

CHEMICAL ENGINEERING AND TECHNOLOGY

UNIVERSITY OF TECHNOLOGY IN RZESZOW



THE FACULTY OF
CHEMISTRY
RZESZOW UNIVERSITY OF TECHNOLOGY



RZESZOW UNIVERSITY OF TECHNOLOGY

We are the University
with strong foundation
in electrical, energy
and materials science.

We are ready to shape
greener future.





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CHEMISTRY
RZESZOW UNIVERSITY OF TECHNOLOGY

OUR FACULTY IN NUMBERS

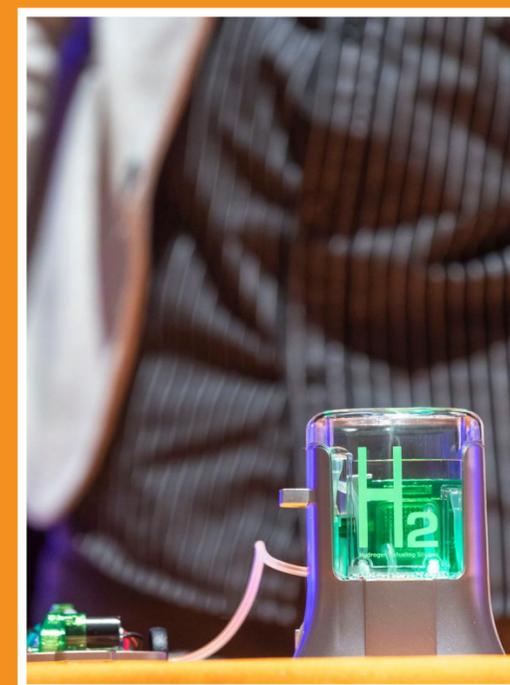
55 YEARS OF EXPERIENCE

700 STUDENTS

5 FIELDS OF STUDIES

8 DEPARTMENTS

100 EMPLOYEES





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BRIEF HISTORY

1968

Foundation of the Faculty of Chemical Technology

1981

Growth confirmed by the Ministry of Science and adoption of the Faculty of Chemistry name

1972

Start of MSc studies in the field of Chemistry

1999

The right to award doctoral degrees

2010

Chemical Technology, Biotechnology and Chemical Engineering as a core of the Faculty

2020

Start of BSc studies in the field of Pharmaceutical Engineering

2021

Membership in the Subcarpathian Hydrogen Valley

2023

Chemical Engineering and Technology



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STRENGTHS OF EDUCATION AT THE OUR FACULTY:



- high level of research and teaching staff
- very good cooperation with employers
- well-equipped technological laboratories



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INDUSTRIAL & INSTITUTIONAL PARTNERS





