Master level to engineering programmes which they have accredited.



B.Sc. Computer Science

(specialisation: **Computer Systems and Networks**)

Faculty of Electronics and Information Technology

Duration: 4 years



Starts in: October

The field of study encompasses information technology, control and robotics, electronics and telecommunications. The programme covers great varieties of subjects from diverse technology fields. The first two years are common for students of Computer Science and Telecommunications programmes and constitute the area of Information and Communications Technology.

Graduates from Computer Systems and Networks specialisation have excellent qualifications in the

area of computer science basics, including basic knowledge of information processing, as well as the area of algorithms and system modelling and various aspects of computer engineering and applications. They are acquainted with the methodologies of object programming, CASE-tools-aided design, system analysis, system modelling and prototyping. They have knowledge of modern operation systems, programming languages, databases and various software applications. Graduates are self-reliant in the design, implementation and operation of complex computer systems and networks.

Examples of modules:

- Algorithms & Programming
- Circuits & Systems
- Computer Systems
- Telecommunications
- Operating Systems
- Graphical User Interfaces
- Data Bases
- Cryptography and Information Security
- Software Engineering
- Compiling Techniques
- Introduction to Artificial Intelligence

M.Sc. Computer Science

(specialisation: **Computer Systems and Networks**)

Faculty of Electronics and Information Technology

Duration: 2 years



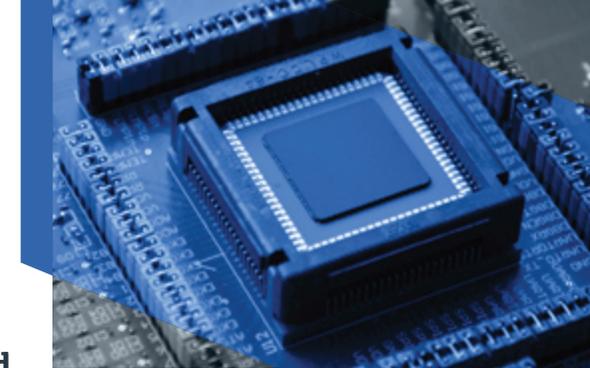
Starts in: October & February

The programme requires coursework in one specialisation and thesis preparation. Each student works with a supervisor from the faculty. The professor helps the student plan an academic programme of coursework compatible with the degree requirements and the student's educational objectives. The advisor also supervises the research and the thesis preparation. The thesis is based on a research project that partly involves the original material.

Graduates from the Computer Systems and Networks specialisation will be equipped with comprehensive qualifications in the area of computer science basics, including basic knowledge of information processing, as well as the area of algorithms and system modelling. They are proficient in computer programming and skilful in using computer tools. They are self-reliant in scheduling, implementing and verifying complex computer projects. Their knowledge facilitates quick adaptation to the rapidly changing environment.

Examples of modules:

- Discrete Random Processes
- Pattern Recognition
- Evolutionary Algorithms
- Digital Signal Processor Architecture and Programming
- Parallel Numerical Methods
- Distributed Computing and Systems
- Data Mining
- Intelligent Information Systems
- Image and Speech Recognition



Graduate profile – job opportunities

The graduate is able to:

- design IT systems and manage the existing systems, connect computers with external equipment, handle the use of computer networks, configure and administer computer networks;
- design IT systems applying system analysis methods as well as modelling and prototyping methods with the use of database approach, knowledge base and expert systems;
- create software for real-time control systems and software for intelligent computational and expert systems, as well as decision support and optimisation systems;
- create computer games as well as system and utility software for various types of equipment related to digital technology.

Career opportunities:

- companies and institutions using computer networks and systems, e.g. banks, telecommunications operators;
- companies and corporations manufacturing system and utility software;
- companies implementing automatic control systems and production management;
- universities, research institutes, design bureaux and other institutions engaged in IT systems designing;
- consulting companies and companies implementing and integrating various IT solutions.

B.Sc. Telecommunications

Faculty of Electronics and Information Technology

Duration: 4 years



Starts in: October

The field of study encompasses information technology, control and robotics, electronics and telecommunications. The programme covers great varieties of subjects from diverse technology fields. The first two years are common for students of Telecommunications and Computer Science programmes and constitute the area of Information and Communications Technology.

Graduates of the Telecommunications specialisation are prepared for jobs related to the design of digital telecommunication circuits, digital processing of telecommunication signals (coding and compression of speech and image signals, digital modulations, redundant coding), design and operation of telecommunication (transmission, commutation and data-communication) systems, as well as design of telecommunications (telephone, data-communication and integrated networks). Students acquire the ability to solve system problems that require comprehensive knowledge in the areas of telecommunications and computer science, combined with considerable non-engineering knowledge.

Examples of modules:

- Algorithms & Programming
- Circuits & Systems
- Computer Systems
- Telecommunications
- Signal Processing & Coding in Telecommunications
- Wireless Systems and Networks
- Access and Backbone Systems and Networks
- Cryptography and Information Security
- Switching and Routing
- Communication Protocols
- Satellite Communication Systems

Graduate profile: -job opportunities:

The graduate is able to:

- design radio, television and electro-acoustic equipment, both for studios and general use, as well as to design radio location and radio navigation systems;
- process images and sounds and design multimedia systems with particular attention paid to Internet applications;
- create specialised software used in the telecommunications sector;
- design systems and networks of wire telecommunications (telephone, data transfer and integrated systems) as well as mobile systems (including satellite ones) and manage their operation;
- create infrastructure supporting management of telecommunications networks and services which combine various specialised IT systems.

Career opportunities:

- operators of landline and mobile networks;
- suppliers of services and manufacturers of telecommunications equipment and software;
- TV broadcasters and producers; radio broadcasters and recording studios;
- telecommunications and IT departments of banks, state administration and other large companies;
- research and implementation centres of the world's telecommunications concerns;
- small telecommunications and IT companies.

B.Sc. Computer Science

Faculty of Mathematics and Information Science

Duration: 3.5 years



Starts in: October

For the first three semesters, the programme covers the basics of mathematics, which allows for the effective learning of computer science and programming techniques in the next semesters. In this period, students receive basic information on calculus, linear algebra and geometry, discrete mathematics, logic, numerical methods, and principles of electronics. Additionally, during the first semesters, introduction courses to structural and object-oriented programming, algorithms and data structures as well as operating systems are offered. Until the fourth semester, classes are joint for all students. From the fifth semester students have the opportunity to choose elective courses which cover both theoretical and practical aspects of computer science. The last, seventh semester is mainly devoted to team project and thesis preparation.

Students are thoroughly educated in mathematics and acquire the theoretical basics of computer science, which enables them to widen his or her knowledge in the rapidly changing field of computer science. Graduates can use IT tools, programme in various programming languages, and operate IT equipment and software. They can work as part of a team to develop and implement IT projects, as well as verify component elements of computer information systems in compliance with a given specification. Graduates can administer medium-scale computer information systems and computer networks.

Examples of modules:

- Programming (C, C++, Java, C#, .NET and other)
- Discrete mathematics
- Introduction to digital systems
- Algorithms and data structures
- Differential equations
- Operating systems
- Data transmission
- Databases
- Computer networks
- Multilayer application development
- Software engineering
- Artificial intelligence fundamentals

M.Sc. Data Science

Faculty of Mathematics and Information Science

Duration: : 1.5 year (standard)



or 2 years (extended - supplemented by one semester, dedicated for students who require additional preparation)



Starts in: October (4-semester programme) and February (3-semester programme)

The M.Sc. programme in Data Science programmes run by the Faculty of Mathematics and Information Science is among the first European programmes in Data Science and is fully focused on data engineering and data analytics. The Data Science programme provides an in-depth knowledge and skills needed to process and analyse growing volumes of data. Students learn about data processing and analytical techniques used for structured data and unstructured data. Particular emphasis is placed upon natural language processing and the analysis of network data including the data of social networks. The programme builds also programming skills in languages typically used for data processing such as Python. This is combined with in-depth coverage and experience in the use of Big Data processing, including key platforms such as Apache platforms and Cloud Computing, including collaboration with top cloud providers.

As far as data analytics is concerned, particular attention is paid to Machine Learning methods. This includes also deep learning and methods focused on network and text analysis and contributes to the knowledge of Artificial Intelligence. Hence, the programme combines the knowledge of key algorithms, methods, languages and platforms used in data acquisition, storage, processing, analysis and visualisation with hands-on experience in solving real-world problems defined by industry experts.

