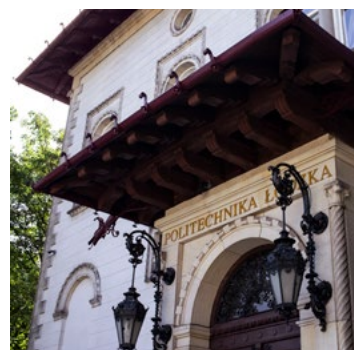




Lodz University of Technology



2023

REPORT

on the activities of Lodz University
of Technology

TABLE OF CONTENTS

CHRONOLOGICAL REVIEW.....	4
COMMUNITY OF LODZ UNIVERSITY OF TECHNOLOGY.....	8
STUDENTS.....	9
DOCTORAL STUDENTS.....	13
STAFF.....	14
SUPPORT FOR TUL COMMUNITY.....	16
EDUCATION.....	20
ADMISSIONS.....	21
EDUCATIONAL OFFER.....	24
QUALITY OF EDUCATION.....	32
ENTERING THE LABOUR MARKET.....	36
TUL FOR THE LOCAL COMMUNITY.....	38
NON-PUBLIC NURSERY OF TUL.....	39
NON-PUBLIC KINDERGARTEN OF TUL.....	39
CHILDREN'S UNIVERSITY OF TUL.....	40
PUBLIC SECONDARY SCHOOL OF TUL.....	41
UNIVERSITY OF THE THIRD AGE TUL.....	42
TUL SPORTS AND EDUCATION CENTRE "SPORTS BAY".....	43
CULTURE AND ART.....	44
SCIENCE.....	46
SCIENTIFIC DEVELOPMENT OF STAFF.....	47
RESEARCH PROJECTS.....	50
PUBLICATIONS.....	53
DEVELOPMENT OF RESEARCH POTENTIAL.....	55
COOPERATION.....	59
COOPERATION WITH THE SOCIO-ECONOMIC ENVIRONMENT.....	60
INTERNATIONAL COOPERATION.....	69
UNIVERSITY GOVERNANCE.....	77
ORGANISATION.....	78
MARKETING ACTIVITIES.....	80
FINANCE.....	83
IT.....	91

Ladies and Gentlemen,

Lodz University of Technology is approaching its 80th anniversary, with excellent perspectives for dynamic development based on 3 strong pillars: science, education and social responsibility, taking into account the Sustainable Development Goals.

We are continuing our wide range of activities to support scientific excellence. To support the development of the scientific workforce, as well as to create the best possible conditions for young researchers to start their careers, we have launched a regular event called Research Week.



TUL is one of the 14 universities that make up the elite ECIU network, which gives us new opportunities for international cooperation. We have implemented the Researcher Mobility Fund program, facilitating the mobility of researchers within the consortium.

We have created development tools for particularly talented students - E²TOP. Students in this program have the opportunity to carry out their first research work under the guidance of a mentor of their choice. Participants receive support in the form of access to infrastructure, financial support for participation in conferences or purchase of necessary materials, and a scholarship. The results of the first completed projects are impressive.

We are taking steps to make the university an even friendlier place to work and study, hence the decision to launch the TUL Non-Public Nursery. This facility is provided for the children of our community members and enjoys full occupancy. This investment, like all our projects, is carried out with consideration for environmental needs and economic optimization.

These are just selected examples of activities from the reported period. I am proud that after a difficult period of restrictions due to the pandemic, our university has returned to full operation with even greater energy.

I encourage you to read the Lodz University of Technology Activity Report 2023, offering my thanks to the entire academic community for their commitment and work.

*Professor Krzysztof Józwick PhD, DSc.
Rector of Lodz University of Technology*

JANUARY

Meeting of the academic community with TUL alumnus [Sławosz Uznański, PhD](#), who became a reserve astronaut with the European Space Agency (ESA). TUL Rector, Prof. Krzysztof Józwiak, presented Dr. Uznański with a special commemorative statuette - Space Alumni of Lodz University of Technology.

A [hybrid aircraft](#) will be built with the cooperation of TUL. It will be the result of an ongoing international project with the acronym HE-ART (Hybrid-Electric Propulsion System for Regional Aircraft).

[Dr. Vignesh Kumaravel](#) was appointed director of the ICRI-BioM International Centre for Innovative Biomaterials Research - International Research Agenda.

The university once again played in the Great Orchestra of Christmas Charity. W 31. The Finale of the WOŚP at Lodz University of Technology raised 506 thousand zlotys.



FEBRUARY



Lodz University of Technology and Australian [Curtin University](#) in Perth entered into a cooperation agreement.

An office of the [Erasmus+ InnHUB Lodz Innovation Centre](#) has been opened at the ICC TUL.

TUL ranked 10th in Poland (up from 13th) and 963rd in the world (up from 994th) [in the Webometrics ranking](#).

[The silver medal in speed skating](#) in the 1500 m at the Winter Universiade in Lake Placid was won by the TUL student Natalia Jabrzyk.

MARCH

TUL ranked for the first time in the prestigious [QS by subject](#) in four disciplines.

The Academic Sports and Education Centre of TUL - Sports Bay was named the winner of the [DEMES Sports Business Award for 2022](#) in the "Management of Small Sports Facility" category.

Adam Rylski, PhD was named "[Golden Engineer](#)" in the Innovation category, and the title of Honorary Golden Engineer went to Eng. Aleksandra Bednarek in the 29th poll for the title of Golden Engineer of the Technical Review.

[Research Week](#) was organized for the first time at TUL. An event for the academic community of TUL to establish collaboration and encourage interdisciplinary research.



APRIL

The [Ambassador of Innovation](#) award went to Jacek Stańdo, PhD from the TUL Centre for Mathematics and Physics.

Two "[Lodz Eureka](#)" Statuettes were awarded to researchers from TUL: A team from the Faculty of Chemistry, led by Professor Łukasz Albrecht, and a team from the Faculty of Technical Physics, Information Technology and Applied Mathematics, led by Professor Adam Wojciechowski.



MAY



In the finals of the [Polish Academic Championships in women's handball](#), the players of Lodz University of Technology won the gold medal in the category of technical universities.

The Faculty of Electrical, Electronic, Computer and Control Engineering received the "[Wings of Imagination](#)" award from the Teacher Training and Practical Education Centre in Lodz for special achievements in innovative activities in the field of education.



Lodz University of Technology was the winner of the "European Universities - Alliances of the Future" competition, winning in the [Erasmus+ Excellence](#) category.

The [2023 Juvenalia](#) at TUL was held under the slogan "Polibuda screams loudly - the Juvenalia flies into space".

JUNE

In the [Perspektywy Educational Foundation's ranking of higher education institutions](#), among technical universities, TUL ranked 5th, and 9th among academic universities.

In the 10th edition of the "[Eureka! DGP - we discover Polish inventions](#)" second place went to a team from TUL, composed of Joanna Grzelczyk, PhD, Ilona Gałązka-Czarnecka, PhD and Janna Oracz, PhD.

The unveiling of a [commemorative plaque of the oak tree Fabrykant](#) growing in Klepacz Park on the TUL campus, which was nominated the [European Tree of the Year 2023](#).



JULY



Kajetan Duszyński - the Tokyo Olympic champion in the 4 x 400 m mixed relay, a PhD student at IDS TUL became the first recipient of the "[Ace of Lodz Sports](#)" award, which the City of Lodz awards outstanding athletes.

AUGUST

Lodz University of Technology among founding members of the Union of Employers of Innovative, Consulting and Developmental Companies „INDORO”.

Honorable distinctions for TUL researchers:
 Prof. Marta Gmurek of the Faculty of Process and Environmental Engineering was accepted into the Young Academy of Europe (YAE).
 Assoc. Prof. Grzegorz Liśkiewicz, from the Institute of Turbo Machinery, was accepted into the Leadership Academy for Poland (LAP).



SEPTEMBER



Golden Laurels for taking actions for environmental protection and water management for Lodz University of Technology and Honorary Badge of Merit for Environmental Protection. The award was presented to Prof. Gregory Wielgosiński, Dean of the Faculty of Process and Environmental Engineering at TUL.

Two members of the Faculty of Civil Engineering, Architecture and Environmental Engineering, TUL received the awards of the Minister of Development and Technology.

OCTOBER

Two professors from Lodz University of Technology were nominated as members of the Council for Scientific Excellence: Prof. Beata Gutarowska and Prof. Andrzej Bartoszewicz.

The organizers of the European University Games from TUL were recognized by EUSA for organizing the European University Games Lodz 2022 (EUG).

A two-day XXIV Conference of Chancellors and Bursars of Polish Technical Universities was held at TUL.

Joint inauguration of the 2023/2024 academic year organized by Universities affiliated with the Lodz Academic Partnership.



TUL became a signatory to the Magna Charta Universitatum.

The city of Lodz hosted the Conference of Rectors of Academic Schools in Poland (CRASP), in the organization of which TUL participated.

NOVEMBER

As part of the MDB - MEDICAL DATA BANK project implemented by TUL and the Institute of the Polish Mother's Health Centre in Lodz, [a publicly accessible digital database of unique medical data on histopathology was created.](#)

Reconstruction and comprehensive energy efficiency retrofitting of [building A7 was completed.](#)



The 2023 International Robotics Competition '[Sumo Challenge](#)' was held at the TUL Sports Bay.

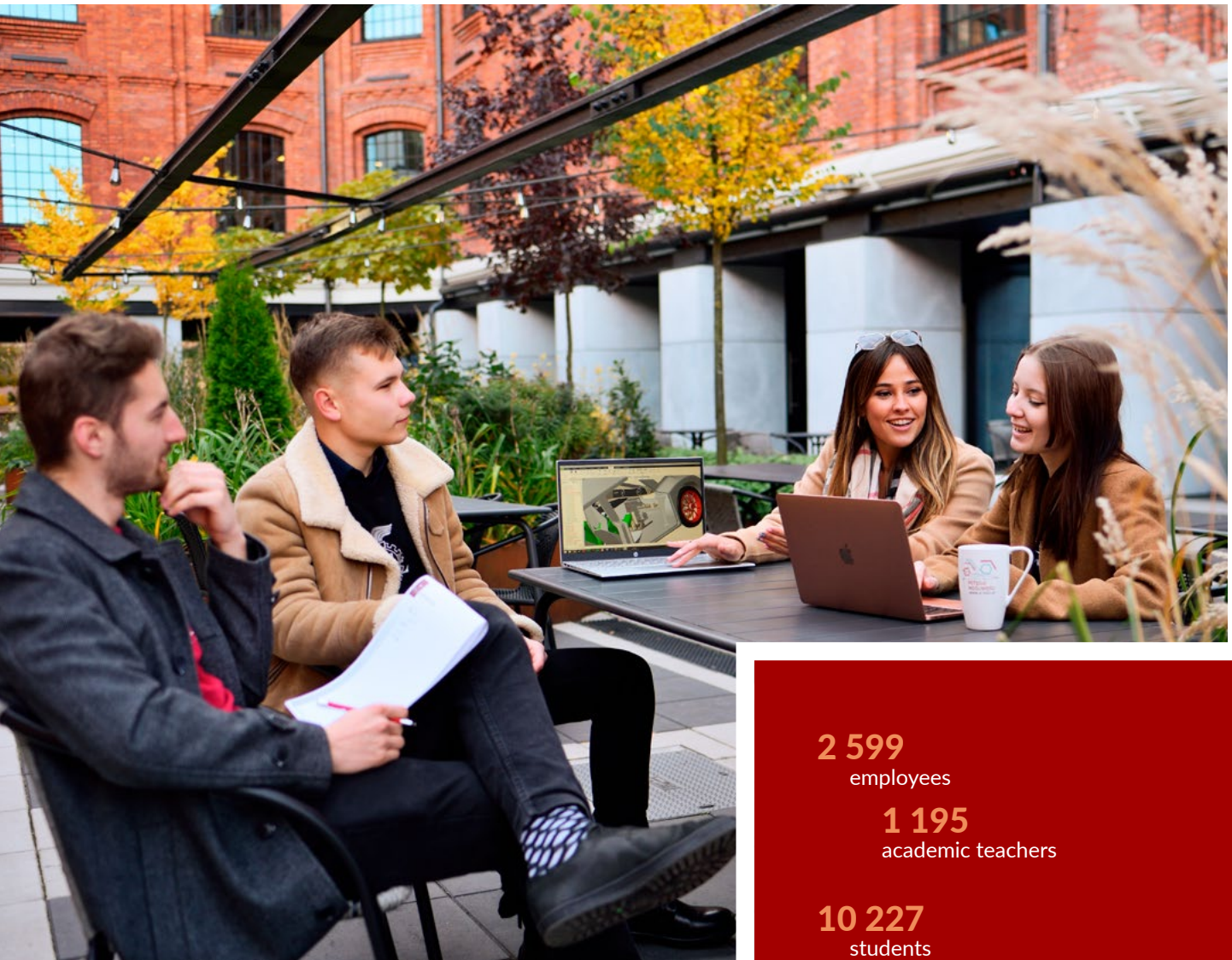
DECEMBER



TUL was ranked for the first time in the international QS [World University Rankings: Sustainability](#) at 10th position among Polish universities and 2nd among technical universities from Poland.

[U.S. Ambassador to Poland Mark Brzezinski](#) met with University authorities and students, delivering an inspiring lecture ending with a question-and-answer session.

COMMUNITY OF LODZ UNIVERSITY OF TECHNOLOGY



2 599
employees

1 195
academic teachers

10 227
students

312
doctoral students

461
international students and doctoral students

STUDENTS

In 2023, a total of 10,227 students were educated at Lodz University of Technology, i.e. 3.5% less than in the previous year.






accounted for **36.4%** among the total students



students with disabilities

There were 160 students with disabilities, of which 141 were full-time students and 19 part-time students

TUL Students (first and second cycle) in 2021-2023*

	2021	2022	2023
			
Total	11 283	10 593	10 227
Full-time studies	9 428	8 931	8 768
I cycle	7 847	7 504	7 492
II cycle	1 581	1 427	1 276
Part-time studies	1 855	1 662	1 459
I cycle	996	853	782
II cycle	859	809	677

*data for full cycle of education, as of December 31.

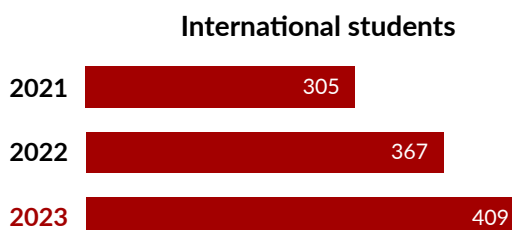
The largest number of students (over 500) studied Computer Science (829), Applied Computer Science (819), Architecture (569) and Civil Engineering (540).

There were 409 international students (planning to study in Poland for at least one academic year) at Lodz University of Technology, including:

- full-time – 390,
- part-time – 19.

International students accounted for 4.0% of the total number of students.

Among international students, the largest number came from Ukraine (215), Belarus (81), France (24), Italy (16), and Turkey (9).




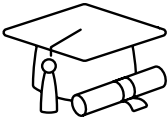
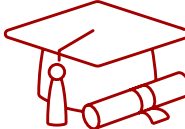
Graduates

In 2023, 2,494 people will graduate from Lodz University of Technology, including 56 foreign students.

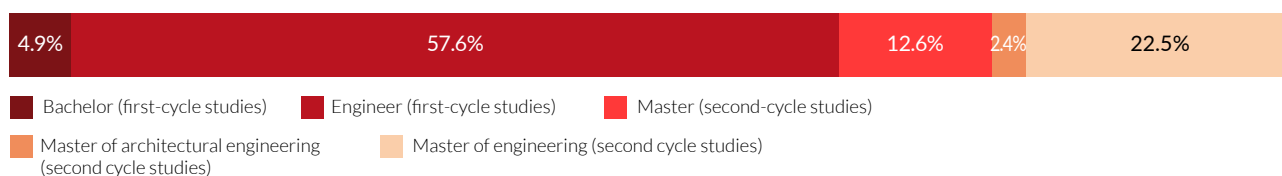


accounted for **44,1%** of the total number of graduates

TUL Graduates in 2021-2023

	2021	2022	2023
			
Total	3 157	2 606	2 494
Full-time studies	2 633	2 167	2 061
Part-time studies	524	439	433

Graduates by degree obtained in 2023



Student Government

Members of the Student Government of TUL actively participated in work related to the amendment of the Study Rules and in the preparation of new study programs. They also implemented a number of cultural initiatives and events to integrate the student community, including:

- [Juwenalia 2023](#);
- Adapciak TUL 2023 adaptation camp for first-year students;
- "SkillUp!" training and integration conferences;
- "The best of 10" general knowledge quiz for students of TUL;
- Students Government newsletter;
- Student Community Gala 2023;
- Competition for the [Best Teacher of the Academic Year 2022/2023](#).

Projects aimed at improving the quality of education at Lodz University of Technology were an important part of the Student Government's activities: The "Rate Your Dean's Office" poll, the Student Internship Information Campaign, and campaigns to promote surveys taking place after each semester. Members of the Student Government also conducted mandatory training for all first-year students on "Student Rights and Responsibilities."

Successes of students and research clubs

In 2023, there were numerous successes of TUL students and research clubs, including:



The **GUST** team won 1st place in the finals of the International Small Wind Turbine Contest in the general category of the competition and in the category of Annual Energy Production. The innovative wind turbine developed by the student team achieved the best score in the category of the highest annual energy production (AEP).

The **RAPTORS** team from SKaNeR Research Club won 3rd place in the Canadian International Rover Challenge Mars rover competition in Canada.

In the competition „**My SMART village - Visions and Initiatives**” in the Visions category, 2nd place was won by a team including Kinga Wiśniewska, Patrycja Wojtysiak, Julia Malec and Damian Rojewski for the project "System of Remote Medical Consultations with Specialists."

Jakub Filipek, a second-year Electronics and Telecommunications student, was awarded the "Heros of Innovation" award for best one-person builder with his project "Mobile RC Platform." The Platform was also recognized at the International Innovation Fair E-NNOVATE 2023 and in the Young E- NNOVATOR Pitch 2023 competition.

Academic, Scientific, Creative and Multicultural Lodz 2023

Among the 18 projects that received funding in the competition were seven proposals submitted by TUL students and pupils of the TUL Secondary School.

In the 3rd edition of the "**Student Research Clubs Create Innovations**" competition, the Ministry of Education and Science awarded PLN 423,026 for the implementation of 7 projects by TUL research clubs: UbiComp, SKN Momentum, SKN Automotive Enthusiasts, SKN Robotics, SKN NANO, SKN Energy Scientists, SKN Biotechnologists "FERMENT".

In the competition **Lodz Programmer of the Year 2023** in the "Student" category organized by the Lodz ICT Cluster, the winners were the top 5 student programmers from Lodz University of Technology (2 people), the University of Lodz (2 people) and the Social Academy of Sciences (1 person). Each of the winners received a scholarship of PLN 5,000.



Academic Sports Club AZS TUL

Nearly 600 students/members were affiliated with the AZS University Club of TUL in 2023. They pursued their sports interests in 23 sports sections: volleyball, basketball, soccer, handball, futsal, powerlifting, athletics, swimming, judo, karate, sports climbing, sports aerobics, tennis, table tennis, snowboarding, skiing, floorball, badminton, indoor rowing and bridge. There are also two competitive sections within AZS TUL: water polo and floorball.

The athletes of the AZS TUL Club participated in over 43 competitions, winning:

medals

- 8 gold, 4 silver and 9 bronze medals in the overall individual classification;
- 19 gold, 7 silver, 7 bronze medals in the individual classification of technical universities;
- 2 gold medals in the general team classification;
- 4 gold, 2 silver and 2 bronze in the team classification of technical universities.

achieved places

- 6th place in the medal classification;
- 6th place in the classification of technical universities;
- 13th in the general classification.

There is a section for people with disabilities in the AZS TUL Club, which represents TUL at the Polish Integration Championships. In 2023, the section won:

- In the team classification – 2 silver medals in table tennis and in skiing/snowboarding;
- indywidualnie - 3 srebrne medale w tenisie stołowym.

The Academic Sports Club AZS TUL organized an Interdepartmental Volleyball League under the patronage of the Rector of TUL, in which 8 teams took part, including 6 faculty teams associating both students and employees of the respective faculties, and 2 teams of employees of interfaculty units.

Another initiative prepared by the Club was the organization of the first "Two Towers" chess championship of TUL, held at the Engineers' Factory.



DOCTORAL STUDENTS

In 2023, Lodz University of Technology educated 312 doctoral students (total participants of doctoral studies full-time students and doctoral candidates at the Interdisciplinary Doctoral School), i.e. 29.9% less than in the previous year.



women accounted for **50.3%** of among the total of doctoral students



9 doctoral students with disabilities

PhD students at TUL in 2021-2023*

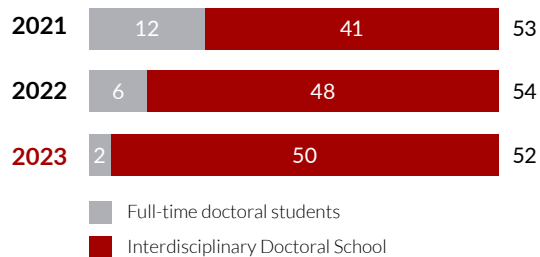
	2021	2022	2023
Total	497	445	312
Doctoral Studies	253	158	64
Interdisciplinary Doctoral School	244	287	248

* as of December 31

In 2023, there were 52 international doctoral students at Lodz University of Technology and they accounted for 16.7% of the total number of doctoral students. There were 16 women among the international doctoral students.

The largest number of foreign doctoral students came from the Islamic Republic of Iran (13), India (9), Ukraine (7) and Pakistan (7).

International doctoral students



Doctoral Student Government

Representatives of the Doctoral Student Government of TUL actively participated in the conventions of the National Representation of Doctoral Students and the Agreement of Doctoral Students of Technical Universities, during which cooperation was established with doctoral students from universities from all over the country.

In March 2023, during the First Open Meeting of the Board of the National Representation of Doctoral Students in Lublin, the "Agreement of Doctoral Students of Universities of Life Sciences" was established. The Agreement was signed by representatives of doctoral student governments from University of Warmia and Mazury in Olsztyn, the University of Szczecin, the University of Life Sciences in Lublin, the University of Life Sciences in Wroclaw, the Warsaw University of Life Sciences, Lodz University of Technology and the Institute of Agrophysics of the Polish Academy of Sciences.