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CURRENT FIELDS OF STUDIES



CHEMICAL TECHNOLOGY, in Polish

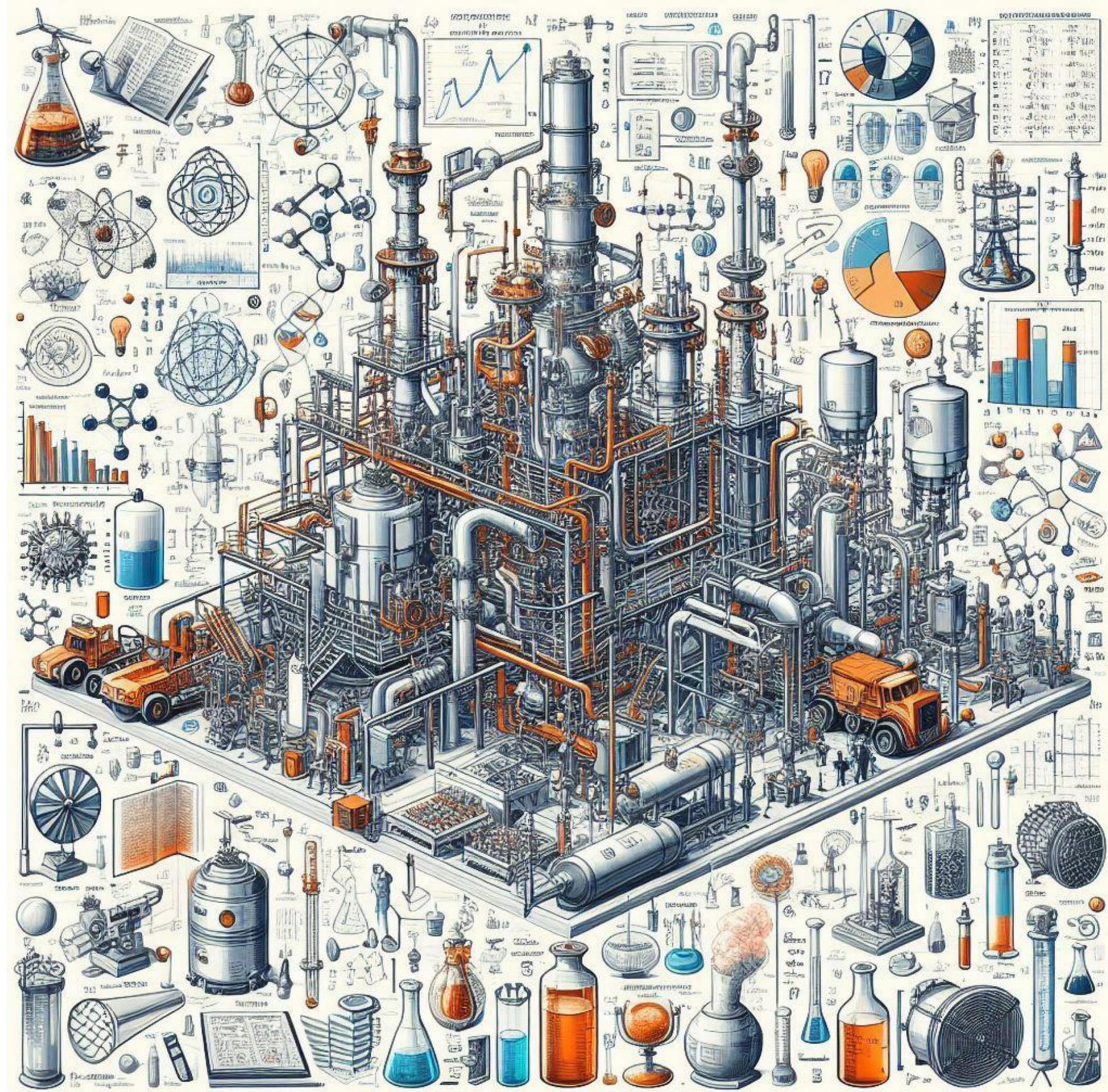
CHEMICAL AND INDUSTRIAL ENGINEERING, in Polish

BIOTECHNOLOGY, in Polish

PHARMACEUTICAL ENGINEERING, in Polish

CHEMICAL ENGINEERING AND TECHNOLOGY, in English

Chemical Engineering and Technology



Why Chemical Engineering and Technology?



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Chemical engineering plays a major role in achieving sustainable development goals through modification of current chemical processes using "green" approaches and development of new technology for energy, environment and health applications.



CHEMICAL ENGINEERING INVOLVES PRODUCTION AND MANUFACTURING OF PRODUCTS IN CHEMICAL PROCESSES, INCLUDING:



design of equipment, systems and processes for the refining raw materials



mixing, compounding and processing of chemicals, to provide valuable products



maximise productivity and product quality while minimising the production costs

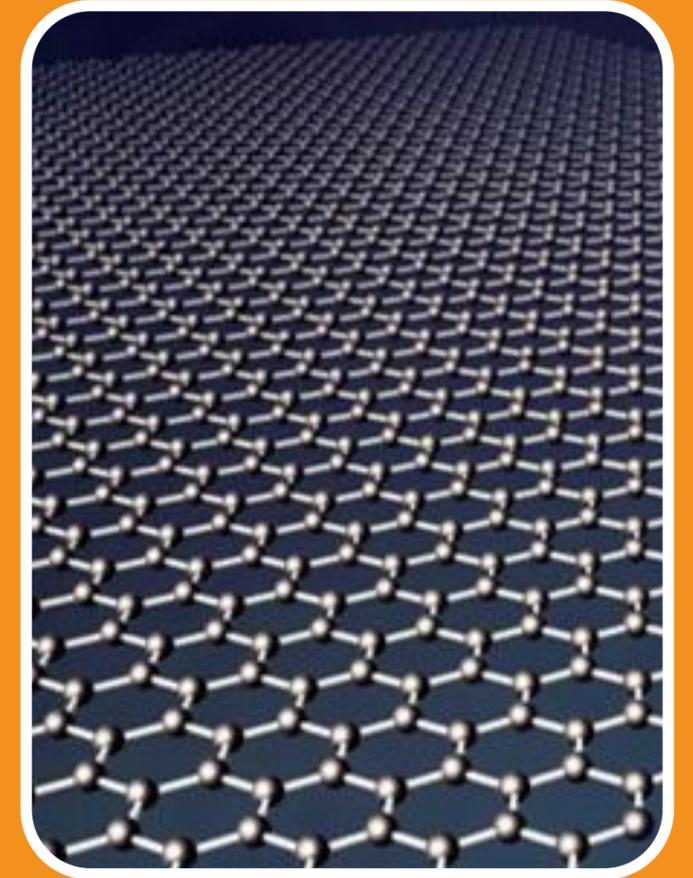
Concept of studies



Hydrogen



Water



Carbon

Based on the local **3W** idea with acronym originated in Polish language (**w**oda, **w**ęgiel, **w**odór – water, carbon, hydrogen) of shaping the world on the basis of sustainability and care about those three extremely important factors in future society, industry, economy and science.

Key information



Degree level of study: Bachelor's degree (BSc)



Duration: 3.5 years, 7 semesters



Language: English



Number of ECTS: 210



Pace: Full-time



Study format: on campus



Program of study:



The number of contact hours **2850**

Specialties:



lectures: **1035**

Sustainable chemical technologies



exercises: **510**

Engineering of polymeric materials



laboratory classes **1110**



projects: **195**

Key educational content

Sustainable chemical technology

- green chemical technologies
- eliminate waste
- improve production safety and its economics

Engineering of polymeric material

- modern polymer technologies
- shape and processing design of polymer components
- processing technology of polymer materials

Program of study: courses in terms of fundamentals of chemistry

- General and inorganic chemistry
- Organic chemistry
- Physical chemistry
- Analytical chemistry
- Instrumental analysis



Program of study: courses in terms of engineering skills

- Fundamentals of engineering calculations
- Engineering calculation software
- Statistics and elaboration of results
- Fundamentals of materials science
- Machines theory
- Computer engineering graphics (CAD)
- Technical mechanics



Program of study: courses in terms of chemical engineering and technology



Engineering materials
Diffusion separation processes
CFD modeling of flows
Computer aided process design
Fluid mechanics

**Modern physicochemical methods in the analysis
of organic and inorganic materials**
Carbochemical and petrochemical processes
Mechanical processes in chemical engineering
Recycling of polymeric materials

Forms and organisation of classes

Lectures

are conducted using verbal or visual methods, i.e.: traditional lecture,, problem-based lecture or interactive lecture.



Exercises

classes with a large contribution of the student's own work and direct contact with the academic teacher. They are implemented through accounting exercises, or problem-based exercises.



Project classes

are a type of class during which students acquire the skills to independently solve complex computational and engineering problems, using computer software.