Each student chooses a scientific advisor from among academic and research staff. Last semester is devoted mainly to M.Sc. thesis preparation. Data Science students can also spend a semester of their studies studying in one of cooperating European universities as a part of student exchange programme.

The Data Science team is a group of researchers with major international collaboration, active in international research community and presenting results of their research at major scientific events.

Examples of modules:

- Advanced Machine Learning
- Deep Learning
- Cloud Computing
- Data Exploration and Visualisation
- Big Data Analytics
- Natural Language Processing
- Social Networks and Recommendation Systems
- Management of Organisation and Intellectual Property in ICT Industry

Graduate profile – job opportunities:

Graduates are prepared to work as Data Scientists and Data Engineers in the most competitive enterprises including, but not limited to high-tech companies, IT companies and financial sector companies. They can also continue their education as PhD candidates, as particularly many open and challenging topics exist in the field of Data Science.





B.Sc. Electric and Hybrid Vehicles Engineering

Faculty of Automotive and Construction Machinery Engineering

Duration: 3.5 years



Starts in: October

This field of study is dedicated to those who want to become engineers and meet the challenges of modern designing, operating and servicing of state-of-the-art recently emerged electro-mechanical vehicles, which have been dominating the ecologically conscious automotive market. The programme provides students with multidisciplinary knowledge in complex technical far-transportation structures with systems of energy recuperation and accumulation. Analysis of fundamental physical and chemical processes, selection of nonconventional materials and control methods are taught in classes and

laboratories. A novel approach to realisation of the educational offer gives the graduate vital skills in the engineering of ecologically friendly electric and multi-source hybrid automobiles, including special and autonomic vehicles.

Examples of modules:

- Mechatronics Systems Design
- Computer Systems in Mechatronics
- Mechatronic Sensor and Actuator Systems
- Construction of Autonomous Vehicles
- Automation Systems
- Ionics and Photovoltaics
- Ultralight Vehicle Bodies
- Vehicle Structures and Crashworthiness
- Navigation of Autonomous Vehicles
- Vehicle Information Systems
- Energy Harvesting in Vehicles
- Diagnosis of Electric and Hybrid Vehicles
- Advanced Control of Electric and Hybrid Drives
- Vehicle Recycling

Graduate profile – job opportunities:

The graduate is able to:

- build and analyse mathematical models of powertrain components, combine them in a computational model of a drive structure and conduct simulation studies to determine the parameters of electric or hybrid powertrains;
- design, test and troubleshoot simple multi-source energy-accumulating systems, intended for a variety of applications with the use of appropriate design and IT tools.

Career opportunities:

- The automotive industry, especially in the area of electric and hybrid drives.
- The industry of working, road and handling machines in the above area
- Other sectors of the economy (transport, energy) – green and energy-efficient technologies.
- Work related to designing, manufacturing, maintenance and supervision.



M.Sc. Biomaterials

Faculty of Materials Science and Engineering

Duration: 1.5 years



Starts in: February

In this interdisciplinary course, students will gain knowledge and skills in the area of advanced material science with a special focus on materials for medical applications. The main aim of the course is to develop knowledge in biomaterials including biomaterials design, characterization, fabrication and application in different fields of medicine. The students will learn about metals, ceramics, polymers, and composites used in medicine, and a role of materials science in their design and optimization. The course will also provide an insight into modern methods of shaping material properties, design, and manufacturing, in the aspect of their interaction with the living cells, and replacement or regeneration of tissues and organs. Other topics include the impact of the living organism on the biomaterial and implant behaviour, degradation of various biomaterials, basic of cells and tissue biology, biocompatibility, biophysical, biochemical and biomechanical requirements for biomaterials and medical devices.

Examples of modules:

- Materials Design
- Nanomaterials and Nanotechnology
- Phase Transformations
- Thermodynamics of Alloys
- Biomaterials
- Bioengineering
- Methods of Biomaterials Characterization
- Tissue engineering
- Defects of Crystalline Structure
- Microbiological Corrosion

Graduate profile – job opportunities

Career opportunities:

Graduates may find employment in:

- biomedical companies
- state and private hospitals and diagnostic clinics
- research, testing and diagnostic laboratories
- research centres
- healthcare consultancy services.



NEW: from Feb. 2025 intake

M.Sc. Materials for Energy

Faculty of Materials Science and Engineering

Duration: 1.5 years



Starts in: February

This interdisciplinary course equips students with the knowledge and skills necessary in the area of advanced materials science, with a particular focus on materials for energy-related applications. The main objective of the course is to develop expertise in materials used in energy generation, storage, and conversion, including their design, characterization, fabrication, and application in diverse energy sectors. Students will explore metals, ceramics, polymers, and composites utilized in renewable and conventional energy systems, and the role of materials science in optimizing their performance. The program will also cover modern methods for adapting material properties to meet energy efficiency, sustainability and environmental impact requirements. Key topics include material behavior under extreme conditions, degradation mechanisms, energy storage technologies (such as batteries and supercapacitors), materials

for photovoltaics, fuel cells, and thermoelectrics. The course will provide insight into the principles of energy conversion, material interactions within energy systems, and future trends in materials for the energy sector.

Examples of modules:

- Degradation processes and recycling
- Introduction to energy conversion and storage
- Integrated computational materials engineering
- Materials for chemical and electrochemical energy conversion and storage
- Additive Manufacturing in Material Engineering for the Energy Sector
- Composites production for the Energy Sector
- Surface Engineering for the Energy Sector

Graduate profile – job opportunities

Career opportunities:

Graduates may find employment in:

- energy companies
- R&D departments of energy corporations
- research institutes/research centres
- manufacturing and engineering firms
- renewable energy sector.



M.Sc. Transport

(specialisation:

Transport Systems Engineering and Management)

Faculty of Transport

Duration: 1.5 years



Starts in: October

Students of the Transport Systems Engineering and Management specialisation acquire extended knowledge and skills in the areas of: road, railway and municipal transport systems, control and management, optimisation and planning of transport systems, transport measurements and forecasting, as well as design of multimodal transport hubs, traffic modelling and planning systems with the use of modern IT tools. In addition, students gain knowledge and skills in the field of automated vehicles and other solutions of transport automation and learn about the role of the human factor in intelligent transport systems. Other topics include environmental impact and environmental protection, rules of shaping transport law and policies and management of the investment process in transport, including financing investment solutions.

Examples of modules:

- Planning of Transport Systems
- Modelling of Transport Processes
- Applied Mechanics
- Theory of Reliability and Safety
- Measurement Systems
- Urban and Regional Transport Management
- Designing Multimodal Transport Nodes
- Systems, Vehicles and Infrastructure of Automated Transport
- Human Factor in Intelligent Transportation Systems
- Managing Investment Process in Transport
- Legal Regulations in Transport Policy

Graduate profile – job opportunities

Career opportunities:

Graduates may use their knowledge and skills by finding employment in:

- Companies and local government units which deal with planning transport development and completion of investment process in transport,
- Companies that offer consulting services
- Study and design offices
- Research centres.

M.Sc. Geodesy and Cartography

(specialisation: **Mobile Mapping and Navigation Systems)**

Faculty of Geodesy and Cartography

Duration: 1.5 years



Starts in: October

The main aim of the programme is to acquire knowledge in the field of collecting, processing, and analysis of the spatial data for the needs of modern navigation systems. You will learn the principles of designing, developing and using mobile measurement platforms and mobile mapping systems (MMS), how to design location-based systems (LBS) and navigation applications (GNSS, GNSS/INS) and how to choose appropriate techniques for acquiring spatial data (photogrammetry, remote sensing, computer vision). Furthermore, you will gain a comprehensive knowledge about outdoor (self-driving car, UAV) and indoor navigation systems. Finally, you will be trained on how to integrate and process the data from multiple sensors for navigation applications. You will create technologies of the future.