The Doctoral Student Government of TUL co-organized with the University of Lodz the first National Conference of the National Representation of Doctoral Students.

STAFF

In 2023, Lodz University of Technology employed a total of 2,599 people. Total employment decreased by 63 people compared to the previous year.

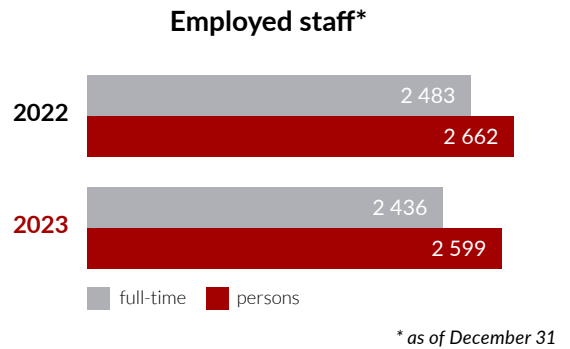


women accounted for **52.7%** of the total workforce



50 persons with disabilities, including:

- 18 people with mild disabilities,
- 29 people with moderate disabilities,
- 3 people with severe disabilities

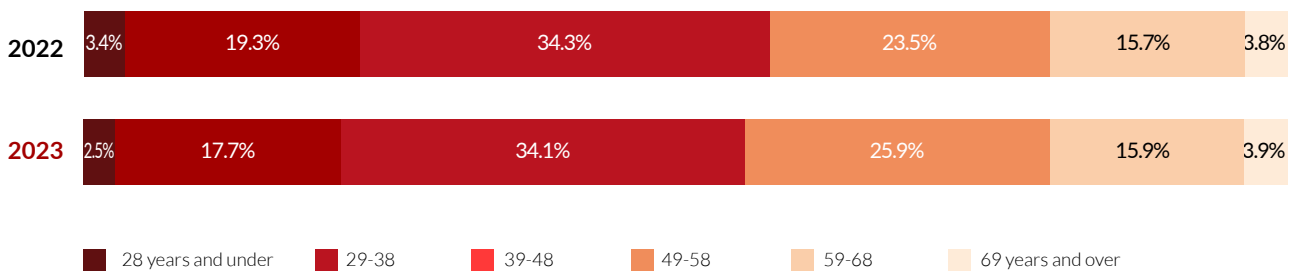


In 2023, TUL employed a total of 46 foreigners.

A total of 66 people retired, including:

- 43 non-academic staff,
- 23 academic staff.

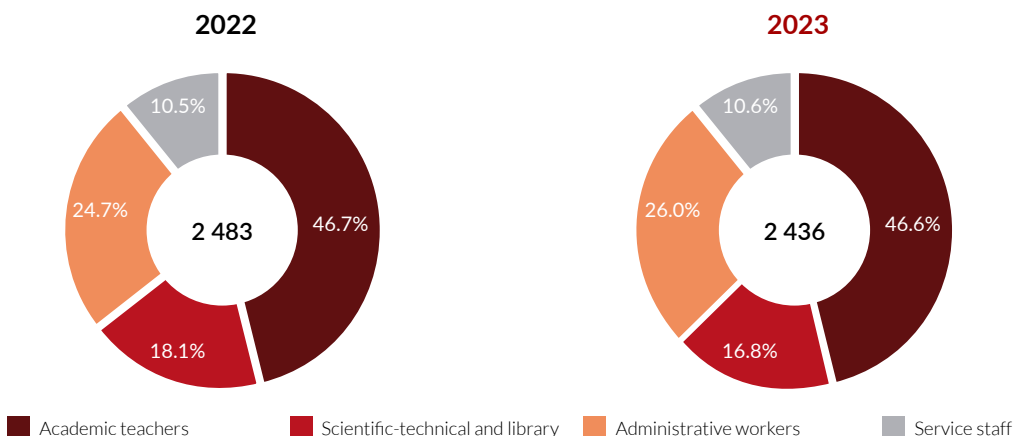
Age structure of TUL staff



The largest age group was those aged 39-48, with women accounting for 57.9%.

Women were also in the majority in the 49-58 and 29-38 age groups, at 55.4% and 54.8% respectively.

Employment structure by Staff group (FTEs)



Academic teachers

Employment in the group of academic teachers decreased by 12 persons compared to 2022.

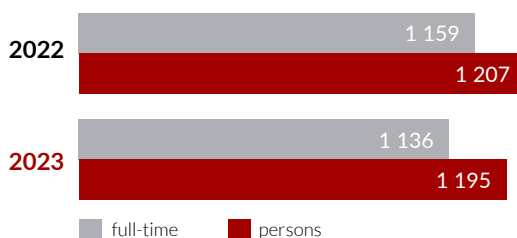


Women accounted for **38.9%** of the total number of academic teachers



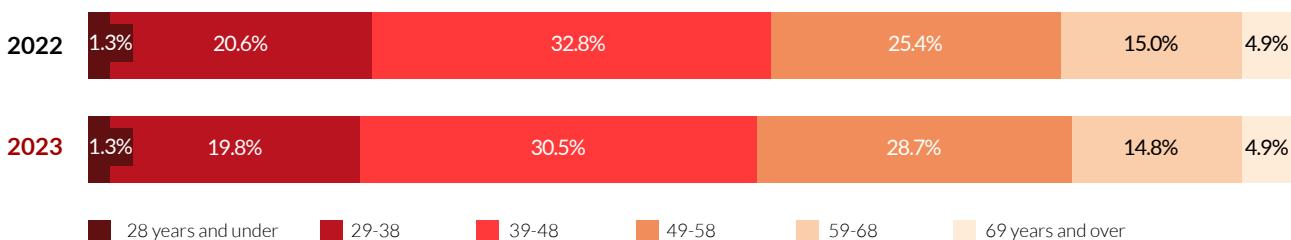
- 9 persons with disabilities, including:
- 4 people with mild disabilities,
 - 4 people with moderate disabilities,
 - 1 person with severe disabilities.

Employment of academic teachers

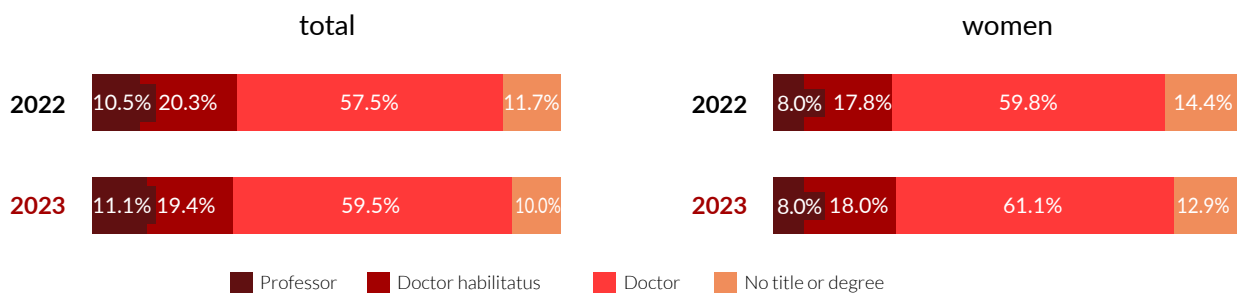


TUL employed 35 foreigners in the group of academic teachers.

Age structure of academic teachers



Academic teachers by title or degree



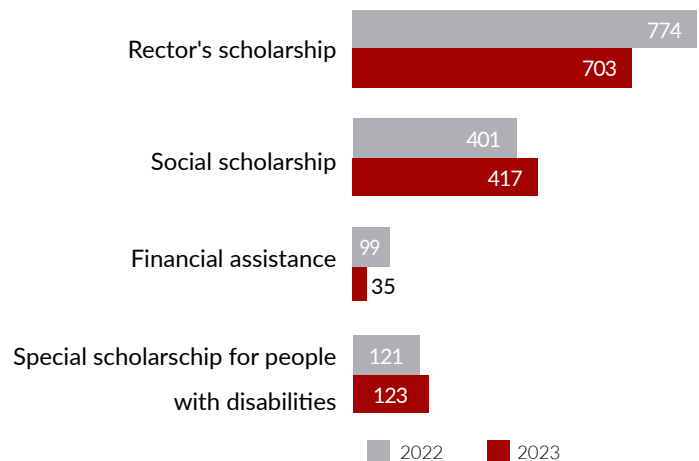
SUPPORT FOR TUL COMMUNITY

Material assistance and scholarships

A student or doctoral student who is temporarily in a difficult life situation can apply for hardship benefit. 40 people, including 5 doctoral students, benefited from such assistance at TUL in 2023.

In 2023, 703 students received scholarships for academic performance, 9.2% less than in the previous year.

Scholarship for TUL students in 2022-2023



Lodz University of Technology Foundation Scholarships

In 2023, Lodz University of Technology Foundation organized the 11th edition of the program "Scholarships to the Power". More than 100 applications were submitted by first- and second-cycle students from all faculties at TUL and 15 winners were selected to receive one-off scholarships of PLN 5,000. Patrons - the funders of the scholarships - included: Lodz Special Economic Zone (3 scholarships), Pietrucha Group (2), Hitachi Energy (2), Harman, Hexagon, IDES Consultants, Lodz Agglomeration Railway, MakoLab, Rossmann, Textilimpex and the Lodz University of Technology Foundation.

Scholarships of the Marshal of the Łódzkie Voivodeship

The Marshal of the Łódzkie Voivodeship awarded one-off academic scholarships to the best students from the Łódzkie region for the 17th time; 23 people received awards, including 4 students from TUL.

Youth in Lodz Scholarships

In the 16th edition of the "Youth in Lodz" scholarship program, a total of 123 scholarships were awarded, ranging from PLN 9,000–10,000, 85 of which went to students of TUL. In addition, they received 3 of the 14 dormitory places on offer and 10 of the 33 course places.

Scholarships of the President of Lodz

The 13th edition of the scholarship program of the President of the City of Łódź in the academic year 2023/2024 produced 45 finalists and laureates of subject Olympiads, including 8 TUL first-year students. The scholarships amounted to PLN 1,100 or PLN 1,500 per month, depending on achievements.

Scholarships for outstanding students

Among the winners of scholarships from the Ministry of Education and Science for significant scientific, artistic or sports achievements for the 2022/2023 academic year were seven students from Lodz University of Technology. Each of the winners received financial support in the sum of PLN 17,000.

TUL Residential Campus

In 2023/2024, the residential campus accommodated:



In 2023, there was a 13% increase in accommodation, with a 12% decrease in Erasmus+ foreign exchange students. Revenue from student accommodation rentals increased by 30%, driven by a higher number of people using the accommodation.

Staff welfare

Type of funding form the Social Benefits Fund	Number of beneficiaries	Amount (in PLN)
Allowances for various forms of holiday recreation in TUL resorts	1 217	428 121,0
Individual holiday recreation allowance ("self-arranged countryside holiday")	5 404	3 359 500,0
Recreation of children of eligible persons	2 898	3 148 200,0
Christmas box allowance for children	823	101 110,0
Allowance for childcare in nurseries and kindergartens	93	107 165,0
Hardship benefits	204	506 500,0
Senior Citizens' Club (trips, theatre tickets, concerts, club meetings)	approx. 200	88 708,0
Recreational (fishing club, excursions) and cultural-educational activities (concerts, meetings and TUL art gallery)	approx. 400	176 161,0
Housing loans (for the purchase of an apartment or house and for renovation and modernization)	167	2 720 500,0
Sports and recreational activities	175	30 031,0
Employee pension scheme	1 238	1 049 001,0
Sailing Club	approx. 150	103 967,0

Employees, pensioners and their eligible family members benefited from four TUL holiday resorts:

- [Holiday Resort "CIS" in Szklarska Poręba](#)
- [Holiday Resort "Dworek" in Konopnica on the Warta River,](#)
- [Holiday Resort "Niespodzianka" in Wiartel near/Pisz](#) in the region of the Great Mazurian Lakes,
- [Holiday Resort "Zenit" in Jastrzębia Góra near Władysławowo,](#)

oraz z [the TUL Sailing Base in Roganty.](#)

Sports activities for TUL staff

The TUL Sports Centre continued sports activities for its employees in 2023, taking into account their interests and needs. The Centre offers swimming classes for learners and those wishing to perfect their skills, as well as water gymnastics, stretching and stabilization, pilates and body art, aerobics, self-defence, healthy back classes, strength training and Latino dance. The offer was expanded to include yoga and ballroom dancing classes.

These large-scale initiatives were also made possible thanks to the cooperation with the Sports Bay, where swimming and dance classes are held. 175 TUL employees benefited from sports and leisure activity subsidies.

Office for Persons with Disabilities (BON)

The task of BON is to provide comprehensive and extensive assistance to the TUL students and doctoral students with health problems and create conditions for their full participation in the educational process.

In 2023, 575 students and doctoral students, as well as 77 employees with disabilities and special needs due to health conditions, benefited from the services of BON at TUL. The Office for Persons with Disabilities provided:

- psychological consultations in Polish, English and Ukrainian (available to all students, doctoral students and employees in need, also in remote form);
- psychiatric consultations with a specialist;
- anti-addiction support;
- vocational activation of students with disabilities, educational and career coaching;
- specialized equipment, including educational support equipment;
- processing applications for scholarships for people with disabilities at TUL and support in the submission of documents for the Active Local Government program (PFRON);
- support in the education process through the organization of additional, complementary teaching and language classes.



BON TUL provided workshops and training for students with disabilities to develop psychosocial skills, and organized training for staff on accessibility, disability and working with students with mental disorders.

Occupational Health and Safety

In 2023, the health and safety division carried out:

Trainings:



Initial health and safety for
271 people;



Periodic health and safety
inspections: 394 people
were trained
in the form of self-study,
69 people in the form of
instruction.

Health and safety inspections of organizational units:



9 inspections;



1 019 recommendations
issued.

EDUCATION



6 060
candidates for first-cycle studies

40
doctoral candidates admitted to IDS TUL

70
fields of study

237
postgraduate students

ADMISSIONS

Enrolment figures for 2023 include enrolment for undergraduate and graduate programs beginning in the winter semester of the 2023/2024 academic year and enrolment for graduate programs in the summer semester of the 2022/2023 academic year.

In the 2023 enrolment, TUL offered 4,364 places for undergraduate studies, and 1,700 places for graduate studies in the summer semester and 1 296 in the winter semester.

The enrolment limit for foreigners was 491 places for undergraduate studies, and 238 places for graduate studies in the summer semester and 271 places in the winter semester.

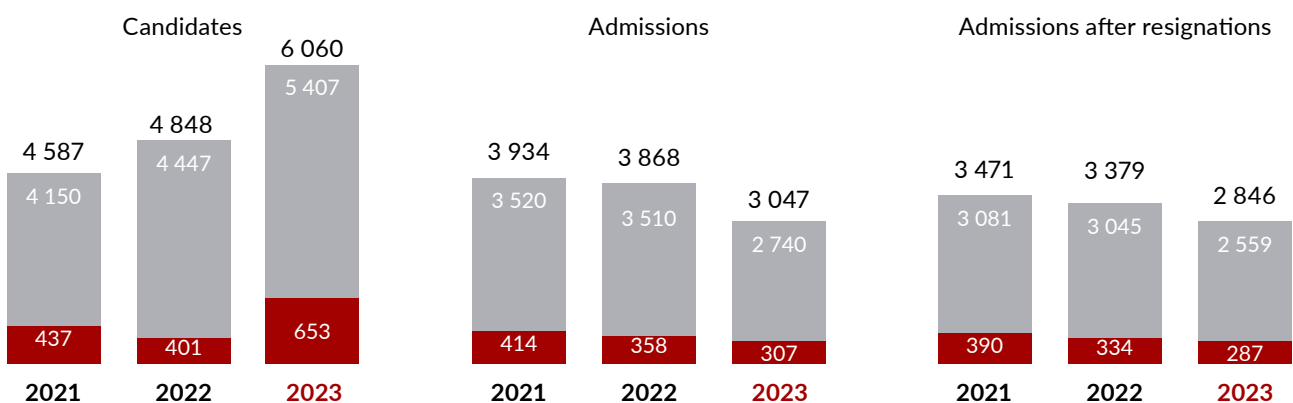
Candidates and admitted persons

The majority of candidates for studies of the first and second cycles came from the Łódzkie voivodship (first-cycle 67.5%, second-cycle 83.9%). The next five regions in terms of the number of candidates were Mazowieckie (1st cycle 10.9%, second cycle 5.2%), Wielkopolskie (first cycle 4.1%, second cycle 2.4%), Kujawsko-Pomorskie (first cycle 3.7%, second cycle 2.1%), Śląskie (first cycle 3.3%, second cycle 0.8%) and Świętokrzyskie (first cycle 2.6%, second cycle 1.4%).

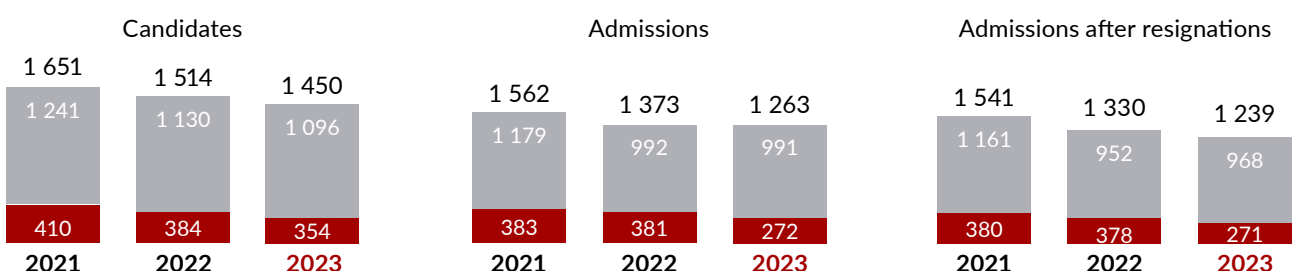
In the admissions for the 2023/24 academic year, which took place under the revised rules, applicants could apply for up to four fields of study, paying an enrolment fee for each.

Applications were made through the new Candidate Portal, which has gained a more candidate-friendly interface. This was the first admission process in which the qualification was carried out before the candidate submitted the documents. Also new was the fact that a technician's professional title was included in the admission process, giving additional points as an additional subject of choice, taken into account in the qualification.

Admissions to first-cycle studies in 2021-2023*



Admissions to second-cycle studies in 2021-2023*



■ full-time studies ■ part-time studies

*number of people



Women in university admissions TUL in 2023

Candidates

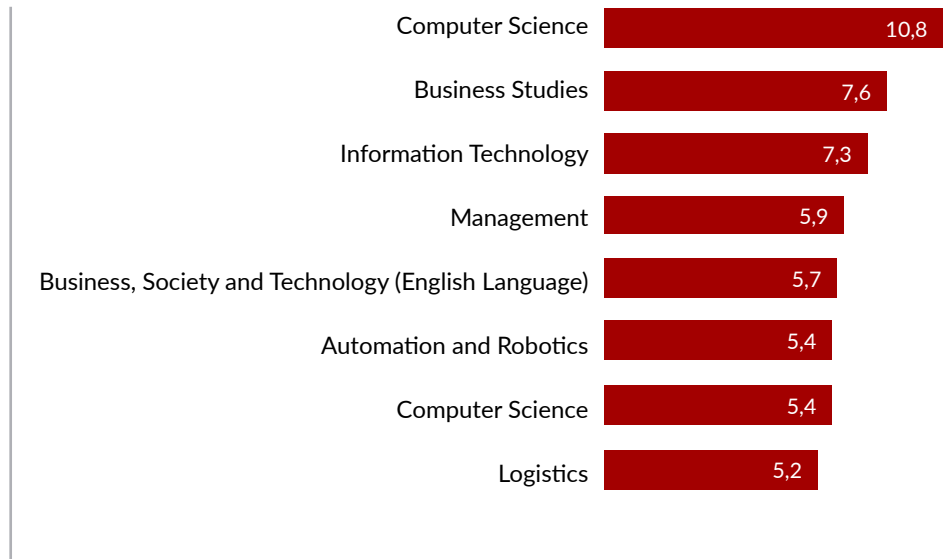
1 821 women (30% of the total) admitted to first-cycle studies
 736 women (51% of the total) admitted to second-cycle studies

Admitted

933 women (33% of the total) admitted to first-cycle studies
 665 women (55% of the total) admitted to second-cycle studies

In 2023, a total of 103 foreign students were admitted for first-cycle and second-cycle studies (full cycle of education), including 77 for first-cycle studies (including 21 women) and 26 for second-cycle studies (including 10 women).

Most popular fields for first-cycle studies by numbers of candidates per place



29 (38% less than last year) laureates and finalists of central-level Olympiads in the fields of study were admitted to the first year of first-cycle studies:

2	Civil Engineering
1	Business Studies
6	Computer Science
1	Power Engineering
5	Applied Computer Science

1	Information Technology
4	Technical Physics
1	Logistics
5	Textiles and Fashion Industry
3	Design

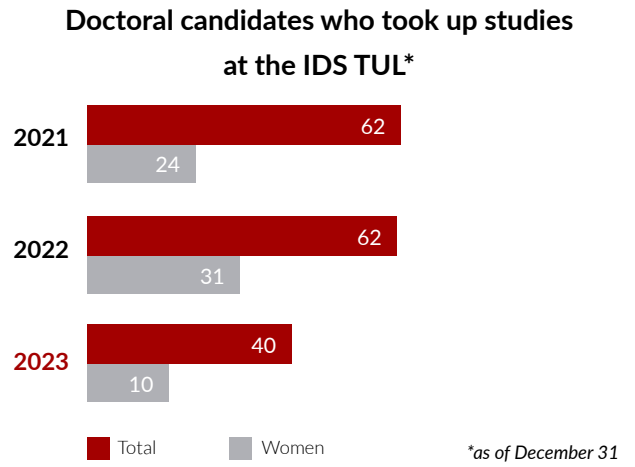
Admissions to the Interdisciplinary Doctoral School (IDS) of TUL

The admissions process for candidates to the IDS TUL was conducted via the TUL Admissions Website as part of the Ministry of Education and Science program "Implementation Doctorate" and in regular mode. The admission limit in the regular mode for the academic year 2023/2024 was 60 students. Doctoral candidates could also apply to participate in the implementation of projects (at the request of the head of the scientific project).