Forms and organisation of classes

Laboratory classes

enabling the acquisition of skills in conducting experiments, making measurements, interpreting the obtained results, drawing conclusions, and developing social competences



Internships

are a compulsory study module in which the student undergoes professional practice during the summer period after the 6th semester in the field of study which ensures that the trainees achieve the intended learning

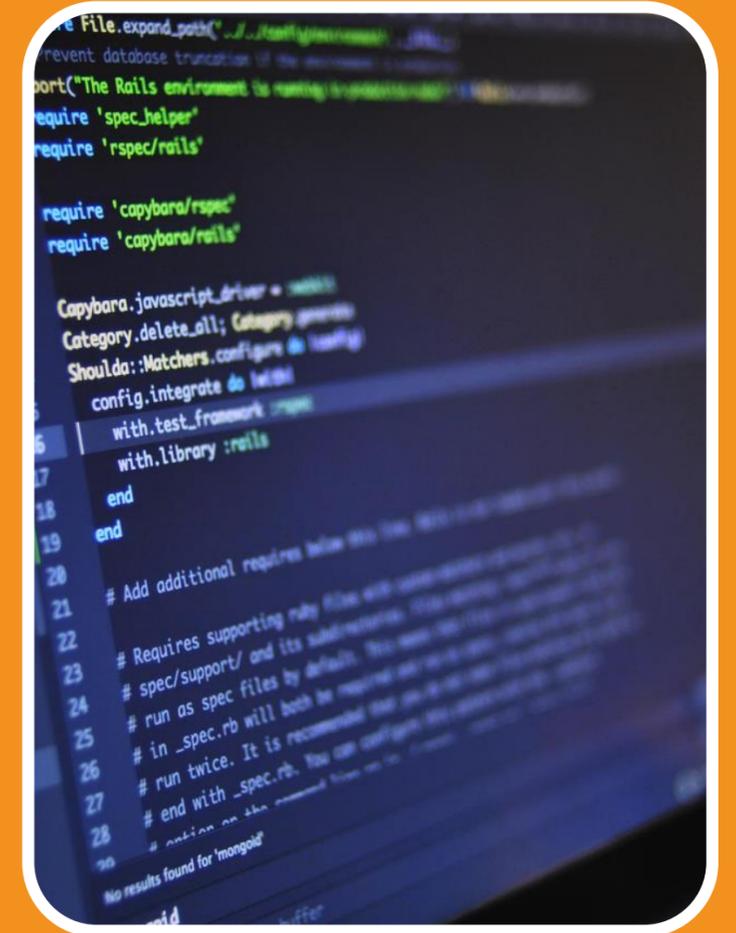
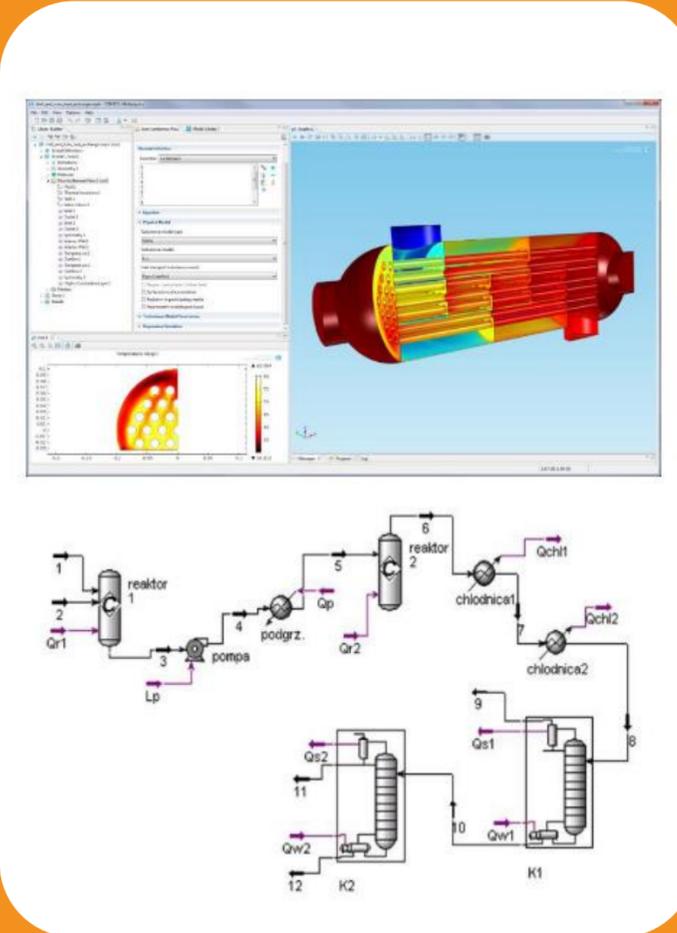