Examples of modules:

- Standards for geodata
- Modern Photogrammetry
- 3D city modelling
- Programming language with numerical methods
- Reference systems for navigation
- Integrated Navigation Systems
- Satellite Navigation Systems
- Principles of transport economics
- Intelligent Transportation Systems and Autonomous Cars
- Urban solutions for autonomous vehicles

Graduate profile – job opportunities

Career opportunities:

Graduates may find employment in companies or institutions dealing with:

- processing and analysis of geospatial data
- designing location and navigation applications
- developing positioning and attitude determination systems for mobile measurement platforms such as: unmanned aerial vehicles (UAV), mobile measurement platforms (MMS/MLS) etc.
- creating systems for crisis management
- intelligent transport technologies

B.Sc. Electrical Engineering

Faculty of Electrical Engineering

Duration: 3.5 years



Starts in: October

The area of study encompasses electrical materials technology, electrical measurements, circuits and systems, electromagnetic field, electrical machines, electrical power engineering, converter drives control, high voltage technology and IT. The programme embraces a great variety of subjects. Two specialisations are currently offered: Control and Computer Engineering and Electrical Power Engineering

Examples of modules:

- CAD Methods
- Computer Science
- Circuits and Systems
- Mechanical Engineering
- Mathematics
- Electrical Measurements Instrumentation and Signal Transmission
- Electronics
- Numerical Methods
- Electrical Machines
- Introduction to Electrical Power Engineering
- Microprocessor Engineering
- High voltage technology
- Converter Drives Control
- Electrical Machines in the power engineering and automatization
- Electric Traction

M.Sc. Electrical Engineering

Faculty of Electrical Engineering

Duration: 1.5 years



Starts in: October & February

Students of M.Sc. Electrical Engineering acquire comprehensive qualifications and knowledge in the area of: power system (planning, optimisation and control), electrical power quality, electromagnetic compatibility, electromechanical drive systems, electrical traction, measurement systems (hardware and software), intelligent electrical installations and IT (artificial intelligence in power engineering, computational methods and algorithms, microprocessor engineering).

Examples of modules:

- Electrical Measurement of Non-Electrical Parameters
- Electromechanical Drive Systems
- Energy Conversions
- Selected Problems of Circuit Theory
- Short Circuits in Power Systems
- Numerical Methods in Technics

Graduate profile – job opportunities:

The graduate is able to:

- design and construct electrical circuits, systems and equipment;
- use highly complex electrical machines and equipment;
- design and use industrial equipment processing electric energy;
- apply electric circuits and equipment in production processes;
- design industrial plants supply systems and networks.

Career opportunities:

- electrical engineering companies;
- construction and design bureaus for electrical equipment;
- distribution and commercial companies dealing with electric equipment and controls;
- professional power engineering sector;
- design and installation companies



B.Sc. Mechatronics

Faculty of Mechatronics

Duration: 3.5 years



Starts in: October

(specialisation: **Photonics Engineering**)

The profile of the first cycle full time studies within Photonics Engineering was developed to provide educational offer in the area of optomechatronics, especially in: building of optical and optoelectronic equipment and its applications in optonumerical methods of inspection, e.g. holographic cameras, spectrometers, multimedia devices and multifunctional interferometers for different scale objects testing (from microelements of MEMS/MOEMS type up to large engineering structures). Students are equipped with knowledge on fundamentals of engineering and basis for designing, manufacturing, testing and operating optomechatronic systems and devices. The graduates are prepared for work in the industry and SMEs and ready to tackle engineering problems. They can also support services based on optomechatronics equipment used in the fields such as multimedia, medicine, lighting, metrology and others.

Examples of modules:

- Material Engineering and Computer Techniques
- Engineering Graphics
- Fundamentals of Electronics and Electrotechniques
- Strength of Material
- Design of Fine Mechanism (CAD) and Optomechatronics
- Basics of Photonics
- Instrumental Optics
- Optoelectronics Technology and Image Processing
- Laser Techniques
- Machine Vision
- Fiber Optics Technology (Telecommunications and Sensors)
- Photonics Devices and Systems
- Lighting Technology

(specialisation: **Mechatronic Devices and System**)

The aim of Mechatronic Devices and Systems specialization is to prepare students to design mechatronic devices and to solve complex, interdisciplinary design and construction problems. They acquire the necessary practical knowledge about the methods and tools of computer design, microprocessor control, drives and actuators as well as automation of processes related to industrial manufacturing techniques and device sensors, including optical devices and optomechatronic systems. Graduates know the methods of data acquisition and processing in digital control and diagnostic systems. Graduates are prepared to design and operate mechatronic devices, including drive systems for precise positioning, devices for measuring various physical and geometric quantities of utility machines, as well as mechanization, automatization and robotization of technological processes. They can work in mechatronic systems manufacturing industry; electromechanical, automotive, household appliances, aviation, machine tools; industry and other facilities that operate and service mechatronic systems as well as machines and devices in which they are used. Graduates are prepared to undertake second-cycle studies.

Examples of modules:

- Matlab programming
- 3D CAD applications
- Mechatronic Drives
- Theory of Machines and Mechanism
- Microcontrollers
- Sensors and Measuring devices
- Design of electronic modules
- Multimedia devices
- Design of Electronic Modules
- MEMS
- Electric Metrology

M.Sc. Mechatronics

(specialisation: **Mechatronic Devices and Systems**)

Faculty of Mechatronics

Duration: 1.5 years



Starts in: October

The aim of the second cycle full-time studies in the field of Mechatronic Devices and Systems is to prepare students to design mechatronic devices and to solve complex, interdisciplinary design and construction problems. Students acquire the necessary practical knowledge of the methods and tools of computer design, microprocessor control, drives and actuators, and the automation of processes related to industrial manufacturing techniques and device sensors, including optical devices and optomechatronic systems.

Graduates are prepared to work or undertake third-cycle studies. They receive theoretical and practical preparation to apply new achievements of science and technology, to create and use modern precision and electronic devices, as well as to formulate goals and needs for implementation research.

Examples of modules:

- Introduction to Python / Machine Learning
- Advanced microcontrollers
- Mechatronic Devices Automated Control
- Mechatronic Systems
- Vending Machines
- Diagnostics of industrial objects

Graduate profile – job opportunities

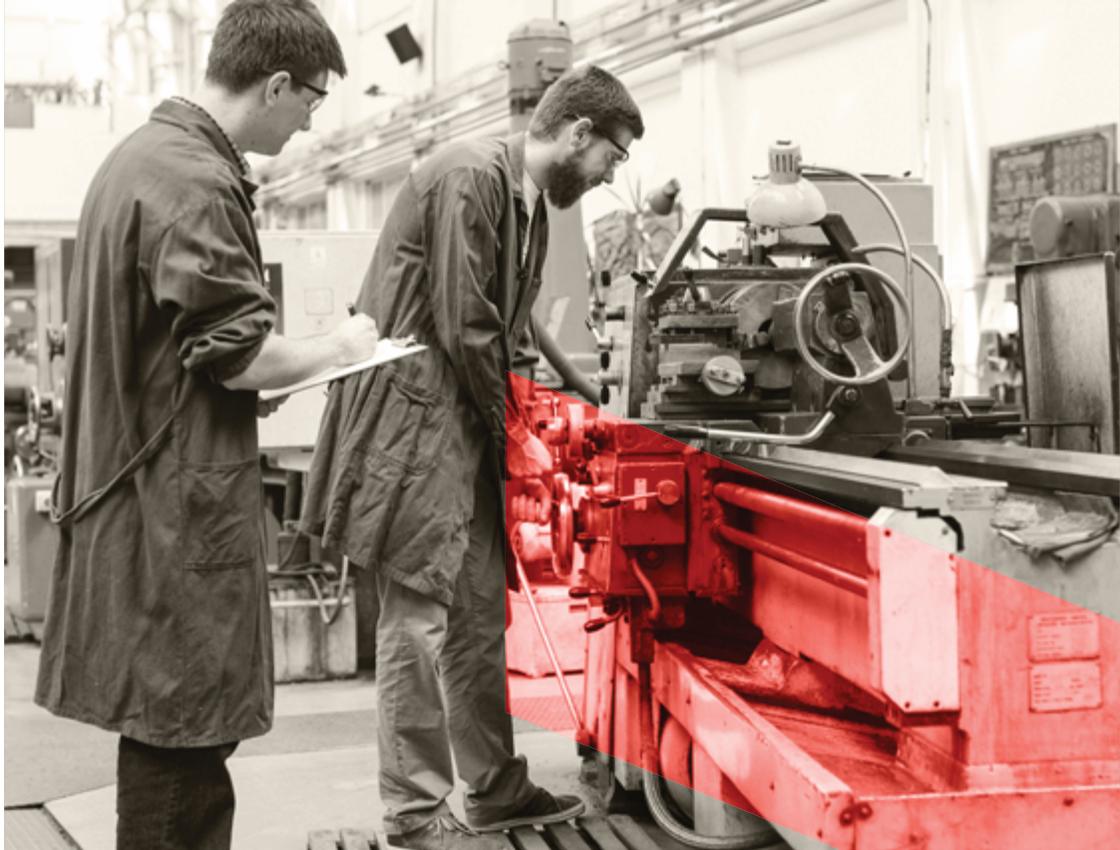
The graduate is able to:

- design and develop new types of mechatronic devices,
- create acceptance tests of devices them and verify the correctness of the results,
- integrate knowledge in the field of mechanics, construction and operation of machines, electronics, computer science, automation and robotics and control in the design, manufacture and operation of products as well as the analysis of products in their environment.
- participate in interdisciplinary teams solving problems related to: construction; manufacturing; sale; exploitation; servicing and diagnosing mechatronic systems as well as machines and devices in which they occur.

