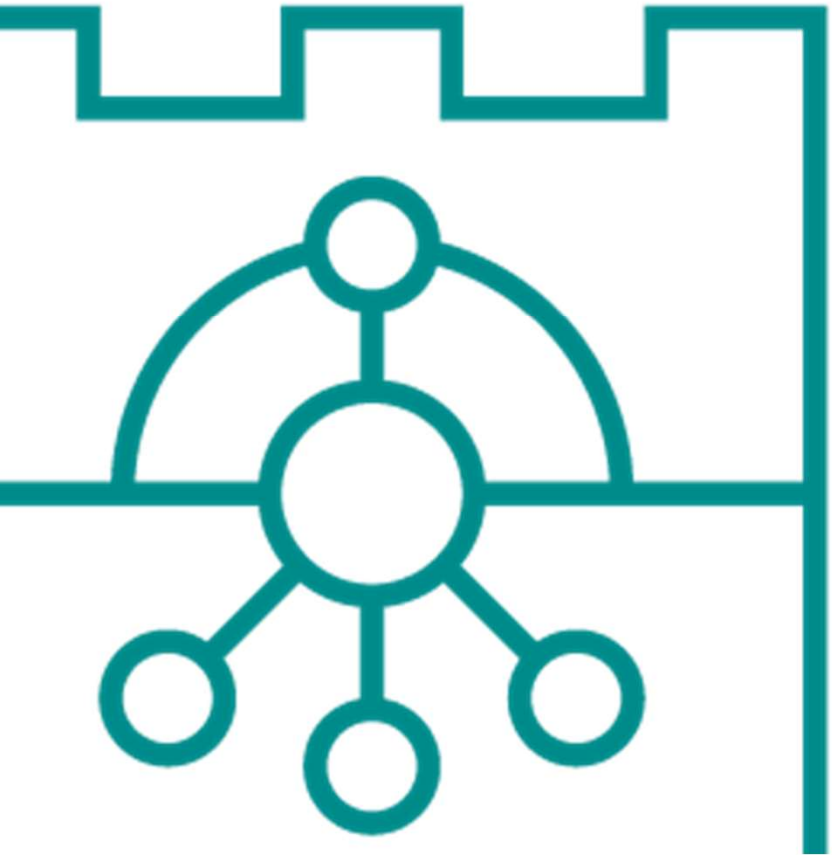
Faculty of Chemical Engineering and Technology

Cracow University of Technology



Field of study

Chemical Technology

Specialization

Innovative Chemical Technologies

specialization taught in English

chemia.pk.edu.pl

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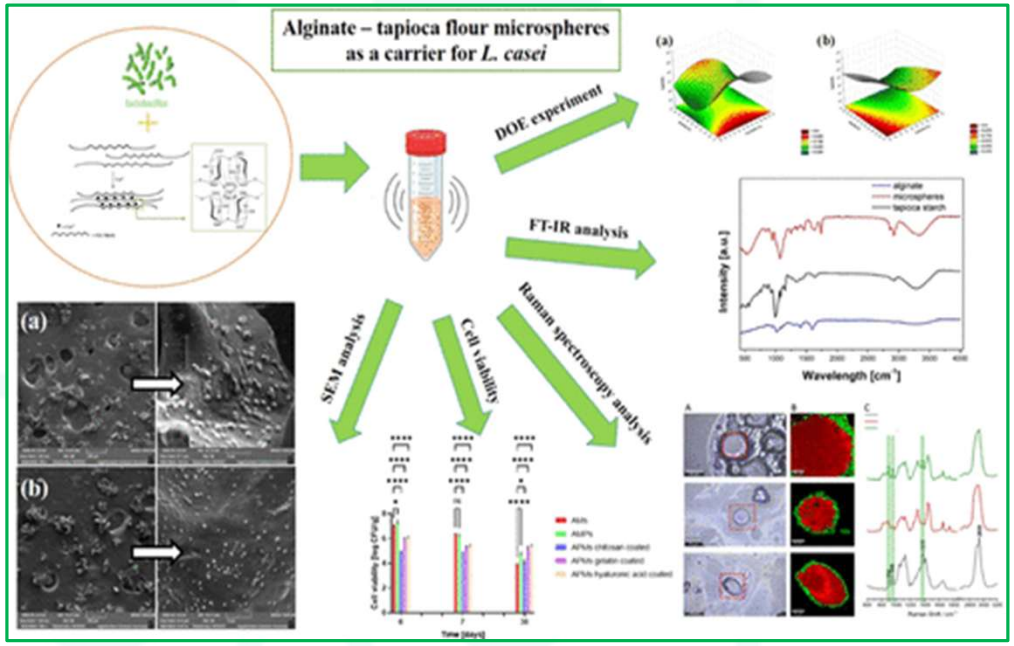
Description of the specialization Innovative Chemical Technologies

Innovative Chemical Technologies - a specialization taught in English that combines knowledge of new, clean and ecological organic, inorganic and biorefinery technologies with molecular modeling and catalysis.