WE ARE UNIQUE



Lots of practical classes

WE ARE UNIQUE



Unique design, optimization, simulation,
and analysis software

**WE ARE
UNIQUE**



modern and unique equipment and
laboratory facilities supporting the
teaching process and research tasks in the
field of offered specialties

Graduate profile

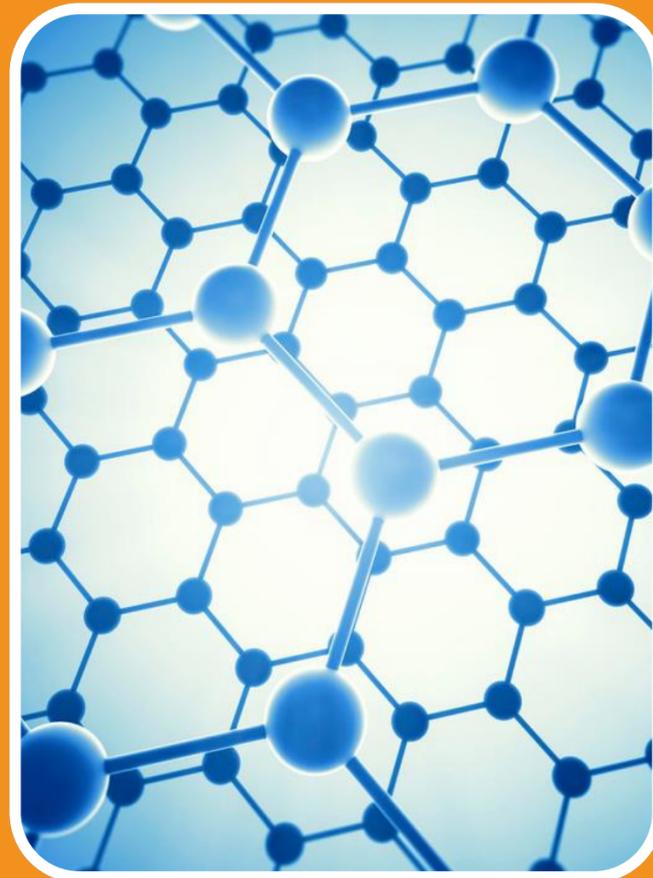


Graduates of Chemical Engineering and Technology have:

- **an extensive knowledge in the field of complex chemical processes, including selection of appropriate materials, equipment and devices necessary for accomplishment of those processes,**
 - **in-depth knowledge necessary for modelling, planning, designing, optimisation and characterisation of chemical processes,**
 - **the ability to assess the technological suitability of raw materials and the selection of the technological process in relation to the quality requirements of the product.**