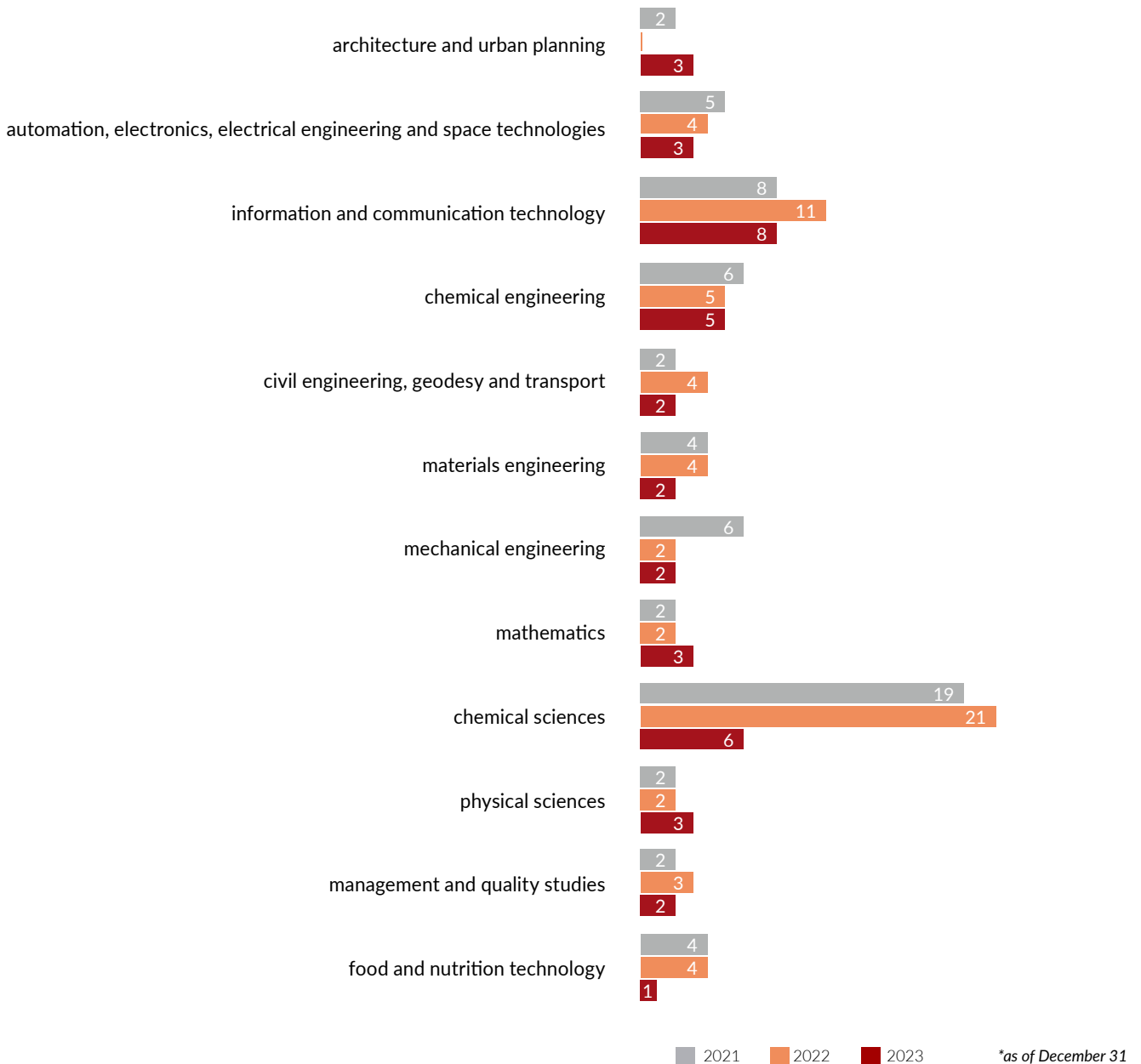
As part of the cooperation agreement signed in 2022 between the TUL and IDEAS NCBR, the joint admission process for the IDS TUL continued. IDEAS NCBR supports the development of young

researchers working on artificial intelligence and IT solutions for the digital economy. In the joint admission process for the 2023/2024 academic year, one doctoral candidate in the discipline of information and telecommunication technology was accepted.

Among the doctoral candidates who began their education in 2023 at IDS TUL, 15% were foreign doctoral students, from countries including the Islamic Republic of Iran, Pakistan, and India.



Doctoral candidates who took up studies at the IDS TUL by discipline



EDUCATIONAL OFFER

First-cycle and second-cycle studies

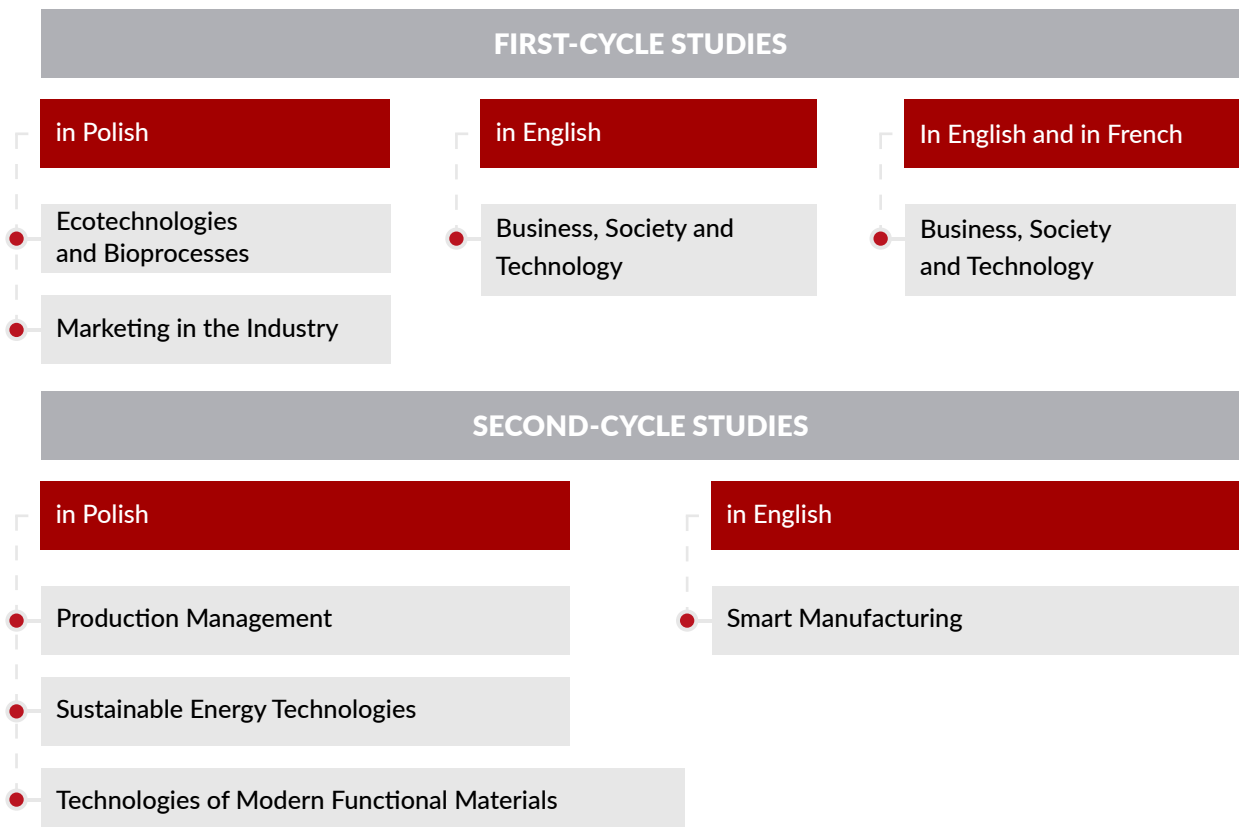
The educational offer at Lodz University of Technology is becoming richer every year, thanks to cooperation with industry. Observing changes in the socio-economic environment, the University is improving educational programs to ensure the effectiveness of learning in accordance with the needs and expectations of stakeholders.

W 2023 r. Uczelnia oferowała kształcenie na 70 kierunkach wśród nich 24 w języku angielskim i jeden w języku francuskim. Kształcenie w Politechnice Łódzkiej odbywało się na 9 wydziałach oraz w Centrum Kształcenia Międzynarodowego (IFE).

The educational offer of TUL also includes fields of study run in cooperation with other universities in Poland. Studies in Chemistry in Forensics are run in cooperation with AGH University of Science and Technology in Krakow and Gdansk University of Technology. Dental Technology is a field of study co-taught with the Medical University of Lodz.

Lodz University of Technology is successfully taking on new challenges in developing its educational offer. University candidates are offered 7 new fields of study.

New fields of study



International Faculty of Engineering (IFE)

The IFE (International Faculty of Engineering) is a university unit that has been organizing education for more than 30 years in 19 fields of study - 18 English-language and 1 bilingual, English-French field of study in Business, Society and Technology. Every IFE student has the opportunity to go to one of 400



universities in 70 countries for a mobility semester. IFE implements and applies the most innovative educational methods, including the student-oriented Flipped Education model.

In 2023, 341 first-cycle students and 103 second-cycle students were admitted to IFE.

Graduation diplomas were awarded to 223 IFE students.

After the pandemic hiatus, the University has returned to the initiative of the Graduates' Gala of the International Faculty of Engineering. Graduates from as many as four years took part: 19/20, 20/21, 21/22 and 22/23.

Micromodules and challenges

Lodz University of Technology's membership in the European Consortium of Innovative Universities ECIU provides the University's students with the opportunity to benefit free of charge from the educational offer prepared by members of the ECIU. These offerings consist of two forms of education, called learning opportunities: micromodules and challenges. Micromodules are short courses - subjects aimed at supplementing and expanding specialized knowledge and improving skills in specific topics.

Challenges are elaborate projects aimed at solving specific, real and practical problems, carried out in international teams in cooperation with institutions, organizations and companies.

Upon completion, students receive an ECIU certificate or a digital badge. It is possible to obtain a copy or a diploma supplement.

Participation in challenges and micromodules is a good opportunity to develop networks and collaborate with representatives of business companies, public organizations or NGOs from different backgrounds, as well as with other students, lecturers and experts.

2023. Lodz University of Technology has created its own educational offer - 2 micromodules and 2 challenges - on the ECIU engage.eciu.eu platform.

E²TOP - a program for the most talented students

As part of pro-equality activities related to supporting ambitious and talented young people, implementation of the E²TOP (Excellence in Engineering Talents in Research with Opportunities Program) continued, giving students the opportunity to benefit from a professional path of academic and professional development in an international environment. Fourteen undergraduate students were admitted to the second edition of the program in 2023: 5 from the first year and 9 from the upper years, who are carrying out research projects with the support of mentors.

During Research Week, the winners of the first edition of the master-student program presented the results of their work and talked about the advantages and opportunities for development provided by participation in this program. The winner of the Rector's Award of the first edition of the program was Wiktoria Gerlicz, whose scientific supervisor was Assoc. Prof. Aneta Białkowska.



TUL Language Centre

Language classes for students and classes for participants in commercial language courses were run by the TUL Language Centre in English, German, Italian, Spanish, French, Russian, and Polish.

The 5th edition of Lektor High-Tech Conference organized by the Language Centre, as in previous years, was an opportunity to engage in academic dialogue and exchange experiences, knowledge and reflections among language teaching experts. During the conference, there were 6 plenary lectures and 27 workshop sessions. The event also featured a plenary show using virtual reality (VR) technology. In 2023, ACERT certification exams were organized, with 257 students participating. 142 people passed the exam: B2 level - 48, C1 level - 94.



TUL Sports Centre

The Sports Centre of Lodz University of Technology conducts teaching and educational activities in the field of physical culture and sports for the benefit of students of the University. Students took mandatory classes in more than twenty different specializations, which they chose according to their needs and interests. The class offer has been expanded in 2023 to include yoga and Latino solo classes. Twelve Sports Events were held for first-year students, participation in which was an obligatory part of the course credit.

Competence Development Centre

The main objective of the project was to improve competencies to prevent social exclusion and social and vocational activation of course participants.

In 2023, a number of further courses and trainings were implemented under the project, such as an English language course (12 editions), a Spanish language course (2 editions), a course on "Coaching Tools for Working with Teams" (8 editions), spreadsheets (8 editions), mobile world for children and youth (4 editions), managing emotions in the workplace (4 editions), project management (12 editions), and IT courses on Cloud Security, Cybersecurity Fundamentals, Cyber Infrastructure and Technology. As part of the entire project, 1,453 people benefited.

Interdisciplinary Doctoral School TUL



In 2023, the first cycle of doctoral training was completed, within the framework of which 64 doctoral candidates completed the training program and provisions specified in the Individual Research Plan and submitted their dissertation on time with a positive opinion from the supervisor.

IDS TUL applied within the 7th edition of the 'Implementation doctorate' program, in which MEIN awarded funding totalling PLN 1,245,366.88 to 4 projects.

The innovative educational model is a response to the internal and global challenges facing the University and the economic sector. The Interdisciplinary Doctoral School, in close cooperation with the Doctoral Student Government, organized a study visit to Proteon Pharmaceuticals as part of the implementation of the HR Excellence in Research action plan. Doctoral students had the opportunity to learn the ins and outs of working in state-of-the-art laboratories, which enabled them to deepen their knowledge in the fields of chemistry and biotechnology.

In particular, within the framework of the completed STER - Internationalization of Doctoral Schools program were implemented 32 mobility trips for doctoral students to foreign research units and 12 lectures by distinguished visiting professors with individual consultations for doctoral candidates and researchers at TUL. Thanks to the support received, two editions of the call for applications for NAWA scholarships for the best foreign and Polish doctoral candidates carrying out doctoral projects in cooperation with foreign countries were carried out, which resulted in the selection of 14 scholarship holders. In the area of collaborative doctorates with foreign universities, an agreement was signed with a renowned university in Germany, TU Dortmund University, and a letter of intent was signed for collaboration for a Joint/Double Degree with the University of Borås in Sweden.

In 2023, the second project Integrated Program of Lodz University of Technology co-financed by the European Union under the European Social Fund, Operational Program Knowledge Education Development 2014 - 2020 'POWER', priority axis III Higher education for the economy and development, Measure 3.5 Comprehensive university programs, in which the Interdisciplinary Doctoral School was responsible for the doctoral module, was completed. The university hosted 24 distinguished scientists

from foreign universities and research institutions, including: from Italy, Greece, Germany, the United States, Romania, Croatia and the Czech Republic. The implementation of the project has created new opportunities for doctoral candidates, permanently strengthening international relations and contributed to increasing the degree of internationalization of IDS TUL.

Postgraduate studies

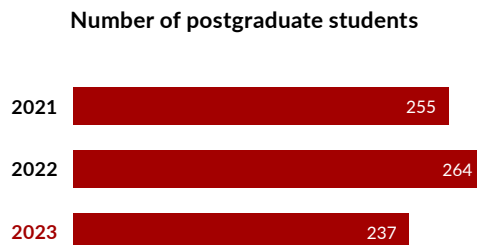
In 2023, TUL launched 12 postgraduate programs:



3 new postgraduate programs were established:

- Nuclear Power and Radiation Safety;
- Modern Catering Nutrition and Management;
- SAP S/4 HANA - ERP class system.

The number of postgraduate students in 2023 was 237 (including 130 women) and there was a 10.2% increase in participants compared to last year. There were 3 foreigners among the postgraduate participants.



In 2023, the postgraduate course "Fashion Construction" was submitted and received a positive recommendation from external stakeholders for inclusion in the Integrated Qualification System. The Integrated Qualifications System defines the principles and standards for the validation of qualifications, which guarantees the high quality of vocational certificates, postgraduate certificates issued under the system.

Cooperation with secondary and primary schools

Lodz University of Technology creates conditions for young people to develop skills and competencies in science and technology. TUL welcomes students to its state-of-the-art research and teaching laboratories, where expert assistance from TUL research and teaching staff is provided.

The Centre for Teaching Mathematics and Physics periodically organizes a "Week with Mathematics and Physics" in September for secondary school pupils from the Lodz region who are potential candidates for TUL students, during which pupils take part in lectures and workshops in mathematics and physics, as well as in activities of the student physics laboratory.

Matura preparation courses

The university took the initiative, as it does every year, to support secondary school students in preparation for the Matura exam.

The Centre for Mathematics and Physics Education ran two full-time courses at the extended level in mathematics and in physics. In 2023 TUL candidates could also benefit from online materials in the form of videos, animations, tests, teaching modules and competition tasks, as well as from interactive textbooks posted on the E-Physics and E-Mathematics website.



National English Olympiad for Students of Technical Universities for Secondary Schools

The theme of the 4th Olympiad 2023 is "Feel Chemistry for Chemistry - Taste and Smell the World Around You."

More than 1,000 students from all over Poland entered the first stage of the 2023 Olympiad (school preliminaries), and 160 students qualified for the second stage of the Olympiad. Honorary patronage for the 4th edition of the Olympiad was provided by: Rector of Lodz University of Technology, President of the City of Lodz and the Voivode of Lodz.

National Paper Olympiad P2R (Paper - Idea - Solution)

The Centre for Papermaking and Printing at TUL organized the second edition of the Paper Olympiad for secondary school students, with the primary goal of promoting paper as a versatile material with versatile possibilities and at the same time user-friendly and environmentally friendly. The second goal was to get young people interested in the possibilities of studying at Lodz University of Technology for a degree related to the paper and processing industry in order to take up jobs in these industries in the future. The Olympiad was attended by 14 teams from different parts of Poland. Teams competed in three competitions, which required the preparation of a specific construction from paper.



Chemistry Competition of the Three Faculties at TUL

The national competition for secondary school students is organized annually by the Faculty of Chemistry, the Faculty of Biotechnology and Food Sciences and the Faculty of Process and Environmental Engineering. It aims to encourage young people to deepen their knowledge of chemistry, to find and promote students talented in this field. In the 8th edition of the competition, four winners and three finalists were selected, and they have the opportunity to study at one of the three Faculties of Lodz University of Technology without having to participate in the admission procedure.

Centrum Mistrzostwa Informatycznego

Lodz University of Technology has completed the CMI project, one of the largest projects in education. The project, worth more than PLN 50 million, was co-financed by the EU. Thanks to the CMI project, 1,500 teachers have developed IT competencies, and 40,000 young people have developed talents in

this field. In 2023 Lodz University of Technology organized the 'Key to the Competencies of Tomorrow' conference summarizing the five-year period of the project. The conference brought together an elite group of experts, educators and practitioners in the field of information technology and modern technology.

Taste of studying in Lodz

At Lodz University of Technology, meetings were conducted with secondary school students as part of the action organized by the City Hall. "[Taste of studying in Lodz](#)", a series of events encouraging students to study in Lodz, during which students from the best secondary schools in the Lodz region could personally check out and get a feel for studying in Lodz.

French Academy for Young Engineers (FAMI)

The seventh edition of the French Academy of Young Engineers (FAMI) project, which involves students not only from secondary schools in Lodz, but also from the region, was launched in October 2023.

During the academic year, FAMI participants deepen their knowledge of the French language by participating in workshops led by a French nationality teacher, collaborate with TUL study circles and carry out their own project in Design Thinking classes. The project is part of the promotion of studies in French at IFE.



Strengthen cooperation with universities and scientific institutions



Lodz Academic Partnership

On October 2, 2023, [the first joint inauguration of the 2023/2024 academic year](#) for universities affiliated with the Lodz Academic Partnership took place at the Artur Rubinstein Philharmonic Hall in Lodz. The inaugural lecture, entitled "A New Look at Our Planet: From Manned Spaceflight to Earth Observation," was delivered by Lodz University of Technology graduate Slawosz Uznański, PhD.

As part of joint activities undertaken by members of the Lodz Academic Partnership, rectors of Lodz public universities met with MPs and senators of the Lodz district.

The topic of the meeting was the prospects for cooperation between the higher education sector of our city and parliamentarians of the current term of the Polish Parliament and Senate.

In December, another meeting of vice-rectors and chancellors of Lodz universities was held at the Rector's Office of TUL. They discussed preparations for the organization of the International Congress "Culture of the Regenerative City" and the directions of the Lodz Academic Partnership, the organization of

a joint conference on the development of artificial intelligence and its impact on scientific and educational activities.

Conference of Rectors of Academic Schools in Poland (CRASP)

The Lodz Academic Partnership was the organizer of the CRASP Plenary Assembly. The sessions were held at the University of Lodz and Lodz University of Technology. The CRASP Plenary Assembly unanimously adopted a resolution on the place of science and higher education in Poland. The host session featured the Rector of Lodz University of Technology, Prof. Krzysztof Jóźwik, who presented the topic

of micro-credentials.

During the CRASP Plenary Assembly, Elsevier Poland Statuettes were presented to universities contributing to better recognition of Polish science.



Magna Charta Universitatum

Lodz University of Technology becomes one of 36 new signatories of Magna Charta Universitatum - MCU 2020, a document that represents the foundation of academic values. The ceremony of signing Magna Charta Universitatum - MCU 2020 by the rectors of Polish and foreign universities took place at the University of Lodz during the three-day conference "Universities and Urban Reconstruction: The Role of Research and Education."

TUPMO Forum

In June, during a meeting of the College of Vice-Rectors for Science and Development of public higher technical schools in Krakow, 20 leading technical universities concluded an agreement on cooperation between Polish technical universities in the field of project management -the Technical Universities Project Management Offices Forum (TUPMO Forum). Lodz University of Technology was represented by Vice-Rector for Development Prof. Pawel Strumiłło.

Meeting of Deans

In September, a meeting of Deans and Vice-Deans of faculties educating in the discipline nutrition and food technology was held at the Faculty of Biotechnology and Food Sciences of TUL. The theme of the event was the quality of education, which is a key factor in the development of future professionals for the broader food industry.

QUALITY OF EDUCATION

University Committee on the Quality of Education 2023:

- prepared an amendment to the Ordinance on Surveying the Education Process with regard to conducting a mid-term evaluation survey,,
- updated the post-semester survey effective from the summer semester of the 2022/23 academic year. The new survey includes a section for both course evaluation and instructor evaluation, allowing both aspects to be evaluated with a single questionnaire. A post-semester survey was also conducted for the first time after the summer semester using the Sphinx Campus system,
- The Committee also refined the University's annual report on the quality of education.

In 2023, the University conducted four nostrification procedures for graduation diplomas, issued by:

- National University "Lviv Polytechnic" (Ukraine) in the field of electrical engineering,
- National Technical University of Ukraine "Kyiv Polytechnic Institute" (Ukraine) in the field of paper-making and printing,
- Southeast University (People's Republic of China) in the field of materials engineering,
- South East Technological University (Ireland) in the field of chemical analytics.