Career opportunities:

- industry producing mechatronic systems - electromechanical, motorization, household appliances, aviation, machine tools,
- industry and other institutions that operate and service mechatronic systems as well as machines and devices in which they are used.





M.Sc. Management and Production Engineering

(specialisation: **Global Production Engineering and Management**)

Faculty of Mechanical and Industrial Engineering

Duration: 2 years



Starts in: October & February

The idea of the programme is based on an extensive research done among top managers in industrial multinational enterprises and internationally operating SMEs. The results of the research indicated a growing demand for graduates with integrated knowledge of production engineering and production management, supported by the ability to operate within multinational teams and within the global business environment.

Students of GPME receive education in both organization and management, economy, legal and social science, as well as technical sciences. They acquire practical skills in design of business processes using state-of-art software. They also learn the basics of programming and algorithmisation of organizational issues in enterprises, development of database application for management support, preparation of investment projects evaluation in the field of implementation of management information systems such as ERP, CRM and BI, and the design of such systems.

Examples of modules:

- Quality Engineering & Management
- ICT & Cx in Production
- Design & analysis of manufacturing systems
- International Industrial Marketing
- Modelling of Production Systems and Supply Chains
- Maintenance Management
- International Trade, Business & Economics
- Industrial Technologies
- Project, Innovation, Technology, Engineering & PLC Management
- Techniques of Industrial Engineering
- Global Operations Strategy and Logistics & SCM
- International Accounting & Finance for Production Engineers

Graduate profile – job opportunities:

The programme is intended to provide advanced knowledge and skills to candidates planning to start their professional careers in global industrial companies as production and logistics managers, process engineers in engineering departments or in maintenance departments. The graduates are also well prepared to become top level staff (including owners) of small and medium industrial enterprises.

- Design, analysis and management of complex manufacturing systems
- Polish and foreign consulting companies implementing ERP, CRM, BI systems
- Process engineers in manufacturing companies





B.Sc. Aerospace Engineering

Faculty of Power and Aeronautical Engineering

Duration: 3.5 years



Starts in: October

During the first year studies focus on mathematics, physics, mechanics, thermodynamics and computer science. The core subjects for the second year are fundamentals of mechanical design, control engineering and foreign language. Students of aerospace programme learn also their specialization subjects like aeronautics and astronautics. The third year is again more specialized. Aerospace programme focuses on aeronautical systems, mechanics of flight, materials for aerospace technologies, propulsion systems and rotorcrafts. The last half of the year in 3.5 years programme is devoted to the supervised work on engineering diploma thesis.

Graduates from Aerospace Engineering demonstrate expertise required in modern aerospace industry, in the airlines and in other industries ap-

plying novel technologies. They are also prepared to respond to the needs of research institutions in the field of research, design, development and maintenance of aircraft and spacecraft. Besides of basic electronics and information sciences including CAD, they possess solid knowledge in mechanics, thermodynamics - together with understanding of combustion processes - materials and manufacturing technologies which are used in aerospace industry.

Examples of modules:

- Electric Circuits
- Mechanics of structures
- Thermodynamics
- Basics of automation and control
- Fluid mechanics
- Machine design
- Introduction to aerospace
- Materials in aerospace technology
- Integrated CAD/CAM/CAE system
- Mechanics of flight
- Aircraft Engine Design
- Aircraft Design
- Aeronautical System
- Risk and reliability in aviation
- Rotorcraft Aeromechanics

M.Sc. Aerospace Engineering

Faculty of Power and Aeronautical Engineering

Duration: 1.5 years



Starts in: October & February

At M.Sc. Aerospace Engineering students gain knowledge about recent achievements in the field and the methods and tools that prepare them for taking management positions in industry, or to undertake the research activity. The third semester of the 3-semester-study is devoted to the solution to a research problem. The problem statement and solution are put into the master diploma thesis.

Students of the Aerospace Engineering programme are provided with a knowledge allowing for scientific research and design, optimisation, modernisation as well as maintenance of flying vehicles. Graduates are well prepared to work for aviation engine design offices, research laboratories and maintenance centres as well as to deal with all types of internal combustion engines (automobile, railway and power plant engines).

Examples of modules:

- Advanced Computational Fluid Dynamics
- Aircraft systems laboratory
- Composite Materials in Aerospace
- Control in Aerospace
- Dynamics of Flight
- Heat Transfer in Aerospace
- Physics of the Atmosphere
- Mechanics of Thin-Walled Structures
- Attitude and navigation systems
- Aircraft maintenance management
- Fatigue and aircraft diagnostic systems
- Structural analysis of aero engines
- Signals and identification methods



Graduate Profile - Job opportunities:

The graduate is able to:

- design and construct the main assemblies of planes, helicopters, rockets and satellites with the use of modern engineering tools;
- analyse and modify the main assemblies of planes, helicopters, rockets and satellites.

Career opportunities:

- domestic and international companies of the aviation and space sector;
- aviation and space sector research and development centres;
- design and production companies implementing advanced structural, material and IT technologies.



B.Sc. Power Engineering

Faculty of Power and Aeronautical Engineering

Duration: 3.5 years



Starts in: October

During the first year studies focus on mathematics, physics, mechanics, thermodynamics and computer science. The core subjects for the second year are fundamentals of mechanical design, control engineering and foreign language. Students of Power Engineering learn advanced thermodynamics, fluid mechanics, heat transfer theory of heat machines, electric machines, electronics, fundamentals of combustion processes and fuels, theory of flow machines, electric power systems. The third year is again more specialized. In the third year of Power Engineering students learn thermal power systems, energy sources and energy conversion, technologies of environmental protection, renewable energy systems, control of heat processes, they also learn about turbines, pumps, steam boilers, reciprocating engines and heat pumps. The last half of the year in 3.5 years programme is devoted to the supervised work on engineering diploma thesis.

The objectives of the study is to create the solid fundamental engineering knowledge during the first year of the study, then learn deeply the problems devoted to the subject of the study. Graduates are prepared to work in industry and to solve engineering problems. They have wide knowledge in the area of thermal engineering, electrical power engineering, information technologies, and economics. The programme provides them with knowledge and skills that are important for sustainable development of energy sources, ecological production of energy, transmission, and distribution of electricity. Students are prepared for creative work within the area of design, commissioning, and operation of power systems, as well as energy production, conversion, transmission and distribution.