- A specialization offered within the second cycle (Master's degree) of the Chemical Technology program
- Provides advanced knowledge in modern, clean, and environmentally friendly chemical technologies, integrating theory with practical application
- The program, taught in English, covers innovative organic, inorganic and biorefinery technologies, molecular modeling, catalysis, and sustainable development issues.
- Students acquire skills in designing and optimizing chemical processes, working with advanced modeling tools, quality control, and implementing innovative, ecological solutions in the chemical, pharmaceutical, energy, biorefinery and polymer industries.

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Who is this specialisation for?

- For individuals with an **analytical mindset**, curiosity about the world and openness to innovation
- For those who value **precision, creativity and solving technological challenges**
- For candidates interested in **modern and environmentally friendly chemical technologies**
- For students who want to work in **interdisciplinary teams** and an international environment
- For ambitious individuals planning a career in the **chemical industry, R&D, scientific research or innovative technology sectors**

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What makes the ICT specialization stand out?

A unique combination of modern chemistry, process engineering and environmentally friendly innovative technologies

Strong focus on green technologies, biorefineries, catalysis and sustainable process design

Computational chemistry and molecular modelling as key tools for product and process development

Practical skills in designing, optimizing and scaling-up technological processes

Work on real industrial challenges and research & development (R&D) projects

Courses delivered in English

Versatile career opportunities - chemical, pharmaceutical and cosmetic industries, R&D, small-scale production entrepreneurship, and quality control

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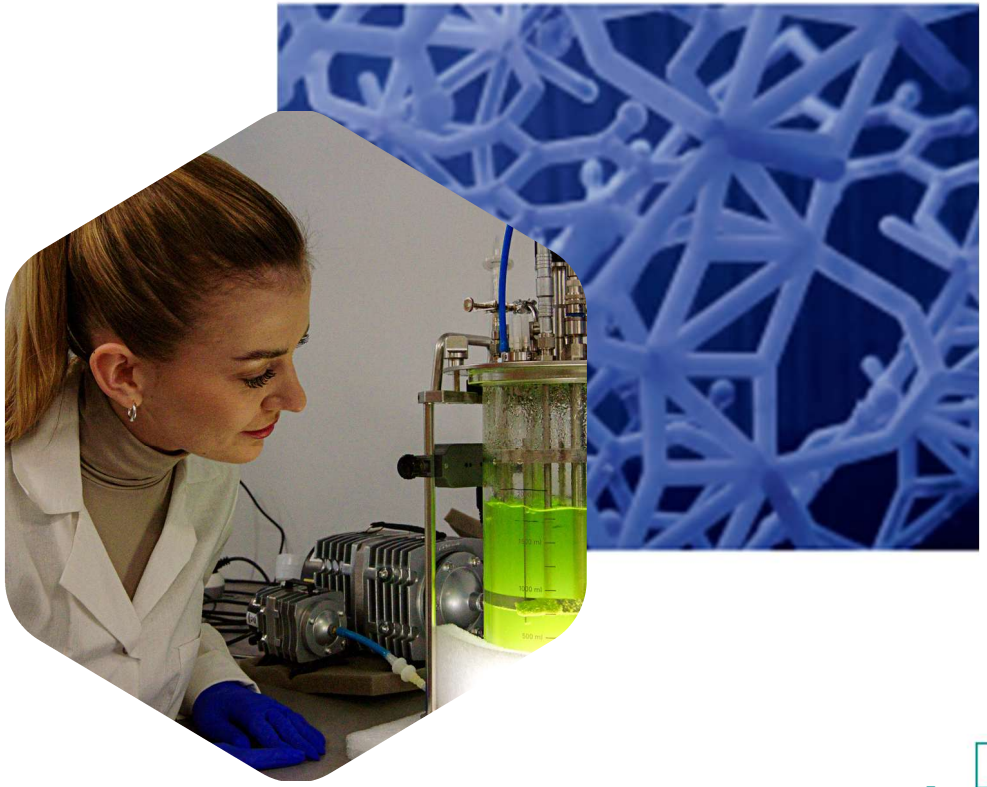
Selected courses offered