Accreditations

In 2023, the Polish Accreditation Commission gave a positive assessment for the following fields of study:

for a period of 6 years:

- – Occupational Safety Engineering - 1st cycle (Faculty of Process and Environmental Engineering),
- – Chemical Technology - 1st and 2nd cycle (Faculty of Chemistry),
- – Control Systems of Intelligent Building - 1st cycle (Faculty of Electrical, Electronic, Computer and Control Engineering),
- – Food and Nutrition Manager - 1st cycle (Faculty of Biotechnology and Food Sciences),
- – Cosmetic Technology - 2nd cycle (Faculty of Biotechnology and Food Sciences),

for up to 2 years:

- – Sustainable Bioeconomy - 2nd cycle (Faculty of Biotechnology and Food Sciences).

The fields of study **Chemistry** (first and second cycle) and Chemical Technology (second cycle) conducted by the Faculty of Chemistry at TUL passed **the accreditation of the ECTN - European Chemistry Thematic Network** and were awarded 3 international ECTN certificates in 2023: Chemistry Bachelor, Chemistry Euromaster and Chemical Technology Euromaster. Obtaining accreditation is tantamount to recognition of the highest European standards in the quality of education maintained by the TUL Faculty of Chemistry.

16 current international accreditations

3 institutional evaluations/accreditations

13 program accreditations



The first-cycle study program in Management and Production Engineering and the second-degree program in Human-Computer Interaction received the accreditation certificate Studies with a Future 2023.

The Management and Production Engineering course taught at the Faculty of Organization and Management additionally received the Education Quality Leader award, as one of the two highest rated by the Polish Accreditation Commission among all the courses awarded this year.

Teaching excellence of the university

The university completed the project "Doskonałość dydaktyczna uczelni" in 2023, which developed a model on the design and improvement of study programs based on the best international models and a new path for the development of teaching competencies of academic staff using a system of digital badges.

Lodz University of Technology has established 31 classes of badges, or micro-credentials, for recording achievements and improving teachers' competence. University employees can collect micro-credentials in the convenient form of digital badges available in the Badge+ app.

The competency balance was conducted in a pilot group of 40 university teachers.

As part of the orientation of the professional development system for teaching staff, three important models were created in the project:

- a model for the professional advancement of teaching staff,
- a model of development paths with digital badge system,
- a model for the support of outstanding teachers, together with the rules of the Rector's compe.

The results of the project will promote the development of teaching staff and the continuous improvement of the quality of education.

GeoGebra Academy

The GeoGebra Academy, which is part of the International GeoGebra Institute, a non-profit organization, operates at the Centre for Teaching Mathematics and Physics. The Academy's goals are innovative teaching methods based on the dynamic mathematical software GeoGebra, which is used in teaching activities and in the implementation of EU projects carried out at the Centre for Teaching Mathematics and Physics.

Development of modern learning methods

As part of the development of the training offer for the TUL academic staff and ECIU, practical workshops on the innovative challenge-based learning (CBL) method were organized at TUL and co-organized at partner centres. The workshop aimed to introduce and deepen knowledge and skills, as well as promote a sense of community among university teachers.

Integrated Skills Strategy 2030 in the Lodz Voivodship

Lodz University of Technology participated in the meetings of the Voivodship Coordination Team for the implementation of the Integrated Skills Strategy 2030 for the development of skills of children, youth and adults.

TUL in rankings

The university is ranked in many international rankings, including the most prestigious ones. The presence of Lodz University of Technology in the world rankings affects the recognition of the University and is a confirmation of the quality of education and scientific research conducted at the University.

TUL was ranked 1st in the country and 87th in Europe in the Outbound Exchange Students indicator and 3rd in Poland and 45th in Europe in the Inbound Exchange Students category in the first edition of the [QS World University Rankings – Europe](#).

Lodz University of Technology has been ranked in the [QS World University Rankings: Sustainability](#) for the first time and was placed in the 881-900 range. The ranking included 20 Polish universities, among which Lodz University of Technology was ranked 10th.

For the third time, Lodz University of Technology was ranked in [THE Impact](#), which focuses on the university's performance in terms of the 17 Sustainable Development Goals. Despite the increase in the number of participating universities from 1410 to 1591, the University maintained its position from a year ago in the 601-800 range in the overall classification. In the world ranking for efforts to achieve Goal 8: Decent work and economic growth, TUL was ranked in the high 101-200 range (ranking first among Polish universities). For Goal 17: Partnerships for the Goals, TUL was ranked 301-400 (2nd Place in Poland). For Goal 9: Innovation, industry, infrastructure, TUL was ranked in the range of 301-400 (2nd in Poland). For goal 10: Reduced inequalities, TUL was ranked in the 401-600 range.

In [THE World University Rankings 2024](#), Lodz University of Technology moved up to the 1201-1500 range, ranking 15th in Poland.

In the [EngiRank 2023 - Institutional Ranking](#) of 225 universities, Lodz University of Technology was ranked 86th in Europe and 6th in Poland (out of 18 universities).

In the [Webometrics](#) ranking, the University was ranked 10th in Poland (up from 13th) and 963rd in the world (up from 994th).

In [SCImago](#) ranking, TUL was ranked in 25 categories (subjects). In Industrial and Manufacturing Engineering, TUL was ranked 168th in the world, out of 1917 universities, and 2nd in Poland. In Aerospace Engineering, TUL was ranked 279th in the world out of 753 universities, and 2nd in Poland. In Ocean Engineering, TUL was ranked 168th in the world out of 547 universities, and 2nd in Poland. In Food Science, TUL ranked 348th in the world out of 1,684 universities, and 7th in Poland.

ENTERING THE LABOUR MARKET



TUL Career Office organized or co-organized many events, including:

The 18th edition of the Academic Job Fair:

- The 18th edition of the Academic Job Fair,
- approx. 2,500 offers for jobs, internships and apprenticeships
- 20 trainings and workshops attended by about 400 participants,
- 15 000 visitors,
- more than 140 exhibitors.

The Academic Job Fair, thanks to the organizational formula that was perfected in previous years and the close cooperation between the co-organizers, has become a model among such events in Europe.



Hackathon - HAcK for Health

In the 3rd edition of the event, TUL, together with the Medical University of Lodz, invited participants who, working in interdisciplinary teams under the guidance of mentors from the medical and technology industries, created an innovative solution in response to a pressing social problem. 150 applications were obtained, from which 14 teams were formed.

Santander Universitades Program - Business in Practice

The sixth edition of the cyclical Business in Practice event, financed by funds received under a donation agreement, was conducted for the second time not only for students, graduates and employees of TUL, but also for all universities in Poland. A total of 7,249 people applied, but due to the limit on seats 2,648 people took part. The topic of training in 2023 was e-commerce issues.

Career e-Learning

This is a new project of the Careers Office, which was launched for the benefit of TUL students and graduates who are taking their first steps in the professional world. A special space, a kind of electronic mediathèque, with short webinars, training videos and tutorials, has been prepared in one place on the Career Office website.

Talents of Lodz University of Technology

The program discovers talents among students, doctoral candidates and graduates who demonstrate diligence, ambition and high competence. A communication space between young people and the labour market is being built through the TUL Careers Office website and social media.

Career talks - a sneak peek at Lodz University of Technology graduates

Interviews with TUL graduates who talk about their careers have continued, allowing students to be presented with possible career prospects, development paths and strategies for navigating the labour market. In 2023, interviews were conducted with 11 graduates of the University. The project fosters stronger ties between the University and its graduates.

Fourth edition of the competition for the "The Best Employer of Lodz Voivodship according to Students of Lodz University of Technology"

The main objective of the competition is to select the most friendly and open employer of the Lodz province according to the students of Lodz University of Technology. The competition aims to present and promote employers who have a positive impact on the economic development of the Lodz Voivodeship through the creation of jobs, attractive internship programs and student internships.

The winner of the competition was B/S/H Home Appliances, which won both the title of Best Employer of the Lodz region according to Lodz University students, and won in the category for best internship and apprenticeship program.



TUL FOR THE LOCAL COMMUNITY



1 233

children aged 7-17 in the Children's University of TUL programme

621

students of the University of the Third Age at TUL

42

exhibitions in TUL art galleries

NON-PUBLIC NURSERY OF TUL

The development of the concept of "lifelong learning" is one of the priorities for action in education worldwide and in the EU. Lodz University of Technology, which is a university for generations, offers education for children, youth, students, young scientists and seniors. In 2023, it expanded the LifeLong Learning concept by opening a non-public nursery for the youngest children of TUL employees, doctoral candidates and students. These activities show that the University is becoming an increasingly friendly place to work and study, supporting parents in caring for their children.



The nursery offers a safe and friendly environment where toddlers can explore the world. Initially, 8 children attended the nursery, but before long the group filled up completely and has 20 children. In the nursery, all toddlers bravely overcame the stress of adaptation. On a daily basis, the children have the pleasure of participating in creative music, art and sensory activities organized by the caregivers. Non-public Nursery of Lodz University of Technology is a place that focuses on modern teaching methods, creativity and individual approach to each child.

NON-PUBLIC KINDERGARTEN OF TUL

September 2023. The Non-public Kindergarten of Lodz University of Technology celebrated its first birthday. Over the year of operation, the kindergarten has increased its enrolment from 16 to 44 children. During the year, the kindergarten continued its cooperation with the Children's University of Lodz and the Copernicus Science Centre in Warsaw. Under the supervision of their teachers, the children took part in exciting educational projects: the English-language "Cook Book" and "Lodz Bilingual" projects, the international reading project "Magical Power of Fairy Tales," the health-promoting "Vitamins" project and "Winnie the Pooh Friends of Nature."



Thanks to the involvement of parents, children were able to participate in workshops held at the kindergarten, as well as at the faculties of Lodz University of Technology. Among other things, the children learned: how 3D printers work, how "dry ice" is made, and how water flows through pipes.

The kindergarten participated in charity events: writing Christmas cards for people living in a nursing home and collecting food for animals under the care of a shelter. In cooperation with the Ferment Library, several thematic meetings were held at the library. There was no shortage of integration, with the whole kindergarten community taking part in a trip to Borysew Zoo and sporting activities - the 'Sprint to Marathon' initiative and climbing classes at Lodz University of Technology's Sports Bay.

CHILDREN'S UNIVERSITY OF TUL

At Lodz Children's University, children can deepen their interest in the world and learn about technical knowledge in a simple and fun way.



Lodz Children's University in 2023:

- 59 7-year-old children (ŁUD_7)
- 59 parents of seven-year-old children
- 1 120 8-12-year-old children (ŁUD_7)
- 54 8-12-year-old children (ŁUD_7)
- 10 so called "big" lectures
- 508 stationary workshops for children aged 8-12 years old
- 15 online workshops
- 30 workshops for children aged 7
- 3 workshops for children aged 7 with their parents

Lodz Children's University at TUL is a regional partner of the Young Explorers Clubs (KMO) program, which is coordinated by the Copernicus Science Centre. Lodz Children's University received an award of PLN 7,500 in the KMO Regiony competition for the implementation of cooperation with KMO in schools in the Lodz voivodship. In 2023, Lodz Children's University won the "Together for a Better Future" competition, funded by the Deloitte Foundation. For the implementation of KMO cooperation in schools in Lodz province with the involvement of children from Ukraine, Lodz Children's University received PLN 12,500.

For the first time after the pandemic, there was a mini conference prepared by Lodz Children's University participants for Alumni. The audience was Lodz Children's University students aged 10-12 years old, who learnt about Lodz Children's University for Graduates and what they can learn from the workshops.

PUBLIC SECONDARY SCHOOL OF TUL

TUL Public Secondary School in 2023:

- students in 13 grades I, II and III, 101 students in 4 grades IV
- Grade point average at Public Secondary School TUL: 4.99 grades I, II and III, 5.08 grade IV (for 4 years)
- 1 Prime Minister's scholarship for the school year 2022/23
- 3 scholarships from the Minister of Education
- 6 incentive scholarships awarded by the President of the City of Lodz under the Municipal System of Supporting Talented Students "Mia100 Zdolnych"

School successes:

- [1st place in Lodz Voivodship Province](#) in the 2023 Ranking of Secondary Schools by the Perspektywy Educational Foundation;
- In the overall classification - 16th place in the Secondary School Matura Ranking 2023 of the Perspektywy Educational Foundation;
- Participation in many central finals of subject Olympiads and international competitions, including:

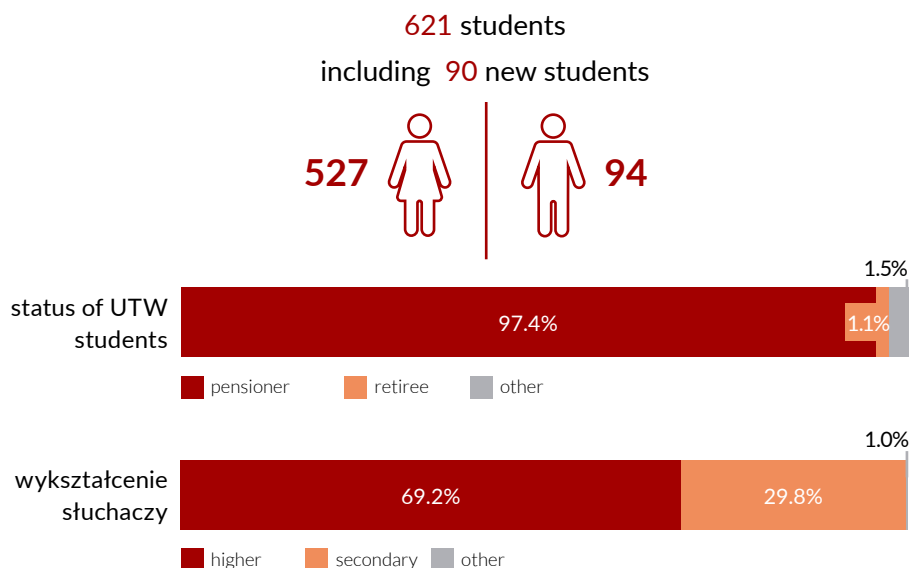
Alexander Skóra won a silver medal at the [34th International Biological Olympiad](#), which took place in the United Arab Emirates;

- participation in national and international sports competitions, including: Olivier Urbaniak won 2 gold medals and one silver in the International Swimming Competition in Gliwice - V4 Olympic Hopes. Anna Łysek has returned from the World Traditional Karate Championships in Belgrade as World Champion in the junior women's individual kumite.



UNIVERSITY OF THIRD AGE TUL

The UTW activities are aimed at multidimensional education, psycho-physical and social activation of the elderly, as well as the promotion of the University regionally and nationally, in accordance with the strategy of lifelong learning. The class program also aims to disseminate science and scientific research and its applications to the community.



UTW TUL has implemented the following forms of activities:

General lectures – 80 hours.

Lecture topics include: achievements in science and technology, preventive health care, regional and national history, as well as art history, psychology, sociology, economics, nature and travel, music, theater and film.

Additional activities – 1052 hours.

University of the Third Age in 2023 offered 15 additional classes, including one new class - Application Programs.
1,922 seats used for extra classes

The TUL Sports Centre, in cooperation with the UTW, conducted about 130 hours of sports activities for more than 300 seniors. These classes, conducted by three TUL trainers, were traditionally very popular with the audience, who emphasized the professional skills and commitment of the trainers conducting the classes in general gymnastics and Pilates with elements of yoga.

In 2023, a new series of meetings "Local community for Lodz University of Technology" was initiated, where lecturers are students of Lodz University of Technology's UTW or retired Lodz University of Technology employees who share their knowledge and experience gained during their professional work in various fields of science, economy, industry and culture.

Selected events in 2023.

- Exhibition of artistic achievements of 27 students of the art section of the UTW TUL. The exhibition

featured works by both budding artists and graduates of the art section of the UTW, members of the Association of Amateur Artists in Lodz and the Association of Polish Artists and Watercolorists of Poland. The exhibition was followed by a publication in the form of an album of the artists' works as part of a summary of the artistic output of the UTW students.

- Participation of UTW TUL students in the nationwide TVP program "WHEN IF NOT NOW?", in which UTW TUL students promoted active forms of spending time by seniors. The recordings took place, among others, at Lodz University of Technology and the city of Lodz, promoting the various passions of the students and possible activities at Lodz University of Technology.

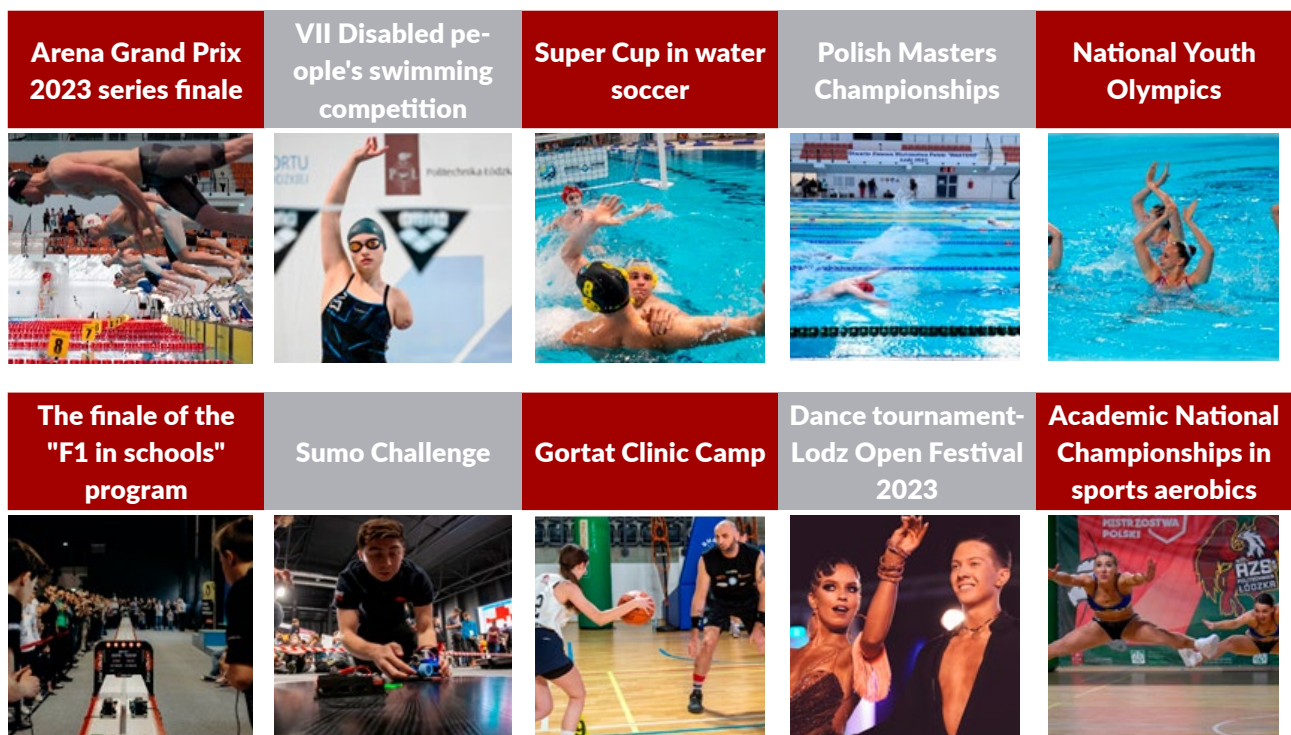
The director of the UTW TUL, Agnieszka Stołeczka, was awarded the decoration "For Meritorious Service to the City of Lodz" in 2023 for her outstanding work for seniors - both professionally and socially.

TUL SPORTS AND EDUCATION CENTRE "SPORTS BAY"

The Sports Bay is a facility available not only to the Lodz University of Technology community, but also to athletes and residents of Lodz and the region. The facility also serves other Lodz universities, children and schoolchildren, mainly as a national training centre for swimmers and water jumpers and as a recreational facility.

TUL Sports and Education Centre "Sports Bay" has won the DEMES 2022 Sports Business Award in the Small Sports Facility Management category. The statuette was presented at the 19th Sports and Business Gala in Warsaw.

International and domestic events:



CULTURE AND ART

The Thursday Cultural Forum series provides an opportunity to meet well-known artists and intriguing personalities. The series included 10 meetings. Invited guests included Bronisław Maj, Piotr Pręgoski or Sławomir Suleja. The November meeting on poetry hosted members of the Lodz Branch of the Polish Writers' Union.



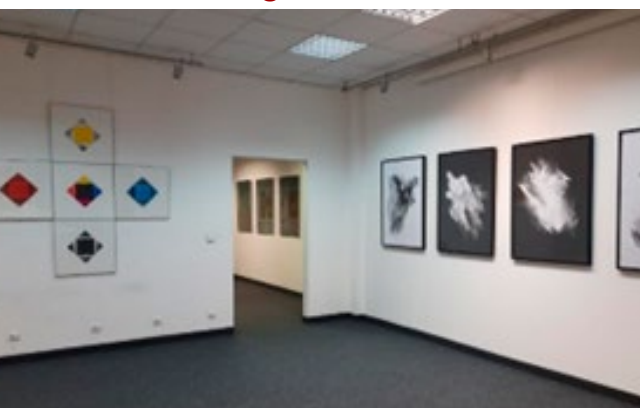
Music at TUL concerts continued, with 10 concerts held in 2023. One could admire, among others, the work of the Mo-Carta Group, students of the Grażyna and Kiejstut Bacewicz University of Music in Lodz or the Lodz Film School. Meanwhile, in April, the Lodz Philharmonic held a Jubilee Concert to mark the 30th anniversary of the series, featuring some of the best-known classical music performers for the TUL audience. In addition, the concert featured the Academic Choir and the TUL Orchestra.

The Academic Choir won the Gold Diploma at the 10th International Festival of Carols and Pastorals in Rzeszów, and won the Silver Ribbon of Solcha at the 9th International Festival of Choral Music in Eyschikos (Lithuania). The choir performed at the Concert of Academic Choirs as part of the XXII Festival of Science, Technology and Art and at the Routes Europer 2023 gala, as well as in an open-air concert on Piotrkowska Street in Lodz.

The Academic Orchestra held 57 rehearsals and performed 17 concerts, among which we can mention the spring concert and the autumn/winter concert or the performance as part of the 30th anniversary of Music at TUL. In addition, the orchestra also prepared performances of new songs, including: *Time of my Life*, *Livin' la Vida Loca*, *All I Want for Christmas is You* or *Scoluba's Aria from The Haunted Manor*.