Examples of modules:

- Mechanics of structures
- Thermodynamics
- Basics of automation and control
- Machine design
- Fluid mechanics
- Heat transfer
- Theory of heat machines
- Electric Power Systems
- Combustion and Fuels
- Measurements and technique of experiment
- Energy systems
- Electric Power Systems
- Energy sources and conversion
- Internal Combustion Engines
- Steam Boilers
- Turbines
- Power Engineering Machines and Systems

M.Sc. Power Engineering

Faculty of Power and Aeronautical Engineering

Duration: 1.5 years



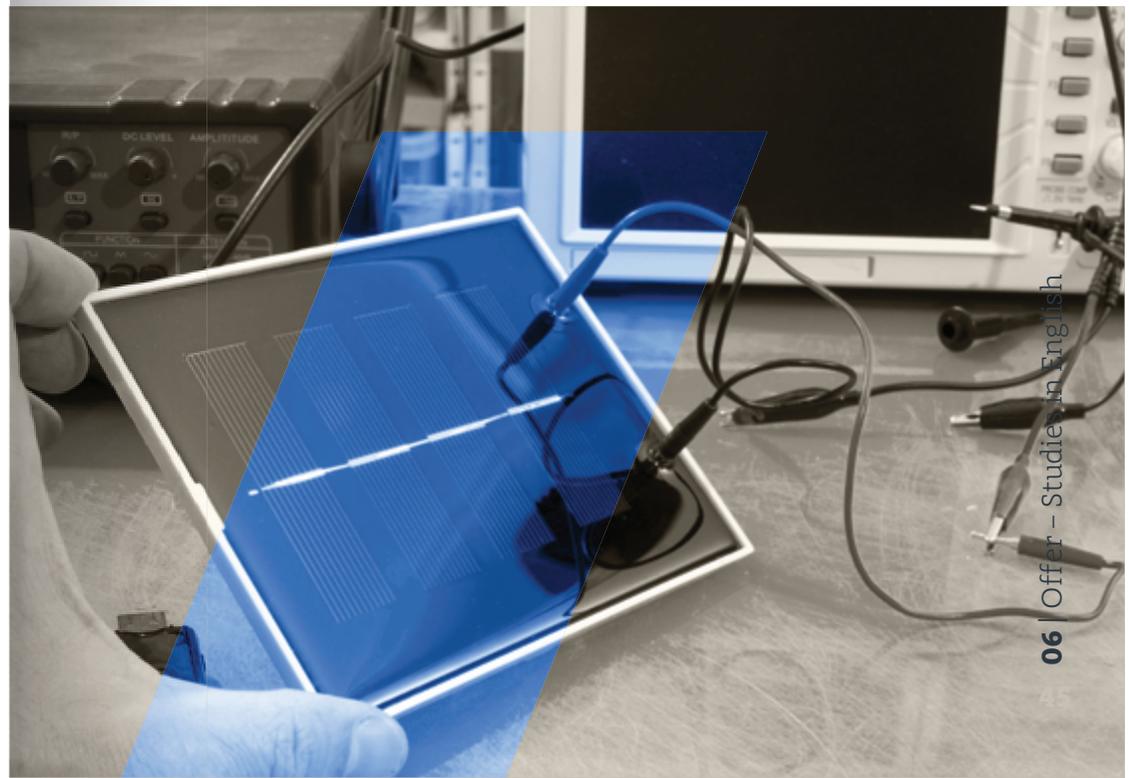
Starts in: October & February

At M.Sc. Power Engineering students gain knowledge about recent achievements in the field and the methods and tools that prepare them for taking management positions in industry, or to undertake the research activity. The third semester of the 3-semester-study is devoted to the solution to a research problem. The problem statement and solution are put into the master diploma thesis.

Graduates of M.Sc. Power Engineering are prepared for creative work and research within the field of processes control in power industry and in related industries. They can develop techniques of energy conversion and maintain power systems. They can also perform modernisation of machines, implement new technologies, as well as establish and manage small enterprises in power energy sectors. Graduates are also prepared to undertake Ph.D. studies in power engineering and in other related fields.

Examples of modules:

- Computational fluid dynamics
- Energy efficiency
- Energy Policy and Law
- Numerical methods in heat transfer
- Algorithms and Programme of Heat Balances
- Advanced Heat Transfer
- Advanced Renewable Energy Sources
- Future Power Technologies
- Statistical and Non-equilibrium Thermodynamics
- Neural networks
- Project Management



M.Sc. Power Engineering

(specialization:
Nuclear Power Engineering)

Faculty of Power and Aeronautical Engineering

Duration: 2 years



Starts in: October & February

The programme of the studies is based on advanced theory and engineering methods. The students learn about recent achievements in the field of nuclear power and the methods and tools that prepare them for taking managing positions in industry, or to undertake research activities. Special attention is given to modelling and simulation methods and codes. The programme is realised in close collaboration with foreign and national universities, research institutes and companies, and is supported by visiting professors and industrial specialists. The last semester of the 4-semester study is devoted to a research-based internship at a nuclear installation, directly connected with the preparation of the master diploma thesis.

Graduates of Nuclear Power Engineering receive profound education in the area of nuclear reactor physics, nuclear reactor modelling and simulation, nuclear instrumentation and control, contemporary and future nuclear reactor systems, and nuclear power plant safety, operation and maintenance. They are prepared for creative work and research in the field of design, operation and control of nuclear power and other nuclear installations, as well as of classical power and related installations. This work could be focused on energy conversion processes in power machines and equipment, conducting modernisation of systems and facilities, implementation of new technologies, establishing small enterprises and their management.

Examples of modules:

- Elements of Nuclear Physics
- Nuclear Reactor Physics
- Contemporary Nuclear Reactor Systems
- Nuclear Fuels and Fuel Cycles
- Nuclear Instrumentation and Control
- NPP Safety
- NPP Operation and Maintenance
- Gen IV Nuclear Reactor Systems
- Thermonuclear Synthesis
- Nuclear Energy and International Security
- Modelling and Simulation

Graduate profile - job opportunities:

The graduate is able to:

- independently solve problems within engineering processes performance, as regards energy processing, starting from basic power engineering equipment and system, through analysis of their operation, operation of the same, and ending with economic matters or proper selection of equipment and systems;
- use the knowledge of the issues related to sustainable country development and the growing role of problems related to environmentally friendly generation, transfer and distribution of energy.

Career opportunities:

- Energy companies (including generation, distribution and sale of electricity)
- CHP stations and municipal power companies, public administration related to energy
- Suppliers of equipment and services for the energy sector (foreign and Polish companies)
- Energy sector companies including construction of power facilities and installation of equipment



M.Sc. Robotics

Faculty of Power and Aeronautical Engineering

Duration: 2 years



Starts in: October

Students gain both knowledge and abilities necessary for creative work in design, construction, programming and analysis of automation and control systems, and can operate industrial and service robot systems. They are capable of solving complex, interdisciplinary problems related to control and design. Graduates possess enough knowledge to conduct research in RTD centres or pursue doctoral studies. They can be also employed as senior management staff in mechanical, electrotechnical, chemical and related industrial sectors. They can design and analyse complex robotics systems using advanced design and analytical tools.

Examples of modules:

- Signal processing
- Neural networks
- Mechanical design methods in robotics
- Robot programming methods
- Mobile robots
- Artificial intelligence
- Optimisation techniques
- Embedded systems
- Bio-robotics
- Advanced mechanical design
- Dynamics of multi-body systems
- Biomechanics

Graduate Profile - Job opportunities:

The graduate is able to:

- Design and build manipulators and robots for various purposes with the uses of modern engineering tools
- Solve tasks of analysis and synthesis of robot control systems including drives
- Make professional use of achievements in industrial and non-industrial robotics (including medical and rehabilitation robotics) and micro-robotics
- Make use of computer hardware in design and automatic control systems, computer and controller programming and combine them with a variety of measuring instruments and actuating devices

Career opportunities:

- Companies using automation and robotics equipment for various applications, including medical applications
- Development and consulting centres for design and analysis of mechanical and mechatronic systems
- Companies involved in the design and manufacture of biologically inspired structures in a variety of areas, including medicine and labour protection
- Scientific research centres dealing with the dynamics of mechanical systems.

B.Sc. Civil Engineering

Faculty of Civil Engineering

Duration: 4 years



Starts in: October

Civil engineering deals with construction of such facilities as buildings, bridges, tunnels, airports, railways, highways and environmental systems. Planning, design, construction/reconstruction, operation and maintenance of these facilities are generally carried out by civil engineers. Education in the area defines knowledge and skills in execution, operation and modernisation of buildings and civil engineering structures, cost pricing, and knowledge of legal and administrative issues in the construction industry, as well as skills in computer methods supporting design and investment process.

The following subject areas of study are covered during the 4-year Bachelor programme

- mathematics, physics, mechanics and chemistry, on which much of engineering knowledge is based;
- social sciences and humanities, to broaden study perspectives as well as to prepare students for professional interaction with people;

- a core of basic civil engineering subject areas, including courses in structures, surveying, transportation, materials science, management and environment;
- integrated sets of optional and elective courses in areas selected by students.