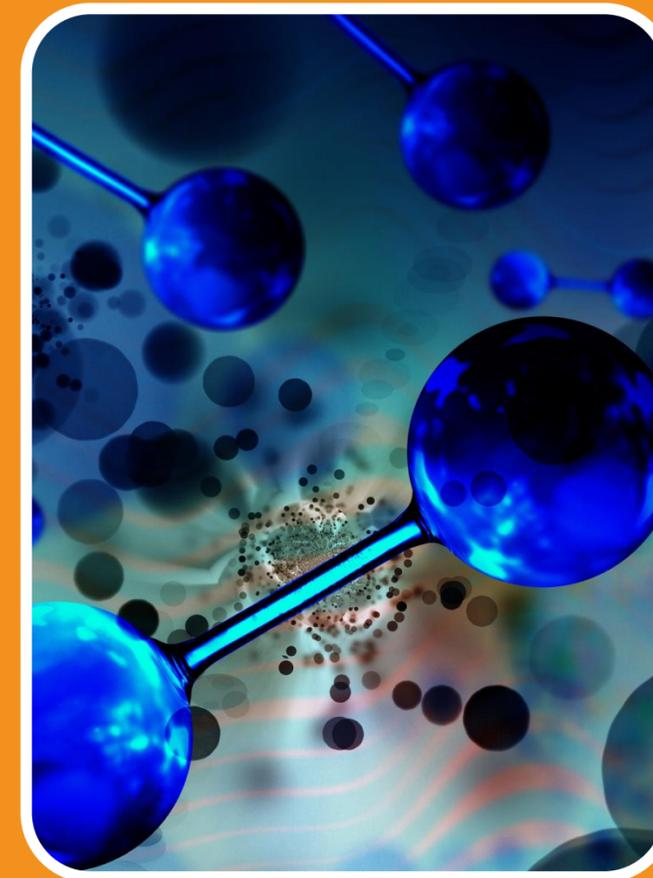
WE CAN TEACH YOU HOW TO BE



Skilled in polymer engineering necessary in building future energy sources



Able to compute, model and predict all kinds of physical and chemical processes



Able to build and operate electrochemical energy sources with eco-awareness



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**WE CAN TEACH YOU HOW
TO COOPERATE
AND BECOME**

FUTURE LEADER

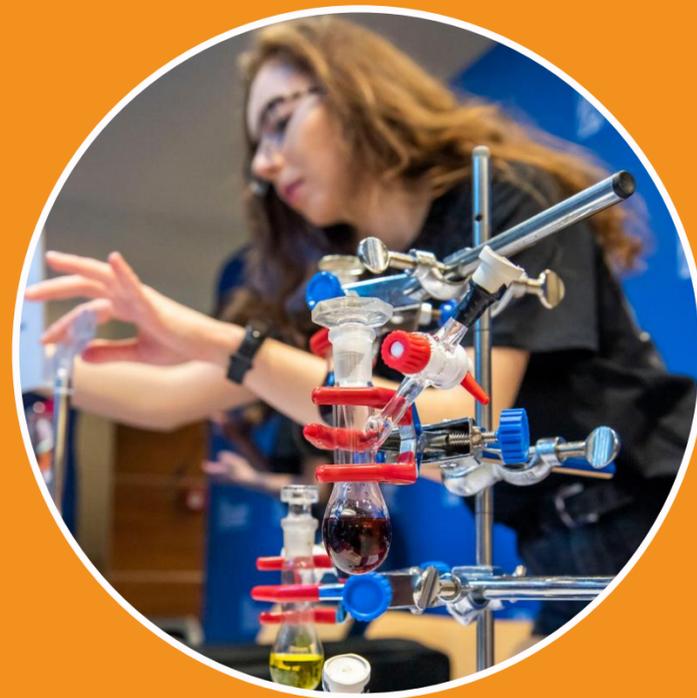




STUDENTS ORGANISATIONS AND LIFE



STUDENTS SCIENTIF AT THE FACULTY



STUDENTS LIFE



We offer broad variety of events – both social and educational. There is no better way to gain essential soft skills.



OUR OPINIONS



CHEMICAL ENGINEERING AND TECHNOLOGY - WORTH IT?



POWER TO GAS TECHNOLOGY



**YES, IT IS WORTH
BECAUSE OF...**

PROF. MIROSŁAW SZUKIEWICZ

The process of carbon dioxide methanation provides a substitute for natural gas, reduces CO₂ emissions into the atmosphere, and helps to balance the fluctuations of electricity from renewable energy sources.

TRANSFORMING PASSION INTO SUCCESSFUL CARRER



KATARZYNA POJNAR

I made an excellent choice because studies at the Faculty of Chemistry allow me to acquire theoretical and practical knowledge in various fields of chemistry, and also teach me how to work independently, solve problems, conduct scientific research and provide opportunities for further development.

**YES, IT IS WORTH
BECAUSE OF...**

HYDROGEN BASED TECHNOLOGIES



**YES, IT IS WORTH
BECAUSE OF...**

DR. TOMASZ PACZEŃNIAK

The most future-proof way to use hydrogen is to convert chemical energy directly into electricity using a fuel cell.

Such a cell has a polymer proton exchange membrane, and the only product of this reaction is pure water.



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