Student Radio ŻAK of Lodz University of Technology is the oldest licensed academic radio station in Poland broadcasting around the clock on the 88.8 MHz frequency. Radio celebrated its 64th birthday in 2023 with the slogan "Digitally on the Air".

Art galleries at TUL



Biblio-Art Gallery
 Politechnika Gallery
 Krótko i Węzłowato Gallery
 Pod Napięciem Gallery
 Jutro Gallery

Art galleries operating at TUL have prepared 42 exhibitions (in 2022-41) for the academic and local community. The openings and meetings held brought together a large number of artists and art lovers. Each exhibition was an opportunity to admire a variety of artistic expressions, from painting to sculpture and photography.

The Museum of Lodz University of Technology

The activities of Lodz University of Technology Museum focus on collecting, storing and developing collections related to the history of Lodz University of Technology, its organization, scientific, teaching and socio-cultural activities.



As part of a meeting of the University of the Third Age with Prof. Jan Krysinski, an exhibition was presented showing the scientific, teaching and organizational achievements of the former rector of the University. In May 2023, for the ceremonies related to the 78th anniversary of Lodz University of Technology, a temporary exhibition was prepared titled: 'I Never Took the Path of Least Resistance. Professor Osman Achmatowicz on the 35th Anniversary of His Death and the 75th Anniversary of His Election as Rector of Lodz University of Technology.

In October 2023, for the inauguration ceremony of the 2023/2024 academic year, the museum has prepared a photographic temporary exhibition titled "Stopped in the Frame. Lodz University of Technology Yesterday and Today." In addition to archival photographs of the first campus covering the site of the former Shai Rosenblatt factory and the oldest edifices, the exhibition shows contemporary photographs of Lodz University of Technology's buildings and grounds.

SCIENCE



12
professor nominations

147
doctoral degrees awarded

6
habilitations conferred

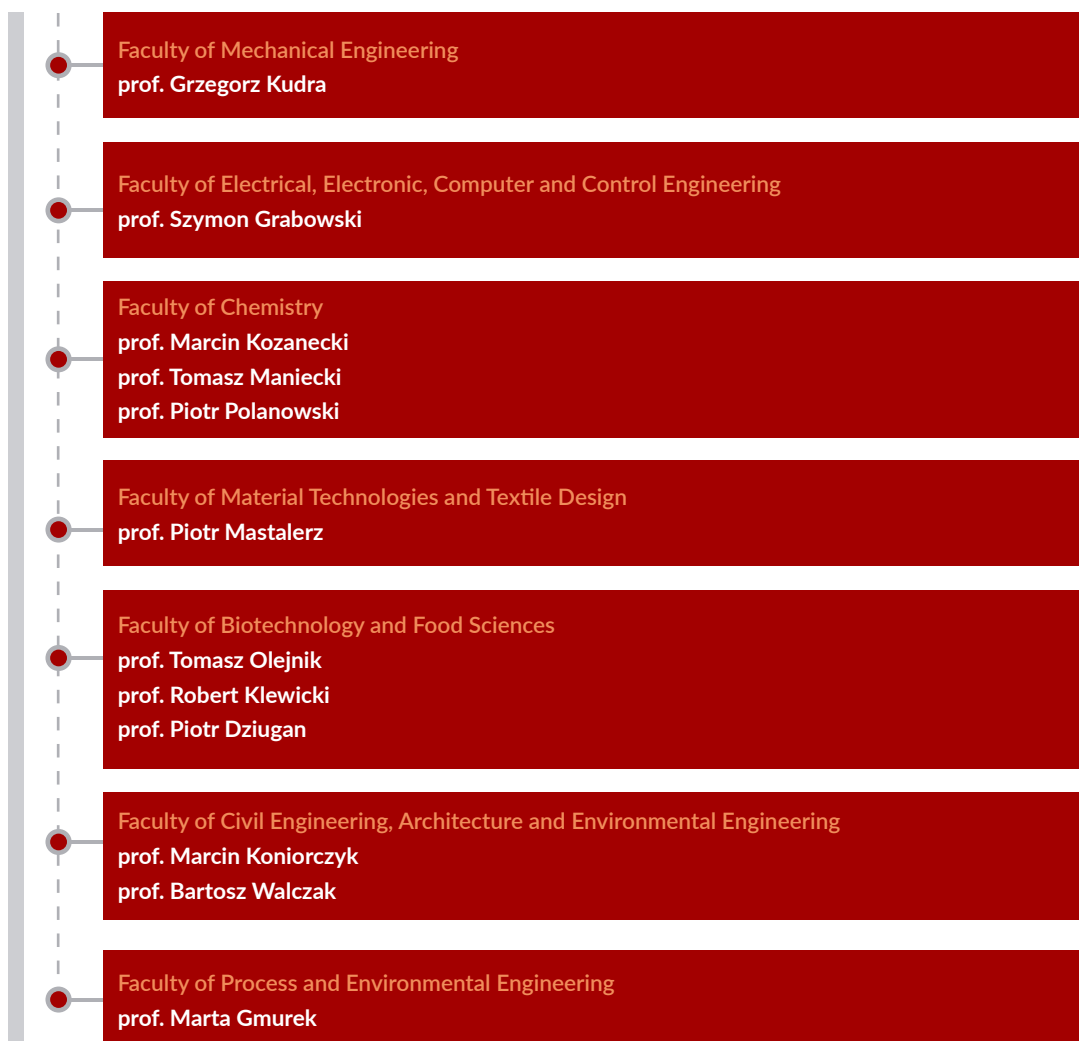
86
ongoing national NCN grants

203
publications by doctoral candidates of IDS TUL

SCIENTIFIC DEVELOPMENT OF STAFF

Degrees and academic titles

In 2023, the title of professor was awarded to 12 academic staff at TUL, including 1 woman:

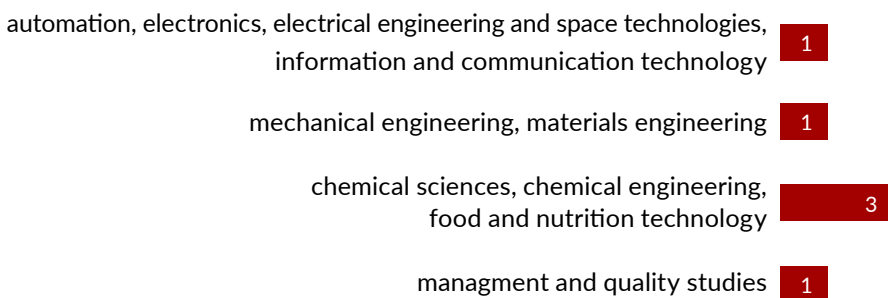


Eight employees of the University were awarded postdoctoral degrees, including two scientists who had their degrees conferred by another university.

Lodz University of Technology awarded 147 doctoral degrees in 2023 (74 in 2022) and 6 habilitation degrees (12 in 2022).

Habilitations conferred by TUL in 2023

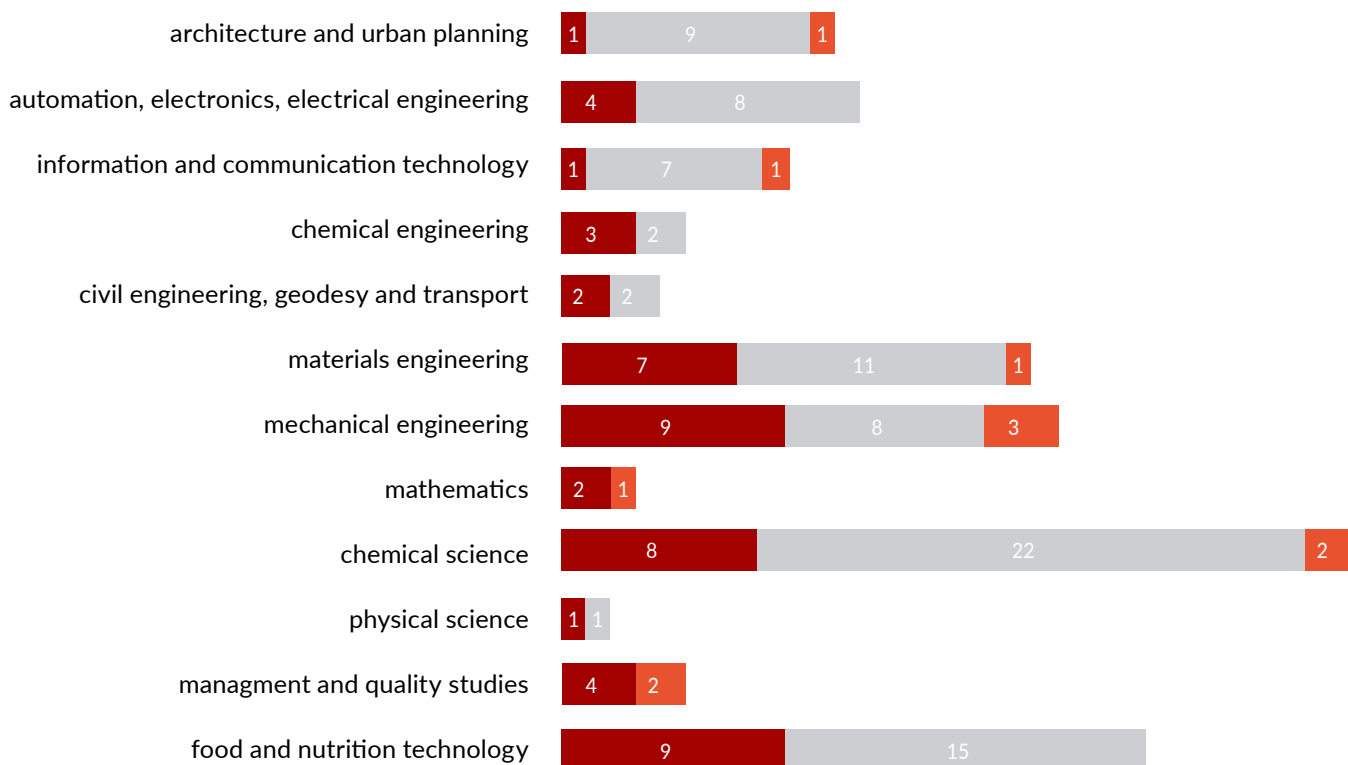
Council for Academic Degrees in disciplines:



TUL Employees

PhD degrees conferred by TUL in 2023

Disciplines:



51 PhD students of IDS TUL

85 PhD students - third cycle studies at TUL

11 Non-PhD students

Election to the Council for Scientific Excellence

September's elections to the Council for Scientific Excellence chose members of the body for the 2024-2027 term. A total of 478 scientists applied for the mandate. As a result of the election, 169 scientists representing 55 disciplines in 10 scientific fields sat on the Council.

Lodz University of Technology submitted 27 candidates for election to the Council for Scientific Excellence (RDN). Candidates represented all disciplines in which scientific activity is carried out at the university. Two professors from Lodz University of Technology were nominated as members of the Council for Scientific Excellence:

- Prof. Beata Gutarowska of the Faculty of Biotechnology and Food Sciences in the discipline of chemical engineering,
- Prof. Andrzej Bartoszewicz from the Faculty of Electrical, Electronic, Computer and Control Engineering in the discipline of automation, electronics, electrical engineering and space technologies.

Prizes and awards for TUL scientists in 2023

The scholarship for outstanding young scientists demonstrating significant achievements in scientific activities was awarded to Ernest Ireneusz Stano PhD in the field of engineering sciences the discipline of automation, electronics, electrical engineering and space technologies, Assistant Professor at the Institute of Mechatronics and Information Systems at the Faculty of Electrical, Electronic, Computer and Control Engineering at TUL.

The Prize of the Minister of Education and Science

Prof. Marcin Kaminski of the Faculty of Civil Engineering, Architecture and Environmental Engineering at Lodz University of Technology has received an award from the Minister of Education and Science in the category of achievements in scientific activities.

Pearls of Science

Emila Brancewicz-Steinmetz, an IDS doctoral candidate at TUL, became the winner of the first edition of the MEIN competition. Emila Brancewicz-Steinmetz was awarded the maximum amount of PLN 240,000, provided for in the competition for projects in engineering and technical sciences, for research on Shaping the physicochemical and mechanical properties of 3D prints with a gradient structure. The laureate conducts her research at the Institute of Materials Science and Engineering at the Faculty of Mechanical Engineering at Lodz University of Technology under the scientific supervision of Prof. Jacek Sawicki.

Association of Chemistry and the Environment

Prof. Małgorzata Iwona Szykowska-Jóźwik, Dean of the Faculty of Chemistry at TUL, became president of the European Association of Chemistry and the Environment (ACE). The election of the new ACE president was held at the 23rd European Meeting of Environmental Chemistry (EMEC23).

In the previous term, Prof. Malgorzata Iwona Szykowska-Jóźwik was vice president of ACE, an association that unites scientists focused on solving environmental problems and promoting environmentally oriented education.

LAP program

Assoc. Prof. Grzegorz Liśkiewicz of the Institute of Turbomachinery was accepted into the Leadership Academy for Poland (LAP), one of the top leadership development programs run by Harvard University lecturers, among others.

Young Academy of Europe

Prof. Marta Gmurek of the Faculty of Process and Environmental Engineering was accepted into the prestigious Young Academy of Europe. She is the first person from Lodz in this prestigious group of young scientists.

The organization currently has 180 members who boast significant achievements in their scientific research.

Lodz University of Technology Own Scholarship Fund

The Own Scholarship Fund is aimed at active and academically successful individuals who are developing their career path at TUL. The award is given on a competitive basis to those who meet the formal criteria.

As a result of the outcome of the 16th edition of the competition for academic scholarships from the TUL's Own Scholarship Fund, which received 68 applications, 26 scholarships were awarded:



RESEARCH PROJECTS

Implementation of research projects

In 2023, 195 project applications were submitted in competitions announced by research funding institutions. A total of 42 research projects were accepted for implementation.

A total of 233 research projects were carried out in 2023 by TUL employees. 38% of ongoing research projects at the University were coordinated by women.

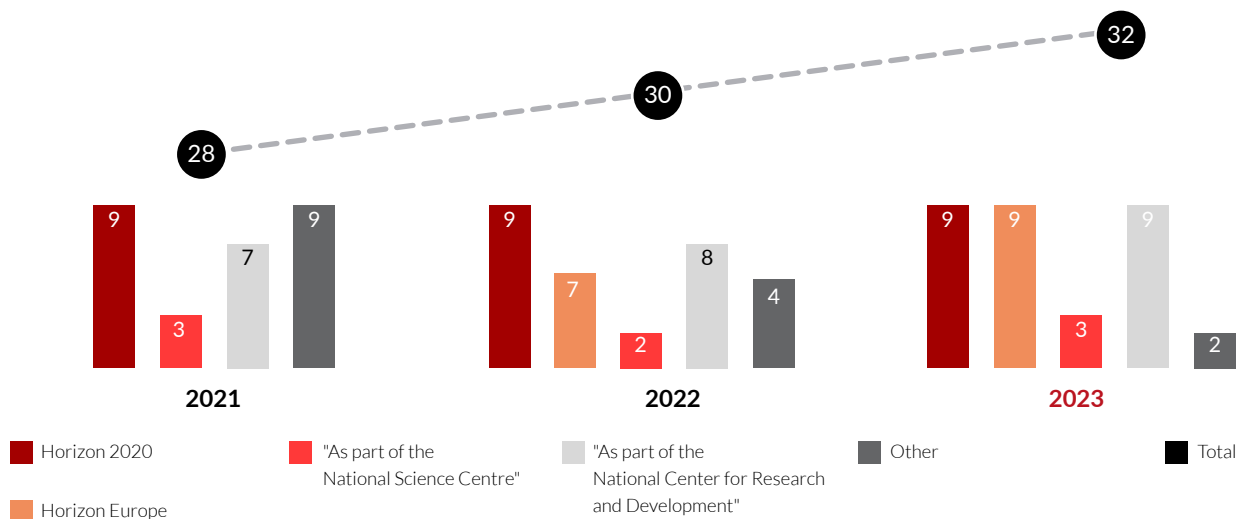
The university has successfully applied for research projects as part of international programs. In 2023, TUL secured 4 projects under Horizon Europe, placing it among the top technical universities participating in the new European Union framework program.

Value of costs incurred for the implementation of international projects under the co-financing

2021	PLN 3,499.1 thousand
2022	PLN 5,229.0 thousand
2023	PLN 7,862.8 thousand



International research projects implemented in 2021-2023

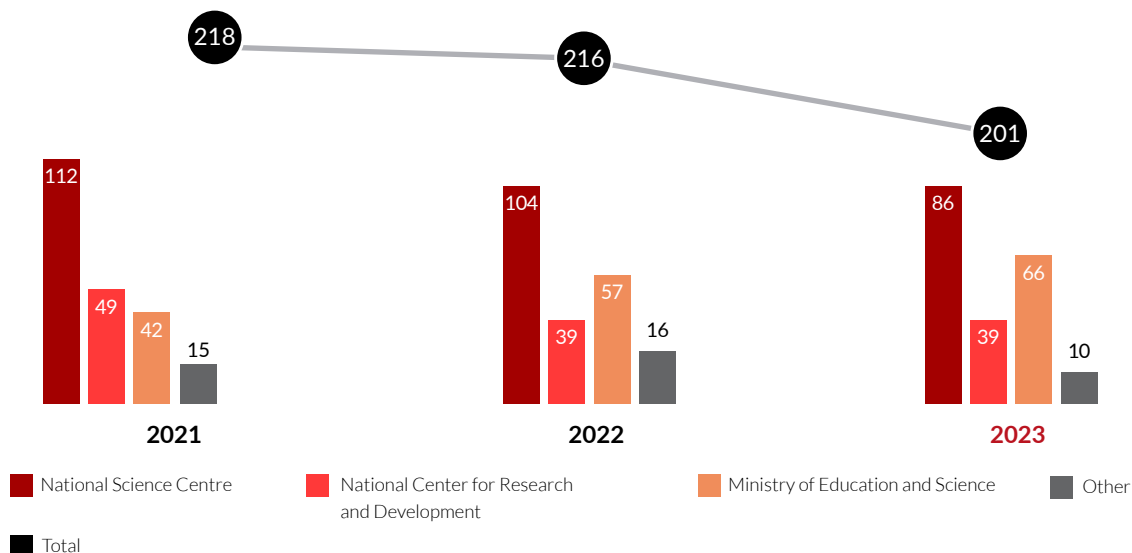


Value of costs incurred for national projects under the co-financing

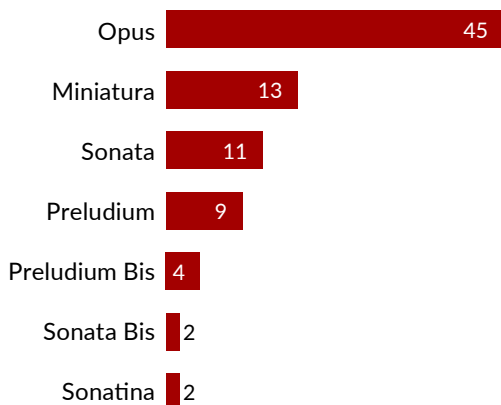
2021	PLN 46,176.5 thousand
2022	PLN 43,895.2 thousand
2023	PLN 46,603.0 thousand



National research projects implemented in 2021-2023



Number of national projects funded from NCN in 2023



National projects funded by the National Science Centre accounted for 36.9% of the total number of projects implemented at TUL.

The value of costs incurred for the implementation of national projects under NCN funding in 2023 amounted to PLN 11, 616.7 thousand.

PrzyTUL grant

Lodz University of Technology has launched a program to support researchers planning to secure a prestigious European Research Council (ERC) grant. In 2023, three applications were submitted: 1 ERC Starting Grant (StG) and 2 ERC Synergy Grant (SyG).

Research Workshop

In June 2023, the University, as an active member of the European Consortium of Innovative Universities (ECIU), organized a workshop on the activities of the ECIU in the area of Research, i.e. scientific research and the new opportunities accompanying Lodz University of Technology's membership in this consortium (related, among other things, to the implementation of international projects). The meeting was held in hybrid form in English.

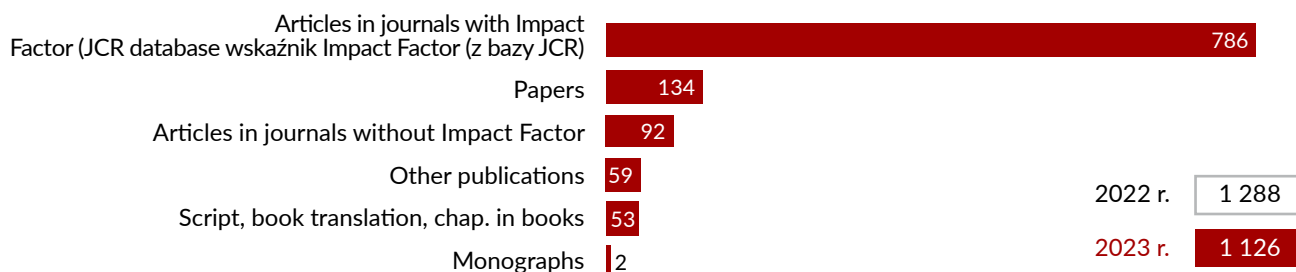


PUBLICATIONS

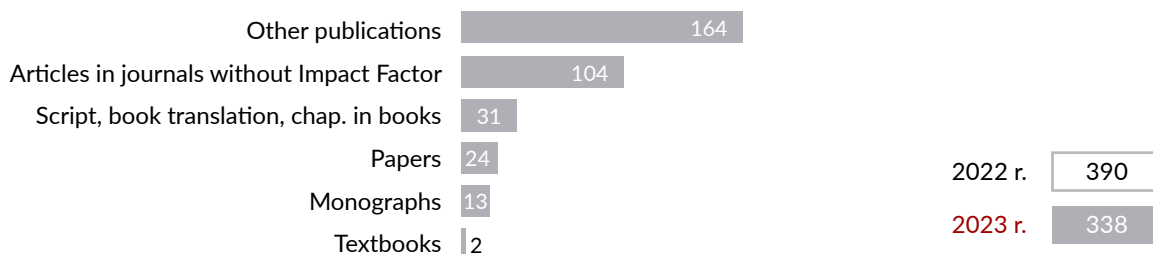
In 2023, researchers at Lodz University of Technology published a total of 1,464 publications.