After completing the 3rd year of the programme students choose specialisation for the 4th year. Depending on the number of students interested in particular field of study two of the following specialisations are available each year: Civil Engineering Structures, Construction Engineering and Management, Sustainable Building, Transportation Engineering.

Examples of modules:

- Building Materials
- Theoretical Mechanics
- Technical Drawing
- Strength of Materials
- Mechanics for Structures
- Technology and Organization of Building Works
- Transportation Engineering
- Soil Mechanics and Geotechnical Engineering
- Concrete Structures
- Metal Structures
- Bridge Engineering
- Underground Structures
- Electrical and Sanitary Installations
- Hydraulics and Hydrology

M. Sc. Civil Engineering

(specialization:

Civil Engineering Structures)

Faculty of Civil Engineering

Duration: 1.5 years



Starts in: October

A three-semester programme and preparation of the final M.Sc. thesis under the guidance of the Faculty supervisor allows students to acquire comprehensive knowledge and qualifications in the area of civil engineering. Graduates of the Master programme can handle design problems with a high degree of complexity and investment projects of a unique nature. They are prepared to carry out research projects and can manage design projects or run construction companies. Graduates of Civil Engineering programme are offered engineering and administrative posts in industry, construction, research, government and consulting companies.

Examples of modules:

- Engineering of Building Materials
- Theory of Elasticity and Plasticity
- Design Methodology of Construction Processes
- Computer Methods for Structural Design
- Mechanics of Structures
- Concrete, Metal, Timber Structures
- Reliability of structures
- Computer-aided Design of Structures

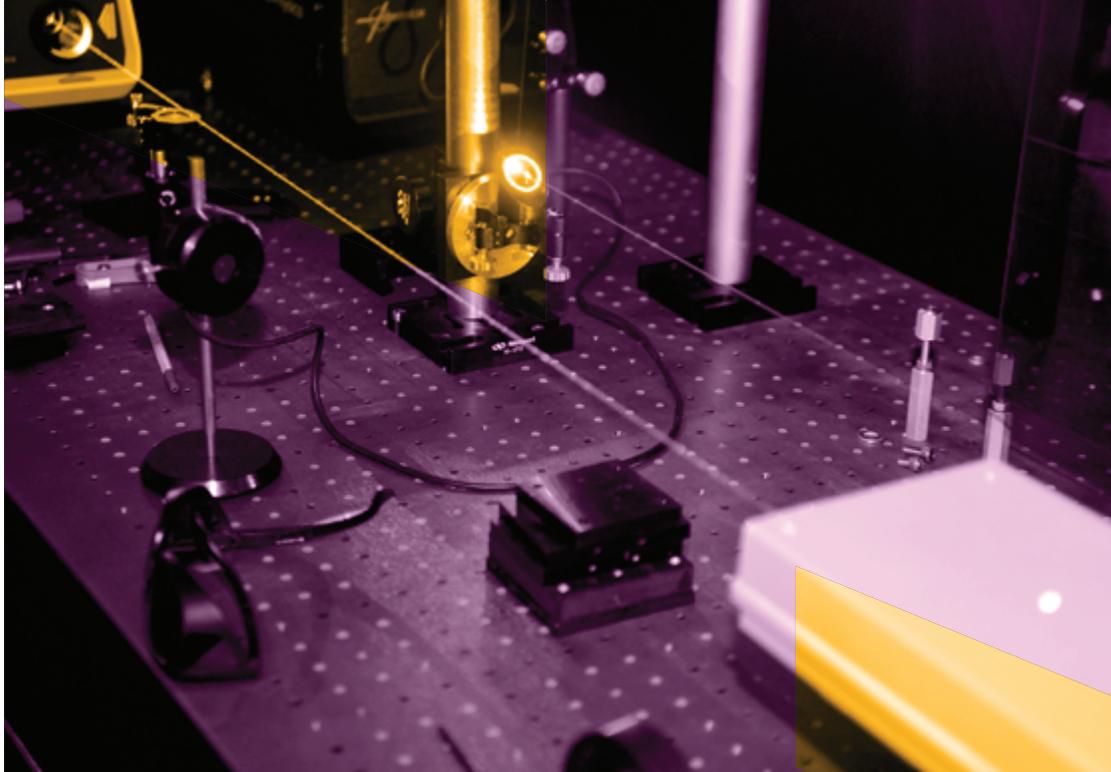
Graduate Profile - Job opportunities:

The graduate is able to:

- apply material strength principles and structural mechanics; formulate, construct and apply calculation models for the basic engineering structures; design basic structures and building elements for residential, municipal, industrial buildings and transport infrastructure;
- manage construction teams and companies with regard to execution and supervision of any type of civil structures; knows how to organise a building process, calculate costs and arrange legal and administrative affairs in the construction business;
- organise and supervise the production of building elements; knows the technology of manufacturing, selection and application of building materials;
- create and read technical drawings, read cartographic and site surveying opinions;
- apply modern computer techniques to aid designing as well as use modern technologies in the engineering practice.

Career opportunities:

- design and development companies;
- construction companies, construction supervision duties;
- building materials industry, concrete batching plants, companies manufacturing building and structural elements;
- central and local government administration agencies in charge of construction and architecture.



Examples of modules:

- Photonics
- Optoelectronics
- Principles of Optics
- Fourier Optics
- Wave Optics
- Nonlinear Optics
- Theory of Optical Imaging
- Quantum Photonics
- Optical Information
- Solid State Optics
- Laser Physics and Technology
- Photonic Systems and Devices
- Theory of Waveguides
- Fiber Technology
- Photonic Crystal Fibers
- Liquid Crystal Photonics
- Displays Technology
- Holography
- Photovoltaics

Graduate profile – job opportunities:

Graduates are expected to be offered a broad range of future opportunities, including: research in high technology companies, in particular photonics related companies; research in academic laboratories and research institutes (possibly in PhD context); development of new photonic products in industry; technical support in a company for its products or services; technical marketing and sales.

- Companies using modern optoelectronic and photonic technologies
- Companies from the information technology and data communication sector.
- Research and development laboratories of high-tech companies.
- Research laboratories of universities, research institutes and industry.

M.Sc. Photonics

Faculty of Physics

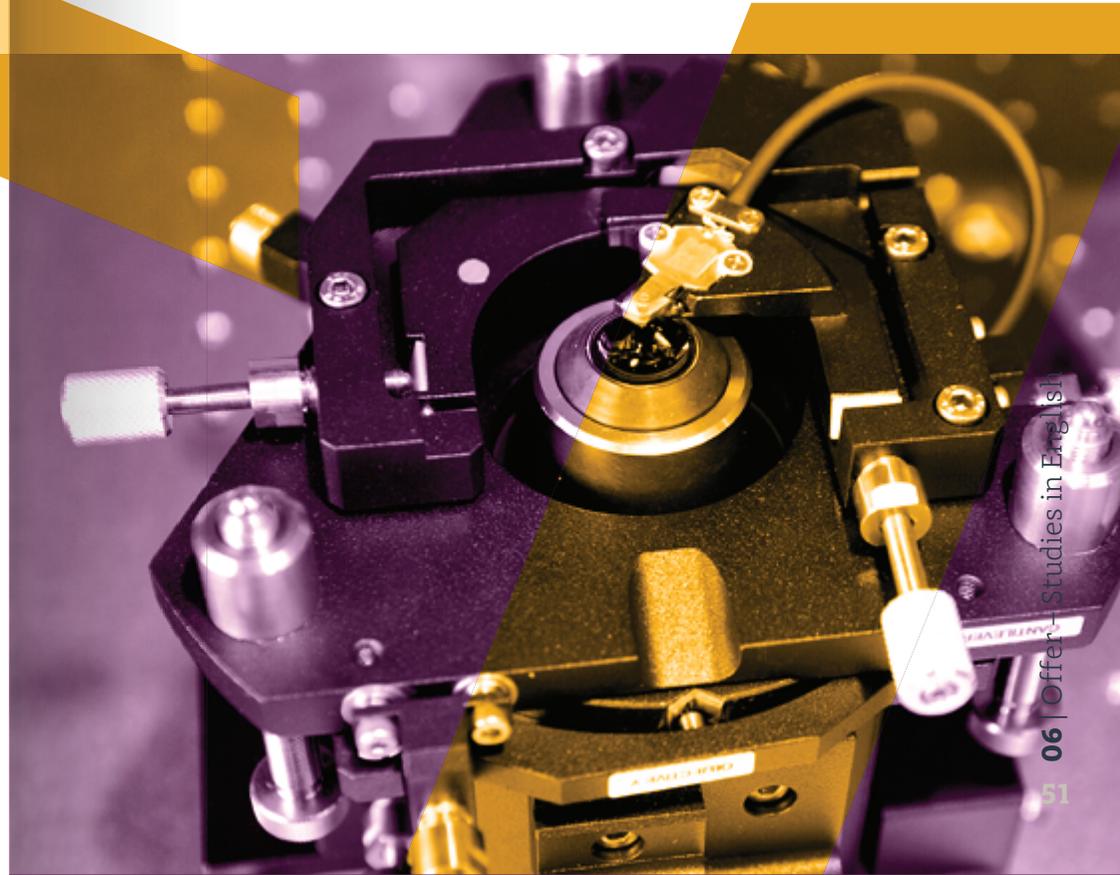
Duration: 1.5 years



Starts in: February (3-semester programme)