- Engineering information and data analysis
- Polish and european legislation in environmental protection
- Functional nanomaterials
- Molecular modeling in catalysis and chemical technology
- Innovative research directions in organic chemistry
- Innovative and cleaner inorganic technologies
- Technological and proces design
- Blended learning project



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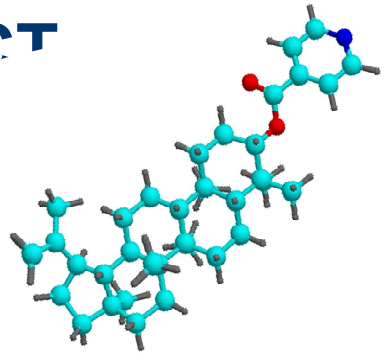
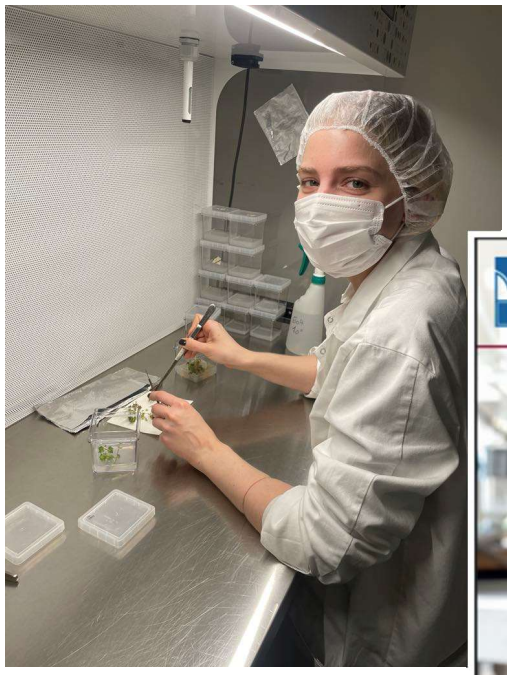
Skills and Competences of ICT Specialisation Graduates



- Design and optimisation of **modern technological processes** and development of innovative products
- Use of **advanced analytical instrumentation** and specialised software for **molecular and process modelling**
- Implementation of **green technologies** and environmentally sustainable solutions
- **Data analysis**, experiment planning and **quality control** of processes and products
- **Creative teamwork**, project management skills and **professional communication in English**
- Readiness to work in **international industrial and research & development (R&D) environments**



Field of study: Chemical technology| Specialization: Innovative chemical technologies

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Carrier opportunities

- Chemical, cosmetic, pharmaceutical and food industries – from **product design and manufacturing technologies to quality control**
- **Research and Development (R&D) laboratories** and innovation centres
- **Process design** and implementation of **green and sustainable solutions**
- Polymer, biofuels and **advanced materials industries**
- Opportunity to **run a small-scale production business** or work in **technology consulting**

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Laboratory facilities








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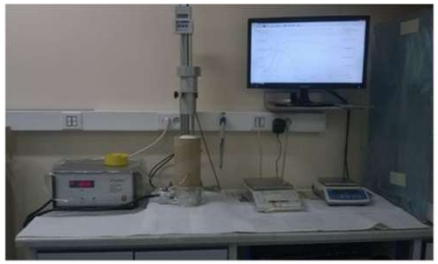
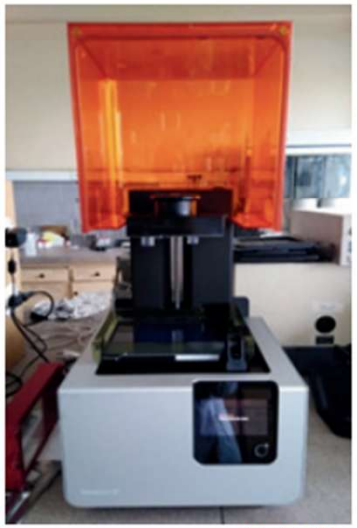
Laboratory facilities





Collaboration with research institutions

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Centro de Investigação de Montanha