Publications with an international focus accounted for 76.9% of total TUL publications.

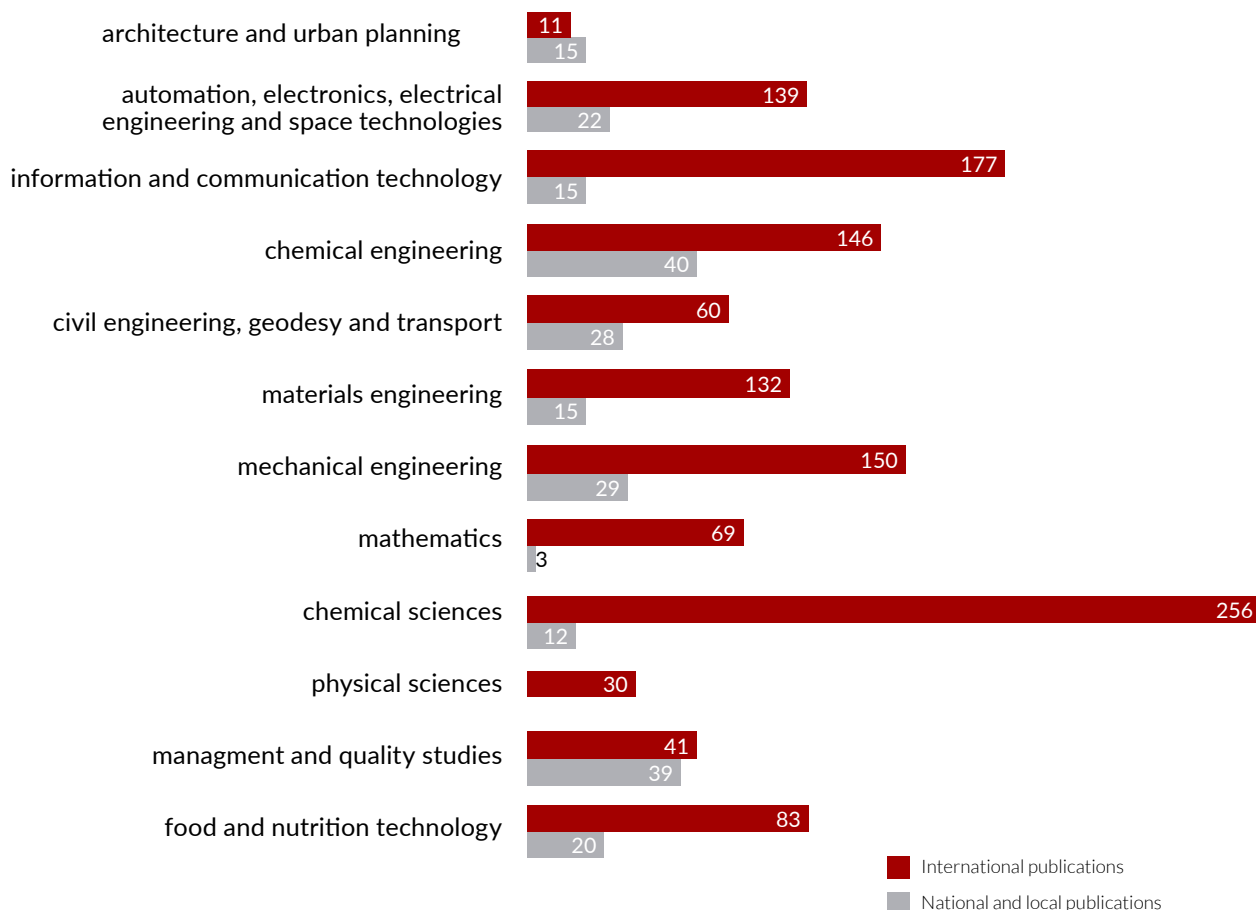
International publications



National and local publications



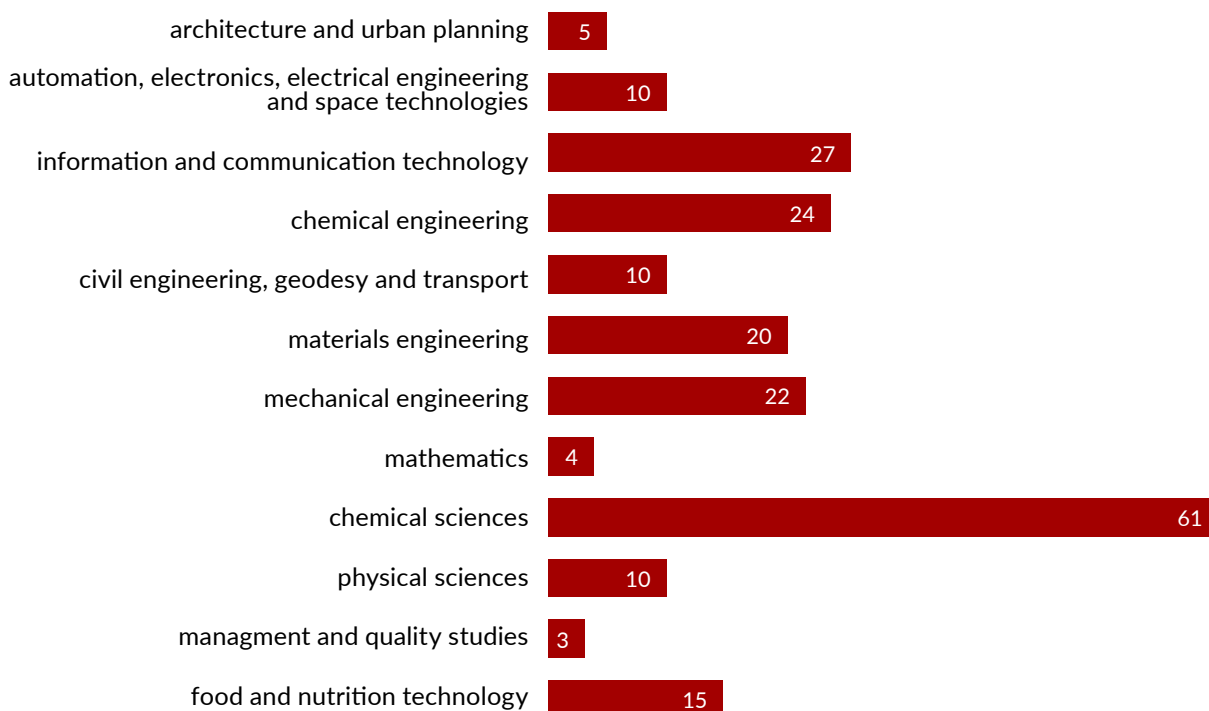
Lodz University of Technology publications in 2023 by discipline



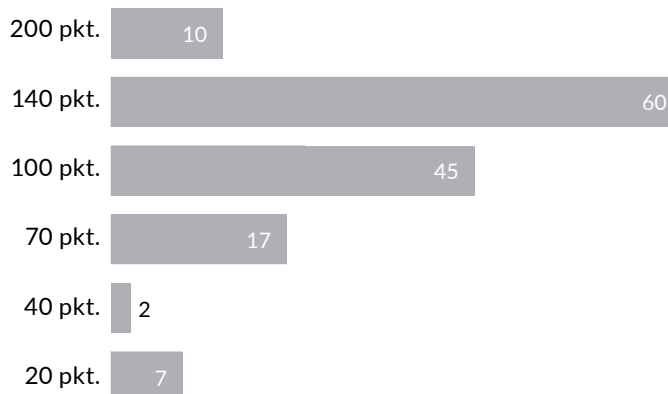
Publication activity of PhD students of IDS at TUL

PhD students from the Interdisciplinary Doctoral School of Lodz University of Technology were authors and co-authors of 203 publications published in 2023.(in 2022 - 248).

Publications of PhD students of IDS at TUL in 2023 by discipline



Publications of PhD students of IDS in journals included in the ministerial list



TUL Publishing House

A total of 30 publications were issued in 2023:

- 25 print publications with a total circulation of 3,560 copies, including 7 reprints with a volume of 160 publication sheets and a total circulation of 1,290 copies;
- 5 publications in electronic version, which have been placed in the TUL repository.

The library collection of Lodz University of Technology

Providing access to the print collections of the entire library system of TUL:



- books in vol. - 267,576
- other non-electronic collections - 231,635
- magazines in vol. - 132,773

Providing access to electronic collections:



- Electronic sources (databases and services) - 82
- titles of full-text books (Polish and foreign) - 502,905
- titles of journals and other publications with full access texts - 58,906.

Support of the TUL Library for students and employees from Ukraine

The TUL Library provided an e-learning course "Electronic Workshop for Scientific Work" in Ukrainian made openly available. In addition, with the Central Scientific Library of Kharkiv University it co-organized the Seminar titled "Робота бібліотеки під час надзвичайних ситуацій природнього, соціального, техногенного та воєнного характеру".

DEVELOPMENT OF RESEARCH POTENTIAL

The University successfully undertakes activities to support the scientific potential of the employees, doctoral candidates and students of the University.

The ongoing programs at Lodz University of Technology influence the improvement of the quality of research, aiming to increase the recognition of TUL as a research university in the international arena.

FU²N - Young Researchers' Skills Improvement Fund

The competition for internal grants under the FU²N (Young Researchers' Skills Improvement Fund) program continued. The goal of the program is to strengthen the University's scientific and human resources potential by improving the skills of doctoral students and young scientists in preparing research grant proposals and increasing their effectiveness in obtaining grants.

In the second edition of the competition, 41 winners were selected: 21 doctoral students and 20 young scientists who received funding for in-house grants from the TUL. The total value of the funding in 2023 was PLN 715 thousand.

FACE - Fund for Academic Conference Excellence

The FACE (Fund for Academic Conference Excellence) program continued, which aims to strengthen and enlarge the academic achievements of TUL employees by subsidizing their participation in prestigious international scientific conferences. A total of 15 applications were qualified for funding, and the amount of funding awarded was PLN 43.4 thousand.

Joint MUL and TUL award for publications

The university strengthened its cooperation with the Medical University of Lodz (MUL) by organizing the second edition of the competition for the prize of the Rector of Lodz University of Technology and the Rector of the Medical University of Lodz for the best scientific publication published jointly in 2022.

The winner was the team of authors of the publication titled "Natural Fish Oil Improves the Differentiation and Maturation of Oligodendrocyte Precursor Cells to Oligodendrocytes In Vitro After Interaction with the Blood-brain Barrier".

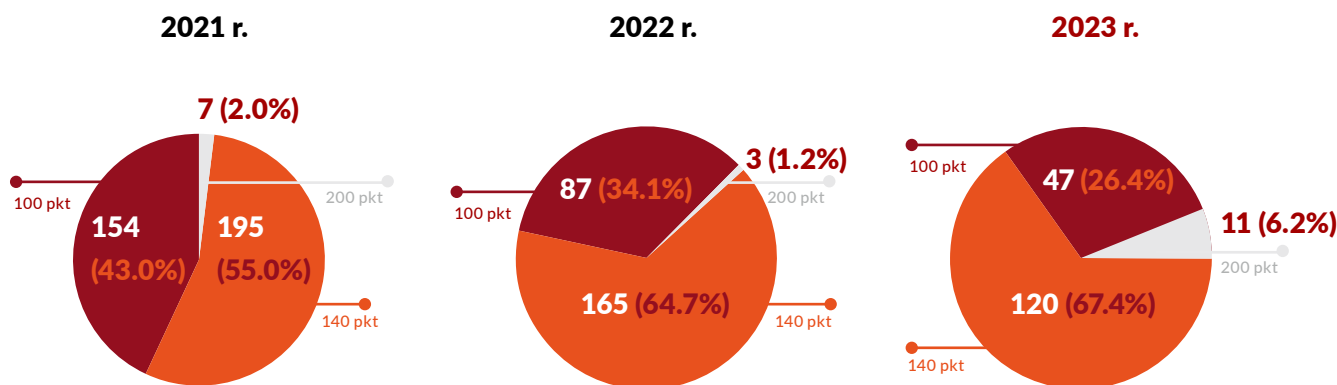
The goal of the competition is to promote interuniversity cooperation and identify the best research ideas.



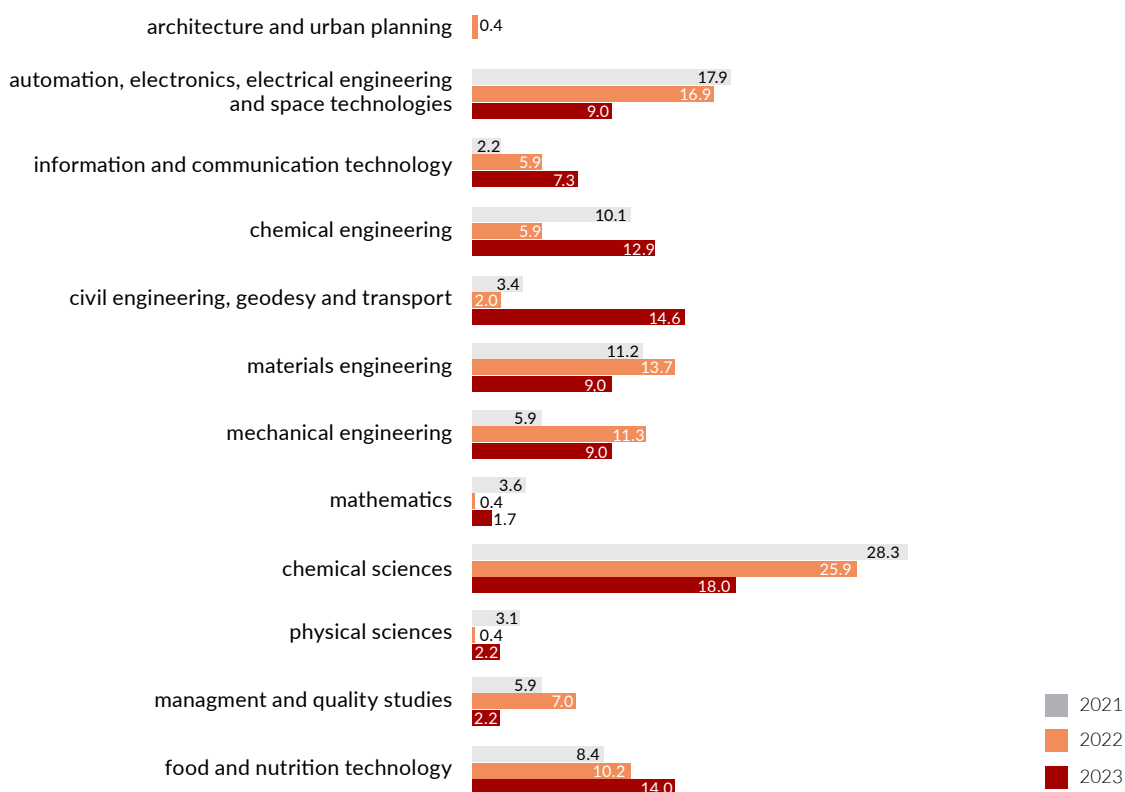
Funding for Open Access publications

Funding for Open Access publications to support the publication activities of employees, doctoral students and students of the TUL continued. In 2023, the University subsidized 178 publications for a total of PLN 1,698.3 thousand.

Number of subsidized publications in 2021 - 2023



Share of funded publications per discipline (%)





Awards to support scientific excellence

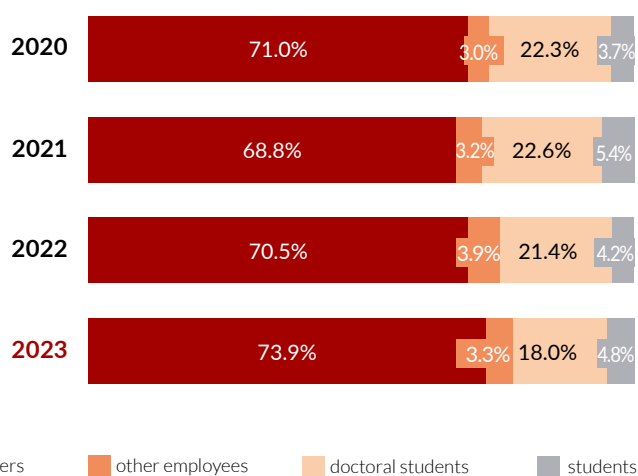
Lodz University of Technology participates in the "Excellence Initiative - Research University" program (IDUB), under which the University aims to strengthen the activity of academic staff in the national and international scientific community.

In 2023, awards continued to be made within the framework of funds allocated to support scientific excellence of employees, doctoral candidates and students of TUL. The value of awards paid under the IDUB program in 2020-2023 totalled PLN 16,599.0 thousand, including PLN 3,915.0 thousand in 2023.

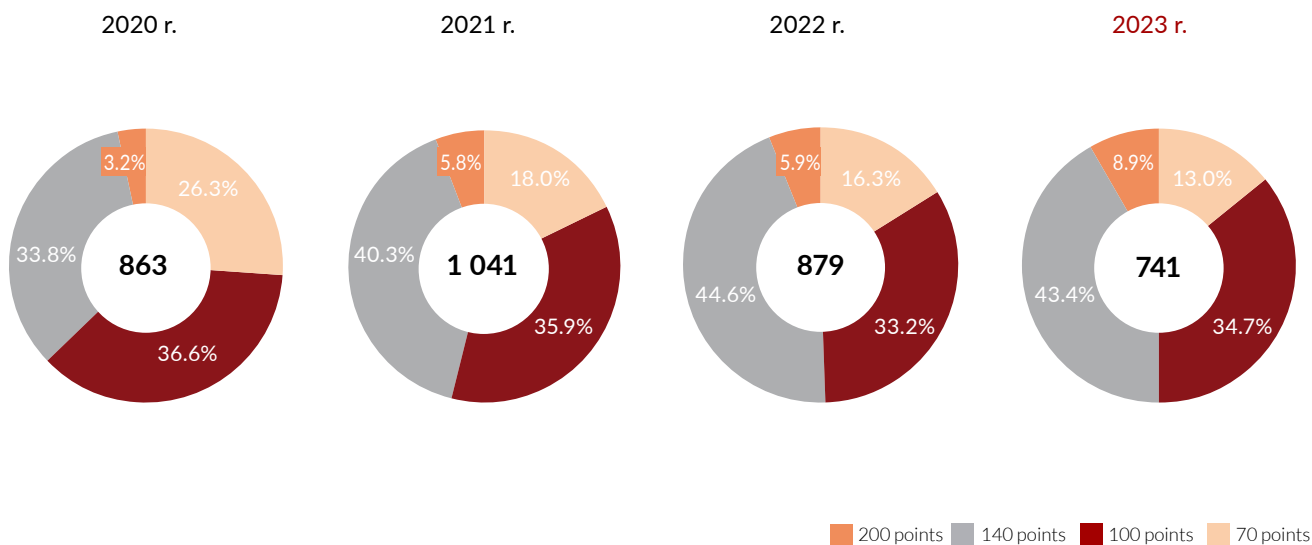
Awardees 2020-2023

	2020	2021	2022	2023
	868	1 052	889	815
	41%	40%	40%	40%

Awarded persons by author status



Number of publications for which prizes were awarded



New initiatives

ECIU Researcher Mobility Fund at TUL (RMF)

In order to meet the expectations and needs of TUL scientists and the guidelines of the ECIU, the University has launched the [ECIU Researcher Mobility Fund \(RMF\)](#), a mobility program with the main objective of supporting research staff in establishing and expanding research cooperation with other member institutions. Two editions of the mobility program have been launched. Under the program, Lodz University of Technology subsidizes trips to partner institutions within the ECIU consortium to establish or expand scientific cooperation.



Research Week

The first Research Week at TUL was organized: a five-day event abundant in a series of lectures, discussions and meetings to inspire research careers. It was possible to learn about their research capabilities and apparatus in the open laboratories. The event was aimed at the entire academic community. This is the first time that Lodz University of Technology has created such a broad forum to explore opportunities for research and international cooperation. The week-long event began with an opening lecture by

Prof. Jerzy Hausner. The title of the speech was "Regenerative Transformation of Management."

Coalition for Advancing Research Assessment (CoARA)

Lodz University of Technology is a signatory to the Coalition for Advancing Research Assessment (CoARA), which aims to reform the science assessment system. In connection with the University's accession to this initiative, a CoARA Team was formed at TUL. It was planned to establish a Steering Committee for CoARA at TUL.

Within the consortium, national chapters (NCs) and working groups were formed. The Polish team (NC-PL) was established under the auspices of the Conference of Rectors of Universities and the Polish Academy of Sciences.

EIT Food

The university joined the structure of the European Institute of Innovation and Technology in Food (EIT Food) pillar in June 2023 as a Delivery Partner. Participation in this body provides opportunities for cooperation within the so-called knowledge triangle, based on education, research and innovation creation.

Thanks to their membership in the network, representatives of TUL scientific staff participated in a training course "Networking Meeting EIT Food and North & East Partners," organized at the University of Warsaw. In addition, TUL scientists took part in a workshop organized by the EIT Food team, through which they expanded their knowledge of missions and key priorities for the agri-food sector.

COOPERATION



- 77** protection titles obtained at the Patent Office of the Republic of Poland
- 10** spin-off companies
- 29** strategic partners
- 24** projects under Erasmus+ Action 2 program

COOPERATION WITH THE SOCIO-ECONOMIC ENVIRONMENT

Clusters

Lodz University of Technology is a member or coordinator of five clusters:

- [Lodz ICT Cluster](#)
- [Bioeconomy Cluster Association,](#)
- [Lodz Energy Wave Cluster,](#)
- [Cluster "LODZistics - Logistics Business Network of Central Poland",](#)
- [Cluster Q.](#)

In 2023, Lodz University of Technology joined the Q Cluster, which brings together universities, research institutes and private companies developing the country's quantum technology potential. The activities of Cluster Q are multi-faceted and include support of multi-centre R&D projects and commercialization of their results for comprehensive development of the advanced quantum technology sector in Poland.

Five new members have joined the Lodz ICT Cluster: Digica, Eviden, Hitachi Energy, Sollers Consulting, ZF Automotive. With the new participants, the cluster has a total of 44 members.