Photonics is the science and technology of generating and controlling photons. The science of photonics includes the emission, transmission, deflection, amplification, manipulation, detection and utilization of light. In principle it enables the use of light in different areas that are essential to society and economy. Photonics is of great importance in many industrial sectors and areas that use photonic technology for research, data- and telecommunication, business, education, security and defense, imaging, medicine, process control, biotechnology, quantum computation, energy generation, environmental sensing, etc.

The two-year Master programme in the area of Photonics provides students a unique opportunity to become familiar with the applications of light in fields that range from fundamental research to technological applications. Graduates of the programme represent excellent knowledge in mathematics, physics, electronics, and information technologies and have high level of qualifications to work for various institutions. During studies they may learn both: theory and practice, and they are following the core photonic courses as Electromagnetism Theory, Principles of Optics, Fourier Optics and Nonlinear Optics, as well as Optical Imaging Theory. The Faculty offers also advanced and specialized courses in optics and photonics covering all relevant fundamental research and applications including training in lasers, optical and photonic crystal fibers, liquid crystal photonics, optical waveguides, displays, holography, optoelectronics, optical sensing, data and telecommunication, terahertz technology, new material technology, ultra-fast and nonlinear optical phenomena, photovoltaics. Photonics course offers advanced laboratories.



B.Sc. Architecture

Faculty of Architecture

Duration: 4 years



Starts in: October

The programme will provide you with knowledge and skills necessary for the creative process of planning and designing, in urban and rural areas. You will learn about architectural tools, as well as a variety of interdisciplinary subjects related to architecture and planning process. The curriculum covers more than design exclusively: from the design's concept phase, through the construction process, a given building's function, to subsequent modernisation and life cycle assessment, as well as the possible recycle processing of chosen structural components and building and finishing materials. These and other issues from outside of the direct design process should guarantee students practical knowledge and abilities. The aim is to teach you how to create buildings of high architectural quality, taking into consideration cost effectiveness, environmental issues, health and overall well-being.

Examples of modules:

- Theory of Architecture
- Sculpture, Model and Analytical Drawing
- Architectural Design
- Construction Technology
- Landscape Architecture
- Elements of Urban Composition
- Ecology and Energy-efficient Technologies
- Urban Planning
- Economy of Building Investments

Career opportunities:

The programme is devised to train:

- designers and project managers of all or part of building investment process
- representatives of developer and contractors companies
- land investment or real estate consultants



M.Sc. Architecture

(specialisation: **Architecture for Society of Knowledge**)

Faculty of Architecture

Duration: 2 years



Starts in: October

Architecture for Society of Knowledge is a new professional programme focused on the digital design and crucial aspects of architecture and urban planning. Students can explore contemporary design practices as well as media and digital technologies applied in the design and construction of the 21st century city.

ASK is dedicated to those who wish to extend their practical understanding of contemporary architecture and urban planning. The programme covers digital media in design, prototyping with computer controlled machines, distributed design collaboration, and agendas for sustainable, intelligent building. At the same time, it acquaints students with basics of architecture: cultural heritage, history and theory paradigms, social aspects of space creation, and education through interacting.

Examples of modules:

- Design Studio (Algorithmisation of the creative process)
- Advanced CAD Techniques
- History of Space Shaping
- Knowledge Management in Architecture
- Building and Modelling Materials
- Information Processes in Architecture
- Contemporary Theory of Architecture
- 3D Visualisation Techniques
- Digital Fabrication
- Contemporary Urban Planning
- Advanced Visual Communication
- Image Interpretation in Architecture

Graduates profile:

ASK aims to equip young practicing architects with the formative experience required in active participation in the global architectural knowledge society, and critical interpretation of the creative aspects of design and design collaboration, collaborative and interdisciplinary practice of architecture as well as architectural research exploring new design technology and theory.

- private enterprises
- state-owned enterprises
- central government administration
- authorities
- local government administration authorities
- cooperative, professional administration
- own business



M.Sc. Urban Planning

(specialisation:

Urban Redefinition Based Studies (URBS))

Faculty of Architecture

Duration: 2 years



Starts in: October

As the world continues to urbanize and globalize, cities are becoming the predominant form of human settlement that is simultaneously locally unique and globally networked. The cities define the scale at which most of the pressing societal issues are engaged.

Urban studies, in which the city is both object and context, are an interdisciplinary field but it is globalization – the ways in which dynamic global forces interact with local conditions – that is a key part of the programme's multiscalar perspective. It is seen as essential for new approaches in important fields of urban policy such as planning approaches to culture, adaptation, and mitigation of climate change and the economy.

URBS was developed to provide an immersive, experiential urban studies programme that overcomes geographic and disciplinary boundaries to embrace the diversity of forces that are shaping the 21st-century city.

The four-semester programme is profiled in such a way that it puts the latest digital technologies in the foreground with the use of advanced databases, at the same time drawing on the tradition and rich experience of the Polish School of Urban Planning, created at Warsaw University of Technology a hundred years ago. Innovative learning methods will be used, including those based on the Project-Based Learning method, Design Thinking, using digital platforms and programmes enabling distance learning and interdisciplinary cooperation.

Examples of modules:

- Redefining Urban Structure
- Placemaking for Resilience
- Evolution of Functional Urban Areas
- Urban Design in Transforming Landscapes
- Changing Societies
- Environmental Economics
- Digital Modelling
- Visual Communication
- Geographic Information Systems
- Big Data

Graduates profile:

The Master's Programme in Urban Redefinition Based Studies prepares students to excel as professionals capable of understanding and addressing complex urban development challenges resulting from global change. The programme balances theoretical, historical, and conceptual knowledge with the acquisition of methods, skills, and experience. Students will thus gain a broad understanding of urban phenomena as well as practical experience in collaborative and practical situations. This is the programme's foundation and the curriculum's elements.

Career opportunities:

You will gain the knowledge, skills, and experience needed to fulfill both traditional and emerging planning roles (such as urban planning and design, strategic planning, environmental planning, landscape architecture, policy, and service design). To these established or emerging roles, you will bring an integrated understanding of and training in applying more interdisciplinary and collaborative approaches to urban development. As a graduate, you will be prepared to compete for local and international positions within public, private, and non-profit organizations, planning, architectural, and policy consultancy firms, research institutes and NGOs.





Graduate profile – job opportunities:

Applied Biotechnology programme is focused on education of specialists prepared for employment in many biotechnological branches of industry (e.g. pharmaceutical, food or composting industry). Our graduates can expect to be competent to carry out scientific research in biotechnology laboratories as well as to work at planning or consulting companies.

- Small, medium and large enterprises of the biotechnology industry and related industries.
- Units of research facilities of the biotechnology industry and related industries.
- Research, testing and diagnostic laboratories.
- Design and business units, including companies trading in biotechnology equipment.
- Institutions providing consulting services and disseminating knowledge in the field of chemistry and biotechnology.



M.Sc. Biotechnology

(specialisation: **Applied Biotechnology**)

Faculty of Chemistry

Duration: 1.5 years



Starts in: February

The programme contains a wide range of specialist subjects (modelling of bioprocesses, regulation of biotechnological processes, separation processes in biotechnology, laboratory of technological and biotechnological processes,

biotechnology of natural resources, etc.), which, together with bioanalytical and selective subjects (bioanalytics, sensors and biosensors, microbioanalytics) constitute a comprehensive offer for all graduates interested in the field of biotechnology.