Instytut Farmakologii im. Jerzego Maja Polskiej Akademii Nauk

DUBLIN TECHNOLOGICAL UNIVERSITY DUBLIN

UMCS

National Technical University of Athens

Uniwersytet Medyczny w Lublinie

Warszawski Uniwersytet Medyczny

VNIVERSITAT DE VALÈNCIA

Uniwersytet Jagielloński Collegium Medicum

Université de Lorraine

Universidade da Madeira

Université Le Havre Normandie

Technische Universität Braunschweig

Ben-Gurion University of the Negev

Brunel University London

Łukasiewicz Instytut Przemysłu Organicznego

University of Fort Hare

PAN

université de TOURS

University of Ljubljana

Universitat de Barcelona

Politechnika Rzeszowska im. Ignacego Łukasiewicza

Uniwersytet Przyrodniczy w Lublinie

Uniwersytet Rolniczy im. Hugona Kołłątaja w Krakowie

Akademia Kultury Fizycznej im. Bronisława Czecha w Krakowie

Politechnika Warszawska Warsaw University of Technology

Field of study: Chemical technology| Specialization: Innovative chemical technologies

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Collaboration with industry

Field of study: Chemical technology| Specialization: Innovative chemical technologies

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Our student scientific circles

1. Student Scientific Circle of Chromatography of Natural Compounds
2. Student Scientific Circle of Alternative Raw Materials "RE-CYCLE and SCALE-UP"
3. BioChemLab Scientific Circle
4. Scientific Circle of Environmental Analytics and Bioactive Substances
5. Student Scientific Circle of Nanostructured Materials Technology and Bionanotechnology
6. Scientific Circle of Organic Chemistry and Technology
7. CosmMed Scientific Circle – Cosmetic Technology, Medical Devices and Pharmaceutical Bases
8. Scientific Circle of Medicinal Chemistry and Drug Technology
9. Student Scientific Circle of Hydrogel Chemistry and Technology
10. Scientific Circle of Advanced Chemical Processes and Functional Materials
11. Scientific Circle of Chemical and Process Engineering
12. Polymer Scientific Circle – innoPUR
13. Polymer Scientific Circle – Composites and Flame Retardants
14. Student Scientific Circle of Polymers – Hybrid (Bio)materials
15. Nanomaterials Scientific Circle
16. Student Scientific Circle of Macromolecules
17. Biotechnology Scientific Circle
18. Scientific Circle of Applied Photochemistry
19. Scientific Circle of Physical Chemistry
20. Student Scientific Circle of Specialized Applications of Natural-Origin Compounds
21. Student Scientific Circle of Functional Biomaterials
22. Scientific Circle of Fluidization Processes
23. Interdisciplinary Student Scientific Circle "FutureLab 3D Masters"
24. Scientific Circle of Thin-Film Technologies and Nanostructures – NANOVATE

More information:
https://chemia.pk.edu.pl/studenci/kola-naukowe/

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Admission information
for international students

- Duration: 1.5 years (3 semesters)
- ECTS Credits: 90
- Language: English
- Tuition Fee 2025/2026: 1,500 EUR/semester
- Application Fee: 20 EUR
- Application Period: 15 October – 5 February
- Contact about application documents:

Ms. Nikola Wiśniewska: nikola.wisniewska@pk.edu.pl

Admission Requirements:

✓ Bachelor's degree in Chemistry, Chemical Engineering or related discipline (210 ECTS)

✓ Minimum 60% grade average in all credited courses

✓ Online test on Moodle platform

- More information: https://ehms.pk.edu.pl/rekrutacja/?rekr=8e98d81f8217304975ccb23337bb5761

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Admission information for polish students

- Duration: 1.5 years (3 semesters)
- ECTS Credits: 90
- Language: English
- Application Period: mid. January – early February current deadlines: II Stopień – Portal rekrutacyjny
- Contact about application documents:

Faculty Admissions Committee
rwch@pk.edu.pl

- More information:

https://ehms.pk.edu.pl/rekrutacja/

Admission Requirements:

✓ Bachelor's or Engineer's degree in Chemistry, Chemical Technology, or a related field

✓ Achievement of a recruitment score at or above the minimum value set by the admissions committee

✓ Positive evaluation of the compatibility of learning outcomes achieved during completed first-cycle studies with the learning outcomes required for the ICT program

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Additional information about the specialization

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