In January 2023, a gala event was organized in the Sports Bay to celebrate the 10th anniversary of the Lodz ICT Cluster, with the participation of nearly 100 representatives of business, Lodz universities, local government authorities, including the Vice-President of the City of Lodz, Adam Pustelnik, and business environment institutions. The event was solemnly opened by the Rector of Lodz University of Technology, Prof. Krzysztof Jóźwik, emphasizing how important it is these days for universities to cooperate with business, in the context of technological progress and the ever-changing labour market. During the ceremony, the chairman of the cluster's council and at the same time Vice-Rector of Lodz University of Technology for Development, Prof. Paweł Strumiłło, summarized a decade of cluster activity by presenting the most important milestones in the development of this organization, coordinated by Lodz University of Technology.

Recommendation of subjects by companies from the Lodz ICT Cluster

"Subject Recommendation" program was continued, through which companies in the Lodz ICT Cluster officially recommend a subject as being in line with their needs. In 2023, Indemia R&D Poland successfully conducted a recommendation process for the courses 'Networked Database Systems' and 'Fundamentals of Internet Systems Security' at the Faculty of Technical Physics, Information Technology and Applied Mathematics.

The premise of this proprietary program, which is an internal initiative of the ICT Cluster Education Task Force, is to verify the content of the subjects, the materials used and the way the Cluster companies teach the subjects. In case of a positive evaluation from the company, the subject will receive a recommendation marked with the company's logo and name, and an expert from the company will teach a class (e.g., a lecture or laboratory) in the awarded subject.

Join IT in Łódź

As part of the Lodz ICT Cluster's 2023 activities, [the Join IT in Lodz](#) series continued under the slogan "No women = no code," promoting Lodz as a high-tech city with good universities and IT companies, where women can succeed in the IT industry in both technical and managerial positions.

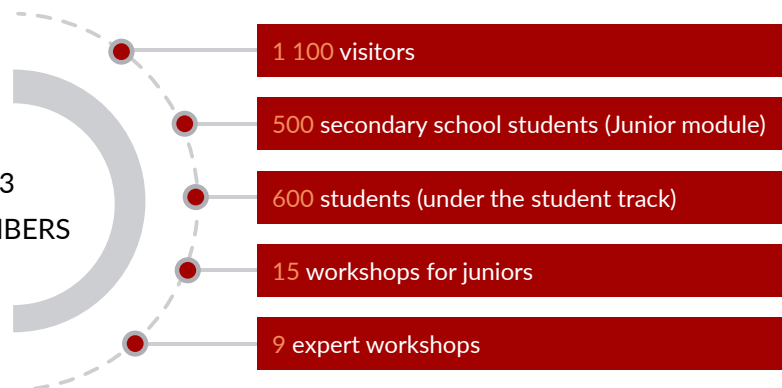
Lodz Days of Information Technology (LDI)

The Lodz ICT Cluster organized the seventh edition of Lodz IT Days. Topics at the event focused on artificial intelligence, cyber security and working with data. The program included lectures, workshops and modules dedicated to secondary school students. Lodz IT Days, organized by the Lodz ICT Cluster on the campuses of Lodz University of Technology and the University of Lodz, is the region's largest event dedicated to the IT industry.

In the "Junior" module, secondary school students had the opportunity to take part in workshops on 3D printing, mobile application programming, virtual reality or robotics. The meeting's program for prospective IT students was complemented by talks by industry professionals on how to start a career in IT.



LDI 2023
IN NUMBERS



Lodz Energy Wave Cluster

The City of Lodz has joined the Lodz Energy Wave Cluster as a member. The cooperation of local entities - both public and private - will allow the cluster to build a space for projects using local energy resources, including tapping into the potential of opportunities and needs on a city-wide scale. This will improve the efficiency of energy and district heating management in the city.

Veolia became the cluster coordinator and Lodz University of Technology became the head of the cluster committee.



Cluster "LODZistics - Logistics Business Network of Central Poland".

In 2023, 23 new participants were admitted to the cluster, and it now has 41 members.

The Employers' Association "LODZistics" - Logistic Business Network of Central Poland has been included in the project "Establishment and Operation of the Industry Skills Centre for Logistics based in Grodzisk Mazowiecki".

XVI European Economic Forum - Lodz 2023

Lodz University of Technology was a content partner of the XVI European Economic Forum, and among the speakers and moderators of the panels were a number of employees of the University. The Institute of Architecture and Urban Planning at TUL presented issues related to the impact of the economy on the environment, climate and green transformation in the panel "Transformation of Space - Architectural and Urban Research as a Source of Economic Innovation."

In the panel "Chat GPT, the Future of Work in the Age of Artificial Intelligence," experts from companies gathered in the Lodz ICT Cluster discussed the latest trends and tools related to the use of artificial intelligence at work in various fields, such as finance, medicine, IT, transportation or manufacturing.

On the first day of the 16th European Economic Forum, the Economic Award of the Lodz Region "Business on Plus" was presented. It is awarded in six categories. Among the three companies nominated for the award in the "Business Debut" category was C CUBE P.S.A. - a spin off of Lodz University of Technology established in 2022.

International Congress on Energy Urban Regeneration

The 3rd Congress on Urban Regeneration was dedicated to the policies and processes of urban regeneration in the context of energy transition. The aim of the Conference was to exchange national and international experiences, as well as to try to formulate recommendations in terms of Polish spatial and multi-stakeholder urban policies to support local adaptation strategies. In the session entitled *Construction and urban design in the face of the energy transition* was moderated by the dean of the Faculty of Civil Engineering, Architecture and Environmental Engineering, Prof. Dariusz Gawin. The session entitled *Techniques and Technologies in the Energy Transformation of Cities* was moderated by Associate Dean of the Faculty of Mechanical Engineering Prof. Lukasz Kaczmarek, and panellists included staff from the Faculty of Mechanical Engineering, the Faculty of Technical Physics, Information Technology and Applied Mathematics.

Corning Day

Corning Day is an event prepared by Corning together with Lodz University of Technology and the Student Young Microelectronics Section of the Fiber Optics Club. In 2023, the event was organized under the slogan "WORLD Fiber that Connects the World." Corning Day included hands-on workshops with company employees, inspiring lectures and a field game.

Future mobility

On the initiative of Lodz University of Technology Council, [the Lodz Future Mobility Forum](#) was organized to discuss the latest trends in mobility, that on the ground and in the air, safe for people and environmentally friendly. An important element of the meeting was a discussion of the mobility of the future and the training of personnel competent in this field.



Digital Municipality

The “Digital Municipality” project implemented by the Digital Poland Project Centre in partnership with Lodz University of Technology has been completed. The goal of the project was to increase the capacity of local government units and their subordinate entities to implement e-services, cyber security, working and learning remotely.

The university, as a project partner, was responsible for the recruitment, evaluation and settlement of the submitted applications. This is another example of the University fulfilling its mission in the area of social responsibility and linking the know-how of our scientists to the needs of the University's environment, in this case including all Polish municipalities.

[InnovaTex2023 International Conference](#)

The event brought together a diverse group of young researchers and recognized textile industry experts from around the world.

During InnovaTex2023, the latest developments in textile technology were presented, addressing issues related to the ecology of textile products and processes. Participants had the opportunity to learn about the breakthroughs shaping the future of the textile sector.

The event was organized by Lodz University of Technology and the Lukasiewicz Research Network - Lodz Institute of Technology.



Protection of intellectual property*

In 2023 Lodz University of Technology obtained 77 protection titles from the Polish Patent Office. Cases pending before the Polish Patent Office included 180 applications for patents and 3 applications for utility models.

*according to the data held by the Patent Attorneys' Office TUL

Exclusive rights upheld at the Polish Patent Office:

- 434 invention patents,
- 6 utility model protection right,
- 27 trademark protection rights,
- 2 rights from registration of integrated circuit topographies.

Applications to the Patent Office of the Republic of Poland

Protection titles obtained at the Patent Office of the Republic of Poland



Inventions

2022 - 61
2023 - 80



Utility models

2022 - 2
2023 - 1



Patents

2022 - 62
2023 - 73



Protective rights for utility models

2022 - 3
2023 - 4

According to the 2022 report published by the Patent Office of the Republic of Poland, Lodz University of Technology ranks sixth in terms of the number of granted patents filed for protection by domestic and foreign entities.

Industrial property objects filed with foreign patent offices in 2023 by the University:

- 1 invention in PCT mode,
- 1 in the UK.

Exclusive rights upheld before foreign patent offices:

- 1 patent in Switzerland/Lichtenstein,
- 2 patents in the UK. Britain,
- 2 patents in Germany,
- 1 patent in France,
- 1 patent in the US,
- 1 patent in Italy,
- 1 patent in Japan,
- 1 patent in Spain.

Commercialization

Innovation Incubator 4.0

Implementation of the "Innovation Incubator 4.0" project continued until the end of 2023:

- promoted TUL inventions at trade fairs and science to business events, such as IPITEX 2023, GENEVA INVENTION 2023, Lodz Industrial Conference "INDUSTRY DAY", XVI European Economic Forum - Lodz 2023, Rethink digital fest - business and technology festival,
- An analysis of the TUL technology portfolio for 2020-2023 and a report on the identification of technology trends were prepared,
- Cooperation with business was established through licensing agreements, sales, provision of research services,
- the competences of employees at TUL in project management, commercialization of research and technology results were improved.

In 2023, there were 10 spin-off companies established to commercialize the results of TUL research.

Innovative solutions from our university were recognized at the [IPITEX 2023](#) International Invention Fair in Bangkok where an international jury awarded nine medals: one gold, two silver and six bronze:

- gold medal - [*Tectonic diagnostic system for monitoring vibration levels in seats with increased vibration exposure*](#) (Assoc. Prof. Michal Frydrysiak, and Zbigniew Pawliczak, MSc);



- Silver medals - *Bioactive formulation for obtaining eco-friendly fabrics with antibacterial, antifungal and antiviral properties* (Assoc. Prof. Anna Marzec, and Boleslaw Szadkowski, PhD) and GapAware system for cyclists (Julia Dominiak, MSc, Anna Walczak, Marcel Bednarczyk, Natalia Bartłomiejczyk).

- bronze medals:

- *"Obtaining camouflage materials for military and operational purposes"* (Anna Marzec, PhD, and Boleslaw Szadkowski, PhD),
- *"Low-noise vortex diffuser"* (Joanna Kopania, PhD and Grzegorz Boguslawski, PhD),
- *"Method of producing filter material with hydrophobic and bactericidal properties, intended for tracheotomy, especially for a tracheostomy tube insert"* (Prof. Jacek Sawicki, Paulina Byczkowska, MSc.; Prof. Łukasz Kaczmarek, Piotr Zawadzki, PhD, Mariusz Steglański, PhD, Tomasz Warga, Krzysztof Krupanek, PhD, Witold Jakubowski, PhD),
- *"AdapTable: A system for tracking and classifying popular objects to support remote collaboration"* (Eng. Krzysztof Adamkiewicz, Jędrzej Pietrzak, Bartosz Moczowski, Amelia Salek, Anna Walczak, Julia Dominiak, MSc, Assoc. Prof. Krzysztof Grudzień, Prof. Andrzej Romanowski),
- *"TextureTouch: Robotic arm for remote texture sensing"* (Natalia Krzyzaniak, Natalia Walczak, MSc, Piotr Pomykalski, Weronika Majewska, Anna Walczak, Julia Dominiak, MSc., Aleksandra Wysokińska, PhD, Magdalena Wróbel - Lachowska, PhD, Assoc. Prof. Krzysztof Grudzień, Prof. Andrzej Romanowski),

- *Method of manufacturing composite electrodes for electrodeposition of water based on cross-linked graphene oxide* (Assoc. Prof. Konrad Dybowski, Prof. Łukasz Kaczmarek, Prof. Piotr Kula, Witold Szymański, PhD, Tomasz Warga, Grzegorz Romaniak, MSc, Bartosz Bucholc, Magdalena Makowicz, Jan Siniarski, Tomasz Kaźmierczak).

At the [GENEVA INVENTION 2023](#) exhibition, the inventions entitled *Bioactive formulation for obtaining eco-friendly fabrics with antibacterial, antifungal and antiviral properties* (Assoc. Prof. Anna Marzec, and Boleslaw Szadkowski, PhD) and *Method of measuring the effective value of current especially in cables and conductors of EHV and MV power networks* (Prof. Boguslaw Więcek, Blazej Torzyk, MSc) were awarded silver medals. Meanwhile, the invention *Obtaining camouflage materials for military and operational purposes* (Assoc. Prof. Anna Marzec, Boleslaw Szadkowski, PhD) received a bronze medal.

In 2023, a number of measures were taken in TUL to establish cooperation between the scientific community and the business environment. Centre for Innovation and Entrepreneurship brokers held numerous conversations with companies interested in TUL research and technology offerings, which culminated in the signing of confidentiality agreements, cooperation agreements, service agreements or the submission of applications for funding under EU-funded programs.

Revenue from commercialization*
(thousands PLN)



*net worth

Creators on account of commercialization were paid salaries in the amount of PLN 304.2 thousand.



Startups Powered by Invest in Lodz

In June, the city's accelerator program "Startups Powered by Invest in Lodz" was inaugurated at Lodz University of Technology with the participation of mentors, experts, strategic partners and startups from Poland and abroad. The program helps startups with high technological potential maximize their chances of commercial success by providing: an implementation path, an investment path, promotion and internationalization, access to knowledge and grants. The university has become a strategic partner in this largest accelerator program in Poland.

gest accelerator program in Poland.

In December, the finale of the Startups Powered by Invest in Lodz program was held at a gala.

Two start-ups associated with Lodz University of Technology - the BioMaGel team and EcoCPR - were awarded.

Contract research services

Sales value of research work and services performed under contracts with businesses, individuals or other entities:

2022	PLN 17 379.3 thousand	including work commissioned by:	domestic entities	foreign entities
			PLN 11 062.8 thousand	PLN 6 316.5 thousand
2023	PLN 15 896.4 thousand		domestic entities	foreign entities
			PLN 10 738.9 thousand	PLN 5 157.5 thousand

Theses and project work carried out in cooperation with industry



274
completed works
design with industry



168
completed theses with
industry

Theses for the region

Among the 19 laureates of the XXIV edition of the Lodz Region Marshal's Awards for the best dissertations and theses thematically related to the Lodz Region were five people from TUL, whose works promote the region and whose research results contribute to its social, economic and cultural development:

- doctoral dissertation - 2,
- master's degree diploma thesis - 1,
- engineering thesis- 2



Accredited Testing Laboratories

In 2023, there were 4 accredited research laboratories operating at TUL:

- Specialized Sugar Analytical Laboratory,
- LAB-TEX textile and apparel technology laboratory,
- Research Laboratory for Building Materials and Structures,
- Research Laboratory for Building Materials and Building Physics.

Cooperation with external partners established in 2023.

Cooperation with Saint-Gobain Group

The agreement between Lodz University of Technology and the [Saint-Gobain Group in Poland](#) concerns joint activities for the development and education of students, as well as jointly conducted research projects. For students of Lodz University of Technology, the agreement will create an opportunity to organize a program of student internships and placements.



Cooperation with WITKO

A contract has been concluded with the company [WITKO](#) for joint activities for the development and education of students, mutual research and development cooperation.

A better understanding of the needs of the company cooperating with scientists and manufacturers in high-tech fields will be made possible by meetings within the framework of the so-called "open doors",

tours of production halls, presentation of scientific and teaching equipment.

Union of Employers of Innovative, Consulting and Development Companies "INDORO"

Lodz University of Technology has become a founding member of the [INDORO Employers' Association](#), a nationwide initiative of more than a dozen universities, chambers of commerce, private companies and NGOs involved in innovation, consulting and development services. The purpose of the established initiative is to support its members and Polish companies in adapting to current economic trends, such as the creation of innovations and their transfer to business, digitization, or the green economy. The Vice-Rector for Education, Prof. Andrzej Romanowski, became a member of the Union's Council.



Rafal Stepnowski Think Tank

Lodz University of Technology has become one of the nine partners of the Consortium for Aerospace and Marine Technology Research and Development (LKM) "Rafal Stepnowski Think Tank", established in 2023. The main goal of the Consortium is to consolidate scientific potential in this area and to increase advisory capacity for academia, business and public administration.

INTERNATIONAL COOPERATION

The European Consortium of Innovative Universities (ECIU)

TUL is a member of an elite network of European universities [ECIU - The European Consortium of Innovative Universities](#), within which cooperation concerns innovative education, research and knowledge exchange, as well as innovations in social life.

[ECIU University Research Conference](#)

Representatives of Lodz University of Technology took an active part in the first conference of scientists of ECIU member universities held in Barcelona. During the conference, the opening of the ECIU Research and Innovation Hub was announced to help further scientific cooperation between the consortium's member universities. The R&I Hub is a digital community that aims to connect researchers with stakeholders, providing a space for them to network and collaborate within the ECIU community.



[ECIU4Ukraine](#)

The university implemented the ECIU4Ukraine project, a year-long venture funded by the National Agency for Academic Exchange. The entire year of 2023 was full of activities organized for the Ukrainian participants of the project: there were workshops, a summer school, invitations to conferences and other ECIU events. According to the provisions of the project, equipment was also purchased to enable them to

participate in meetings and online classes.

In December, the final conference of the ECIU4Ukraine project was held at TUL International Cooperation Centre: European Universities for Ukraine. The conference was attended by representatives of 10 Ukrainian universities, who came to Lodz to share their impressions of the project.

[ECIU Micro-credentials](#)

A major event at ECIU in the second half of the year was the official implementation of micro-credentials. ECIU has become the first European alliance to issue centralized micro-credentials bearing an electronic seal. This allows certificates to be issued centrally for participation in micromodules and challenges, which provide certification of skills acquired and courses completed. Electronically authenticated by ECIU and issued using the European Digital Credentials platform, micro-credentials make it possible to upgrade and change skills, opening the door to broader employment prospects.

[FOCI and ESEU projects](#)

Lodz University of Technology participated in two prestigious projects shaping the future of academic education in the European Union:

FOCI (Future-Proof Criteria for Innovative European Education), which brings together members of the ECIU, YUFE and EPICUR alliances to explore and pilot possible criteria that will form the basis of a future European degree.

ESEU - European Legal Status, a project that received funding from the European Commission to develop a legal scheme for the ECIU European University.

Hekaton Create Tomorrow

Students from TUL participated in the largest student hackathon in Europe, organized by the ECIU member University of Twente in the Netherlands. Create Tomorrow is an event full of inspiration, technology and entertainment during which students explore and solve social, business or technical challenges of the future.



Strategic Partners:

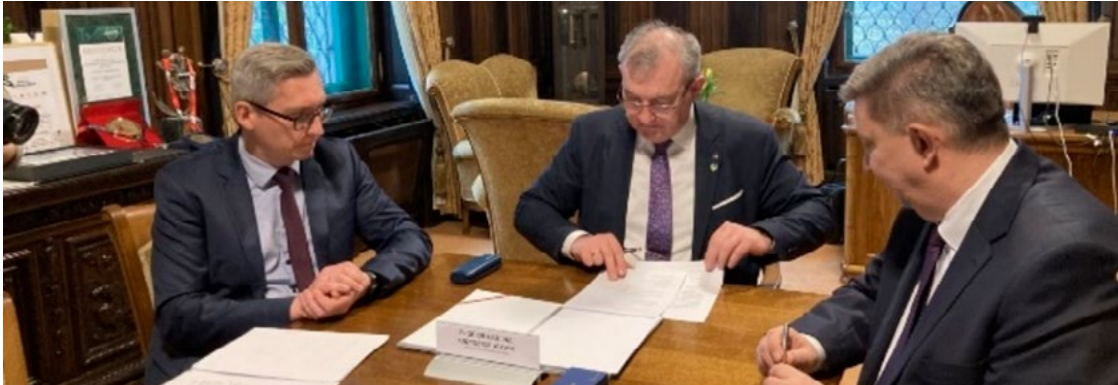
- École nationale supérieure d'arts et métiers - ENSAM (France)
- École Supérieure de la Performance - INEMA (France).
- ECAM La Salle (France)
- Institut catholique d'arts et métiers- ICAM (France)
- Hochschule für Technik und Wirtschaft des Saarlandes - HTW Saar (Germany).
- University of Applied Sciences (Germany)
- Instituto Superior de Engenharia do Porto -ISEP (Portugal)
- Max Planck Institute for Polymer Research (Germany)
- Saxion University of Applied Sciences (Netherlands)
- University of Alcalá (Spain)
- Universitat Politècnica de València (Spain)
- Universidad de Vigo (Spain)
- UPC- Universitat Politècnica de Catalunya (Spain).
- Technical University of Liberec (Czech Republic)
- Università degli Studi di Napoli Federico II (Italy).
- University of Agder (Norway)

As part of the ECIU network:

- Aalborg University (Denmark)
- Dublin City University (Ireland)
- Hamburg University of Technology (Germany)
- Institut National des Sciences Appliquées (France)
- Kaunas University of Technology (Lithuania)
- Linköping University (Sweden)
- Tampere University (Finland)
- Tecnológico de Monterrey (Mexico)
- Universitat Autònoma de Barcelona (Spain)
- University of Aveiro (Portugal)
- University of Stavanger (Norway)
- University of Trento (Italy)
- University of Twente (Netherlands)

Cooperation agreements with foreign universities in 2023.

A cooperation agreement has been concluded with:



- Australian university Curtin University in Perth, involving staff exchanges to develop forms of education and research, as well as activities for sustainable development. The university's main campus is located in Perth, but Curtin University also has locations outside Australia - in Malaysia, Singapore, Dubai and Mauritius. The document was signed by Rector Prof. Krzysztof Józwiak and Lodz Voivodship Marshal Grzegorz Schreiber.
- [Western Balkans University](#), involving wide-ranging cooperation from exchanging staff and students, to conducting joint scientific projects and implementing mutually agreed educational programs.
- two universities from Malaysia: INTI International University and University Malaysia Perlis.

International education projects at TUL

Within the framework of **Action 2 of the Erasmus+ Cooperation of Organizations and Institutions program**, in 2023 TUL implemented as many as 21 educational projects, acting as a leader or consortium partner. In three other initiatives, TUL served as an associate partner.

In 2023 the University has received funding in the total amount of €1.6 million for the coordination of 4 Collaborative Partnership projects within the higher education sector:

- Projekt **#edu4sdgs** „Building a Comprehensive Educational Ecosystem for Sustainable Development Goals”



The project aims to inspire various target groups to play an active role in their communities and become "agents of change" in achieving the Sustainable Development Goals (SDGs) that form the basis of the new UN Agenda 2030 - a vision to repair and build a better world for the benefit of the people and the planet.