Examples of modules:

- Bioinformatics
- Environmental Biotechnology
- Data Treatment in Chemical Analysis for Biotechnology
- Bioreactors
- Clean Technologies
- Biomaterials
- Implantable Medical Devices
- Microbioanalytics
- Separation Processes in Biotechnology
- Sensors and Biosensors





M.Sc. Chemical and Process Engineering

(specialisation: **Green Technologies in Chemical Engineering**)

Faculty of Chemical and Process Engineering

Duration: 1.5 years



Starts in: February

Green Technologies in Chemical Engineering is a new programme for those who want to gain fundamental and practical knowledge of modern chemical processes' development, design, and operation with a particular focus on sustainability. During these studies, students will acquire proficiency in implementing chemical and physical processing of raw materials into useful forms of advanced market products while minimizing the environmental burden.

Examples of modules:

- Kinetics, Catalysis & Reactor Design
- Bioreactor Design and Modelling
- Gas and Liquid Purification Processes
- Sustainable Development in Process Engineering
- Energy Conversion & Storage
- Electrochemistry for Renewable Energy
- Bioconversion of Waste Raw Materials
- Industrial Process Modelling and Simulation
- Fundamentals of Process Intensification
- Process Economy
- Advanced Materials in Chemical Engineering

Graduate profile:

A graduate in Green Technologies in Chemical Engineering:

- has detailed knowledge of modern chemical equipment and processes, as well as the ability to describe and mathematically model the course of such processes;
- knows the principles of designing industrial equipment and process plants, taking into account the mathematical analysis methods of process economy;
- knows the basic methods of industrial process digitalization, can use computer-aided design methods (CAD/CFD) as well as plan and conduct research and development work using digitalized control and measurement systems;
- knows the novel technologies of process intensification and the principles of sustainable

development in the industry, with a particular focus on renewable feedstocks and renewable energy-based processing (green fuels, electrification);

- can independently conduct and manage complex projects in the process industry.

Job opportunities:

The acquired education allows the graduates to start independent work in creating, modernizing, optimizing and implementing new processes in the chemical, petrochemical, pharmaceutical, food, and cosmetic sectors.

It also allows them to develop a managerial career or pursue a scientific development path by joining a Ph.D. programme.



HOW TO APPLY

The whole application process is run online!

B.Sc. CANDIDATES

DEADLINES FOR APPLICATION:

middle of July

– for studies starting in October

end of May

– for Architecture



HOW TO APPLY:

STEP 1: Upload Entry Documents in the Online Application System:

- Passport
- 85 PLN application fee
- High School Leaving Certificate
- Transcript of records from high school

STEP 2: Complete Online Placement Tests in Mathematics and English

The results enable us to assign you to appropriate study path: full-time studies or the Foundation Year

STEP 3: Wait for the decision of the Faculty

STEP 4: Upload Admission Documents:

- Legalisation/Apostille on your High School Leaving Certificate
- Eligibility Statement – a document certifying you are entitled to continue education at university level
- an appropriate English B2 certificate
- tuition fee for the first semester of studies

STEP 5: Register personally at the University and start your studies OR the Foundation Year ●

M.Sc. CANDIDATES

DEADLINES FOR APPLICATION:

middle of July

– for studies starting in October

middle of December

– for studies starting in February

end of May

– for Architecture and Urban Planning



HOW TO APPLY:

STEP 1: Upload Entry Documents in the Online Application System:

- Passport
- 85 PLN application fee
- B.Sc. Diploma
- Transcript of records from B.Sc. studies

STEP 2: Wait for the decision of the Faculty

STEP 3: Upload Admission Documents:

- Legalisation/Apostille on your B.Sc. Diploma
- Eligibility Statement – a document certifying you are entitled to continue education at master level
- an appropriate English B2 certificate
- tuition fee for the first semester of studies

STEP 4: Register personally at the University and start your studies ●

Please follow our website for more updates at www.students.pw.edu.pl

ENGLISH B2 CERTIFICATE

Candidates must have good knowledge of English confirmed by:

→ a document proving their previous education was conducted fully in English

↻ or ↺

→ one of the recognised English B2 certificates:

- **IELTS Academic** – at least 6 points.
- **TOEFL IBT** – at least 87 points in Internet-Based Test (iBT)
- **B2 LanguageCert Academic** – (written + spoken) B2 or higher level

...and many more

→ – full list to be found on our website www.students.pw.edu.pl

Need more information about studies in English?



www.students.pw.edu.pl
students.cwm@pw.edu.pl

Foreign Language Centre Offer

The Foreign Language Centre at Warsaw University of Technology offers intensive courses of English and Polish. They can be attended by candidates who either wish to continue their education at WUT later on or those who would like to learn the language and apply to other universities in Poland or abroad.



Summer English Course

Duration: July – September

- offers classes five days a week with **a total of 200 hours**
- is run by **well-qualified and highly experienced WUT teachers**
- provides participants with **course materials** (both coursebooks and extra materials)
- includes **online course components** for independent study
- includes **comprehensive exam practice** and **mock exams**
- finishes with **a participation certificate**
- offers a range of **social activities**

1-year English Preparatory Course for International Students

Duration: October – June

- offers classes five days a week with **a total of 500 hours**
- is run by **well qualified highly experienced WUT teachers** (both Polish and native speakers)
- provides participants with **course materials**: coursebooks, additional materials for independent study, and online resources
- includes **comprehensive exam practice**
- **enables students to attend technical lectures** in English at Warsaw University of Technology
- finishes with an **internationally recognised exam**
- offers a range of **social activities**

1-Year Polish Course for International Students

Duration: October – June

- offers classes five days a week with **a total of 500 or 600 hours**
- is run by highly **experienced teachers (native speakers)** from the Foreign Language Centre at Warsaw University of Technology
- provides participants with **course materials**: coursebooks, additional materials for independent study, and online resources
- enables students to attend technical lectures **at Warsaw University of Technology**
- includes **elements of Polish culture, history, and geography**
- finishes with **a participation certificate**
- offers a range of **social activities**

Need more information about Language Courses?



English:

www.oja.sjo.pw.edu.pl
oja.sjo@pw.edu.pl

Polish:

www.ojp.sjo.pw.edu.pl
ojp.sjo@pw.edu.pl

Apart from studies in English, Warsaw University of Technology offers full range of studies in Polish at:

-  Faculty of Administration and Social Sciences
www.ans.pw.edu.pl
-  Faculty of Architecture
www.arch.pw.edu.pl
-  Faculty of Automotive and Construction Machinery Engineering **www.**
simr.pw.edu.pl
-  Faculty of Chemical and Process Engineering
www.ichip.pw.edu.pl
-  Faculty of Chemistry
www.ch.pw.edu.pl
-  Faculty of Civil Engineering
www.il.pw.edu.pl
-  Faculty of Electrical Engineering
www.ee.pw.edu.pl
-  Faculty of Electronics and Information Technology
www.elka.pw.edu.pl
-  Faculty of Building Services, Hydro and Environmental Engineering **www.**
is.pw.edu.pl
-  Faculty of Geodesy and Cartography
www.gik.pw.edu.pl

-  Faculty of Mathematics and Information Science
www.mini.pw.edu.pl
-  Faculty of Management
www.wz.pw.edu.pl
-  Faculty of Materials Science and Engineering
www.wim.pw.edu.pl
-  Faculty of Mechatronics
www.mchtr.pw.edu.pl
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-  Faculty of Physics
www.if.pw.edu.pl
-  Faculty of Power and Aeronautical Engineering
www.meil.pw.edu.pl
-  Faculty of Transport
www.it.pw.edu.pl
-  Faculty of Civil Engineering, Mechanics and Petrochemistry
www.pw.plock.pl
-  College of Economics and Social Sciences
www.pw.plock.pl

Need more information about studies in Polish?



**www.students.pw.edu.pl
zenoviya.shits@pw.edu.pl**

Are You ready?



Contact us

www.students.pw.edu.pl
students.cwm@pw.edu.pl

International Students Office

Warsaw University of Technology
the Main Building, room 233

Plac Politechniki 1, 00-661 Warszawa

 /apply2wut

 /internationalstudentsatwut/

You will



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of Technology



**CENTRAL
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Warsaw University of Technology

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00-661 Warsaw, Poland

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