The work of the consortium is coordinated by Assoc. Prof. Dorota Piotrowska, Head of Director of the International Cooperation Centre.

- **OUT-DOOR** project „Blended Outdoor Learning for fostering the employability of newly graduates”



The project will develop a training program based on so-called "outdoor learning" methodologies, which will create an alternative, attractive and engaging way of learning for students who will soon graduate and enter the labour

market. The project will enable the development of soft skills, building self-esteem and strengthening students' attitudes towards managing their careers. The consortium will develop a Massive Open Online Course (MOOC) based on the three European Competency Frameworks: DigComp (European Framework for Digital Competencies), LifeComp (European Framework for Key Personal, Social and Learning Competencies) and GreenComp (European Framework for Sustainable Development Competencies).

On the part of TUL, the project is headed by Anna Laska-Leśniewicz, PhD, and Katarzyna Znajdek, PhD.

■ **Abraxas** project "Best Practices for High-immersion Experience Design"

Abraxas

The main goal of the project is to improve the competence of future designers of immersive 3D experiences and their teachers. To this end, practical educational toolkits will be developed, supported by exercises based on virtual reality (VR) technology. The main outcome of the project will be an educational training program based on exercises using VR technology. The program will be available to educational institutions and individual participants who can use it for self-study.

The project, on the part of TUL, is being carried out by the Voxel Research Lab team from TUL Institute of Mechatronics and Information Systems. The project manager is Grzegorz Zwolinski, PhD.

■ **EXCAPE** Projekt eXcape „XR escape room - soft skills training for the modern learner”

This is another project developed by researchers at the Voxel Research Lab, where cutting-edge solutions and applications of virtual, augmented and mixed reality technologies are being developed. The grant will be used to use augmented reality to teach soft skills. Digital puzzle rooms will be created for this purpose. The implementation of an innovative method of teaching and learning soft skills based on augmented reality will enrich the study programs of all partners. The project is coordinated by Dorota Kaminska, PhD.

Welcome Point at TUL

At the ICC headquarters, a central information point dedicated to foreigners at TUL - Welcome Point at TUL - was established at the end of 2022. The establishment of the TUL Welcome Point was the result of activities in the project titled "Organization of a Welcome Point Dedicated to Serving Foreign Students and Staff at Lodz University of Technology". The project was implemented by the International Cooperation Centre under the Welcome to Poland 2021 program from May 2022 to April 2023. In April, the University held a conference to summarize the project, during which topics were discussed regarding the competencies required for the position of an employee serving visitors, staff and foreign students. Training provided by the companies represented by the speakers was also a topic of discussion.

ActiveD2-Active Double Degree Implementation of a collaborative study model based on active teaching and learning methods

As part of the continuation of the project funded by NAWA National Agency for Academic Exchange, students from TUL carried out industrial study visits, during which they conducted process and technology audits at French companies. In December, 40 students spent seven days in the French Champagne region. The purpose of the visit was for the students to deepen their knowledge and improve their competence in manufacturing processes, but also to familiarize them with the culture of working in an international industrial environment.

In June 2023, as part of a project-related visit, IFE hosted 48 students from partner university IN&MA.



Student exchange

In 2023, 449 students participated in student exchanges, 7.7% more students than in 2022. Additionally, the number of foreign students coming to TUL increased by 15.1% compared to 2022.

Erasmus+ mobility continued to dominate and accounted for 73.7% of all student mobility in 2023. 13 students from Lodz University of Technology went to conferences, seminars and workshops. As part of the IAESTE International Internship Program for students, 31 students from TUL went to foreign countries and 18 foreign students came to TUL.

Within the framework of the dual diploma program, 9 students from TUL went to foreign countries and 25 foreign students came to TUL.

Departures and arrivals of students for studies and student internships



ARRIVALS

2022 - 478

2023 - 550

DEPARTURES

2022 - 417

2023 - 449

Erasmus+ student departures and arrivals



Erasmus+

ARRIVALS

2022 - 284

2023 - 417

DEPARTURES

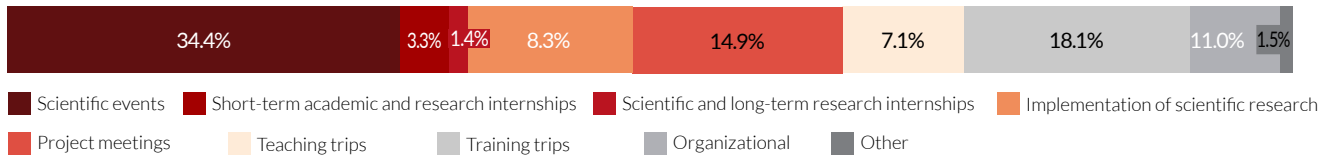
2022 - 276

2023 - 331

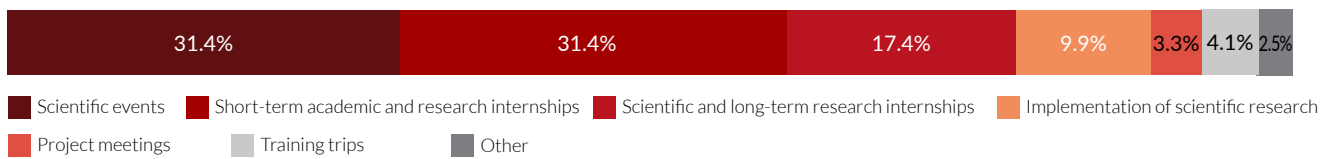
International contacts of staff and doctoral students

In 2023, Lodz University of Technology employees made 799 (compared to 698 in 2022) foreign trips. Doctoral students at TUL made 121 trips abroad (compared to 87 in 2022).

Employee trips by purpose

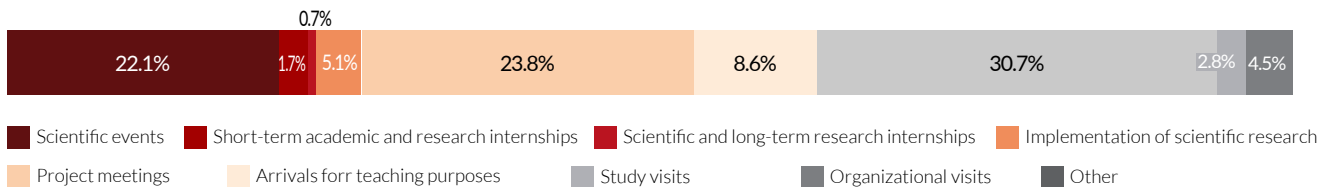


Doctoral students' trips by purpose



In 2023, The University recorded 290 foreign visitor arrivals, an increase of 21.8% over the previous year.

Arrivals of foreign visitors by purpose of trip



Membership in international organizations

Employees of TUL and the University as an academic institution are members of 203 international organizations, including but not limited to:

- AIAA - American Institute of Aeronautics and Astronautics,
- AIS - Association for Information System,
- ACM - Association for Computing Machinery,
- AMS - American Mathematical Society,
- ASME – American Society of Mechanical Engineering,
- BPSA - International Building Performance Simulation Association,
- BUP - Baltic University Program International Board,
- CIRP - The International Academy for Production Engineering,
- CMS - Canadian Mathematical Society,
- EAA – European Acoustics Association,
- EAEA - European Architectural Envisioning Association,

- ECNP - European Centre for Nanostructured Polymers,
- EFB - European Federation of Biotechnology,
- ESAO - European Society for Artificial Organs,
- IACM - International Association of Computational Mechanics,
- IEEE - Institute of Electrical and Electronics Engineers,
- INSTICC - Institute for Systems and Technologies of Information, Control and Communication,
- TICCIH - The International Committee for the Conservation of the Industrial Heritage,
- TREX - Targeting Real Chemical Accuracy at the Exascale

Seminars, lectures abroad

In 2023, the TUL staff delivered 112 lectures (73 in 2022) at foreign universities, among others: Technische Universität Dresden (Germany), Technical University of Liberec (Czech Republic), Dundalk Institute of Technology (Iceland), Universidade do Porto (Portugal), University of California, Los Angeles (USA), University of Glasgow (UK), University of Bologna (Italy), Ming Chi University of Technology (Taiwan), Marmara University (Turkey), University of West Attica Civil Engineering Department (Greece), Universitatea de Stat din Moldova (Moldova).

143 courses and seminars were organized at the University with the participation of foreign specialists.

Events

Excellence in Erasmus+



At the Conference of European Universities, the University was represented by Rector Professor Krzysztof Józwiak, who took part in the panel "European Universities as a Path to an Innovative Economy". The workshop "The Use of Micro-credentials in the Network of European Universities" was led by Assoc. Prof. Dorota Piotrowska, director of the International Cooperation Centre, who was also a speaker on the panel "Research Experience in the Area of European Universities."

The culmination of the Conference was the award gala of the "European Universities - Alliances of the Future" competition, addressed to Polish universities that are part of consortia of European Universities. Lodz University of Technology received a statuette in the Erasmus+ Excellence category.

Office of the Erasmus+ Innovation Centre InnHUB Łódź

The office of the Erasmus+ Innovation Centre InnHUB Łódź was officially opened at the International Cooperation Centre of Lodz University of Technology. The activities of the new unit were inaugurated by a meeting with representatives of various institutions from the Lodz region.

The activities of the Lodz-based Erasmus+ InnHUB



Innovation Centre primarily focus on funding opportunities for innovative projects that support the construction of a modern education system and strengthen the development of professional competencies of people of all ages.

e-CLOSE



TUL International Cooperation Centre hosted a conference titled "How To Bring Students Closer To Proactive Teachers After Covid Outbreak," summarizing the completion of the two-year project e-CLOSE A model for Interactive (A)Synchronous Learning in Online STEM Education.

An important highlight of the program was the panel discussion "How Best to Support Students in their Study/Learning Process?", which included representatives of the participating universities: Assoc. Prof. Dorota Piotrowska, Rosa Estriégana, PhD, Soraya Garcia-Esteban, PhD from the University of Alcalá in Spain, Prof. Andy Junker, Prof. Frank Ulrich Rückert from the University of Applied Sciences in Saarbrücken in Germany, and Natália Martins, PhD, and Prof. Paulo Cachim from the University of Aveiro in Portugal.

Competence school for 21st century industry.

Within the framework of the NAWA-funded ECI XXI project, 2 editions (winter and summer) of the "Competence School for 21st Century Industry" were organized. The undertaking was aimed at engineering students from foreign partner universities with which TUL has signed Double Diploma agreements and under the Erasmus+ program. The School was attended by 78 students mainly from France, Germany and Spain. The main goal of the project was to build among the participants the competencies that are sought after in job candidates in modern industry.

Mobility Week 2023

Once again, TUL hosted the [Mobility Week](#) - a week of events promoting mobility among students and university employees. The event was accompanied by the presentation of awards for Mobility Leaders at TUL and the conclusion of a photo contest for employees called "Lion Leon Mobility." During the Erasmus Café, students who have already participated in the program Erasmus + shared experiences with other students and dispelled potential doubts about international exchange.



Campus France day at IFE

For the first time after the pandemic break, on March 2, 2023, IFE was visited by secondary school and college students studying French and tying their future to France.

Campus France Days in Poland is a cyclical event organized by the French Embassy in Poland, the French Institute in Poland and the Campus France Agency, in cooperation with the Alliance Francaise network and Polish universities.

UNIVERSITY GOVERNANCE



PLN 2.8 million
net income

PLN 107.1 million
investment expenditures

PLN 102.8 million
subsidy for maintenance of research potential
PLN 5.8 million IDUB subsidy

PLN 276.6 million
subsidy for maintenance of teaching capacity

ORGANIZATION

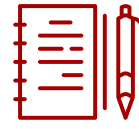
Activities



10 meetings of the TUL Senate



125 Resolutions of the TUL Senate



58 Ordinances of the Rector of TUL

In 2023, 6 meetings of the Council of Lodz University of Technology were held, of which 2 were held face-to-face and 4 were held remotely, during which 18 resolutions were adopted. A new member of the Council of Lodz University of Technology for the term of office, which lasts until December 31, 2024, has been appointed: [Bartłomiej Zgorzelski, MSc.](#)

Amendments have been made to the Statute of Lodz University of Technology, of which of particular importance is the removal of the Councils for Academic Degrees with the simultaneous transformation of the Councils for Disciplines into a body of the University (as of October 1, 2024). Consultations were held with the TUL community on proposed amendments to the TUL Statute.

The following changes were made to the organizational structure of the University:

Rector's Administration

- Sports Department was dissolved

division of the Vice-Rector for Education

- Non-public nursery of Lodz University of Technology was established

division of the Vice-Rector for Science

- The University office for Science was transformed into the Research Support Centre
- At the Project Services:
 - the Structural Funds Section was transformed into the Research and Development Projects Services
 - the National Projects Section was transformed into the Research and National Project Services
 - the International Projects Section was transformed into the International Research Project Services
 - Competence Project Services was created

University-wide units

- 5G Competence Centre of Lodz University of Technology was dissolved

Interdepartmental units

- The College of Logistics was dissolved
- The College of Commodities was dissolved
- The College of Spatial Management was dissolved

Faculty of Material Technologies and Textile Design

- The Department of Knitting Technologies and Textile Machinery was dissolved by incorporating its resources and tasks into the Institute of Material Science of Textile and Polymer Composites

Electronic records management

Since the beginning of 2023, an Electronic Document Management (EZD) system by the Podlaskie Voivodship Office (PUW) has been implemented at TUL as the primary means of document circulation at the University. An update was prepared of the office and archival norms: the office instructions in the scope of the planned implementation of electronic delivery of documents and the Uniform Material File List (JRWA), and then the above norms were agreed and approved by the State Archives in Lodz. Within the University's functioning 473 classes from the Uniform Tangible File Inventory, 15% are classes maintained in electronic form. A number of trainings on the functionality and work in the system were carried out, and guidelines related to workflows in defined communication nodes were prepared as a result of work with substantive units.

TUL on the road to sustainable development

Lodz University of Technology is actively addressing the new challenges set by the Sustainable Development Goals adopted by the United Nations.

As part of the Race to Zero campaign, which Lodz University of Technology joined in 2022, the following was developed

[TUL's action plan for the Race to Zero campaign](#), which defines 10 areas and the scope of work the University plans to carry out as part of the initiative. A summary of the activities undertaken was [A report on the activities carried out at Lodz University of Technology as part of the Race to Zero initiative in 2022](#), which, among other things, included the monitoring of the carbon footprint at Lodz University of Technology. Calculations of the [carbon footprint](#) at TUL are made by a team led by Aleksandra Ziemiańska- Stolarska, PhD.



Another edition of the IDEA BOX project was organized - ideas of employees and students for the development of the University, in which employees and students of the University submit ideas to improve safety, comfort of work and study and recreation at the University. In the 2023 edition, the initiative's budget was PLN 100,000. Seventy-two ideas were submitted and 646 people participated in the vote. As part of the implementation of the winning task ["We Plant Trees at Lodz University of Technology"](#), a tree planting campaign was held on the Lodz University of Technology campus

with the participation of the University's employees and students. In addition, thanks to cooperation with the Landscape Parks Complex of the Lodz Voivodeship, 300 free tree and shrub seedlings were donated to Lodz employees and students.

As part of the Lodz Civic Budget, the project ["Green Campus - Garden on Skorupki Street"](#), submitted by the academic community of Lodz University of Technology, was implemented, thanks to which Skorupki Street became a garden-street. Sidewalks, lampposts and small architecture have been replaced, while street greenery has been introduced and a layer of new asphalt was laid.

The series of live [#EKOLogically](#) meetings with TUL continued. Scientists from TUL shared their knowledge on topics related to ecology, advised on how to be a conscious consumer, and hinted at decisions worth making while caring for the environment. Researchers from the various TUL faculties talked about their research, the results of which are used in environmental protection. Five episodes of Lodz University of Technology expert meetings have been released.



MARKETING ACTIVITIES

At the beginning of the year, preparations began for the [TUL Open Day](#), which for the first time in two years was held fully stationary in the Alchemium building. It gathered an unusually large number of participants. TUL campus was visited by 1,653 people on March 14. The fastest places were filled for a lecture by a maths teacher and influencer Nieobliczalny Patryk (250 people), which resulted in the formation of an additional group (200 people), a meeting on "What is it Like to Study at TUL?" (R. Ledzion, PhD) - also in two groups, and classes in the maths block, prepared by the Centre of Mathematics and Physics. In addition, a competition "Mathematics is the Key to Success" was organized, the winner of which took place during the Open Day. Meetings with alumni and company representatives were a special highlight. In cooperation with the university's units, activities continued to increase interest in studying under the "Doors Always Open" campaign. In addition, visits to 52 schools were organized. The campaign covered schools from which there were the largest number of candidates for the 2022/2023 academic year, and these were 15 schools from Lodz and 37 schools from Lodz region (Pabianice, Sieradz, Zduńska Wola, Poddębice, Koluszki, Tomaszow Mazowiecki, Wieluń, Piotrków Tryb., Opoczno, Skierniewice, Łowicz, Rawa Mazowiecka, Łęczyca, Belchatow, Radomsko, Kutno).

Other ongoing promotional activities aimed at attracting candidates include, but are not limited to, the "Girls to Polytechnics" campaign. The Media and Communications Office was in charge of organizing the event, as well as developing an advertisement and article for a special issue of *Perspektywy*. The effect of carrying out the campaign is a successive increase in the number of women among the students of TUL.

For the first time at the *Perspektywy 2023 Graduates' Salons*, TUL featured at the joint stand of Academic Lodz. For the first time, all faculties and units of the university were represented at the Salons - as much by academics as by students. The preparation of Lodz University of Technology for the Salons was appreciated by Lodz City Hall and the university candidates themselves.

Another edition of [TUL Open Week](#) was organized for foreign applicants to study at TUL, both for those wishing to study a full cycle and those planning a short-term exchange. This time, instead of a single day, candidates were offered a full week with IFE staff, who answered all questions and gave a thorough presentation of the recruitment process during face-to-face online meetings.

Employees of the University took part in a number of educational fairs around the world, including Thailand's Bangkok Education Fair OCSC Expo and the NAWA Education Fair in Brazil and Argentina.

The series "[Science talk\(ie\)s](#)" continued. Four videos and one interview were released. Recordings were coordinated and a film series called "[Catch Science](#)" was produced, which presented the scientific achievements of student scientific circles operating at the university. The realized materials presented a variety of research issues and projects carried out by TUL students. In addition, the series "[Steer your Future with IDS](#)" continued, with 8 interviews published. Their participants included young scientists, often doctoral candidates at the Interdisciplinary Doctoral School.

A promotional campaign for summer and winter enrolment was prepared and aired on the internet with particular emphasis on educational portals and educational sections of general-interest portals (including: www.otouczelnie.pl, www.studentnews.pl, www.uczelnie.pl, www.kierunkistudiow.pl, studyinlodz.com.pl), regional newspapers and social media. In order to increase the effectiveness of online promotion, using AdWords advertising, a landing page was updated to promote each degree program, and a paid promotional campaign was launched.

Websites and social media

Work continued on unifying the pages of institutes and departments. A new graphic design for the sites has been developed. The Media and Communications Office was responsible for training faculty editors in the operation of the CMS. As a result of the work, 31 out of 46 (67%) departments and institutes and several university-wide units (including: Lodz Children's University, University of the Third Age, IDS) has active websites according to the TUL template.

Work has also begun on changing the website aimed at university applicants. A survey was conducted among secondary school students and a new template for the rekrutacja.p.lodz.pl website was selected. A new version of the website of the International Faculty of Engineering (IFE) has been created: <https://www.ife.p.lodz.pl/> in 3 language versions. The website www.cwm.p.lodz.pl was developed. An increase in website traffic was observed (67,000 new users). The site has received more than 402,000 page views. The website of the International Faculty of Engineering was also maintained and updated on an ongoing basis, adapting it to the template created by TUL UCI.

In 2023, ongoing editing of the official Lodz University of Technology web pages on the web continued:

[NAWA,](#)
[STUDY IN LODZ,](#)

[STUDY IN POLAND.](#)
[KEYSTONE MASTERSTUDIES](#)



3,4 thousand followers

Developed and led:



127 posts number of followers increased by 3 and as of December 31, 2023 amounted to 54,400 people



230 published content
The number of followers increased by 190 people to 4,000.



241 posts
69 reels
6.6 thousand followers



115 film premieres
475 thousand views
2 thousand subscribers (up 18%)



19 articles
50 354 views



12 newsletters
1,297 subscribers



TUL fanpage - 538 posts, 27.2 thousand followers (an increase of 1.6 thousand); fanpage "Rekrutacja PŁ" - 2.2 thousand viewers, 115 posts; IFE fanpage, TUL fanpage

TUL in the media

Multi-faceted outreach activities use various channels to distribute news related to Lodz University of Technology.



83 press releases, published simultaneously in the online service "Informacje dla prasy"



responses to inquiries from editors or materials in the form of comments, expert statements and interviews



More than 200 posts, including 78 articles over 230,000 page views



Media Monitoring Institute - 30,761 media releases in which the name Lodz University of Technology appeared



press and trade magazines
1,531 materials



radio- 1,275 information



1,255 television programmes



web portals (excluding social media) - 14,228 messages

życie uczelni

BIULETYN INFORMACYJNY POLITECHNIKI ŁÓDZKIEJ

4 print issues

www.zycieuczelni.p.lodz.pl

266 articles, 73,000 page views, 42,000 visiting users



The advertising equivalent, expressed in PLN, in 2023 was estimated by the Media Monitoring Institute at **PLN 87 million**

FINANCE

The year 2023 was another year in which there was a stable financial and payment situation for the university, and the rational economy resulted in a positive financial result.

Total revenues in 2023 amounted to PLN 598 232.65 thousand, while the amount of own costs is PLN 595 267.60 thousand. The gross financial result amounted to PLN 2 965.05 thousand, which was reduced by corporate income tax of PLN 125.97 thousand.

The net result achieved (+ PLN 2 839.08 thousand), plus depreciation in the amount of PLN 7 179.95 thousand, allows for an increase in the basic fund in the amount of PLN 10 019.03 thousand, which is important for the development of the university. The university can invest in development with subsidies from the Ministry of Science and Technology, NCNN, NCBiR, EU structural funds and other European and national funds. This makes TUL an economically credible partner and is able to prove its ability to finance its own share, which is a prerequisite for the granting of funds from external programs, including those co-financed by EU funds.

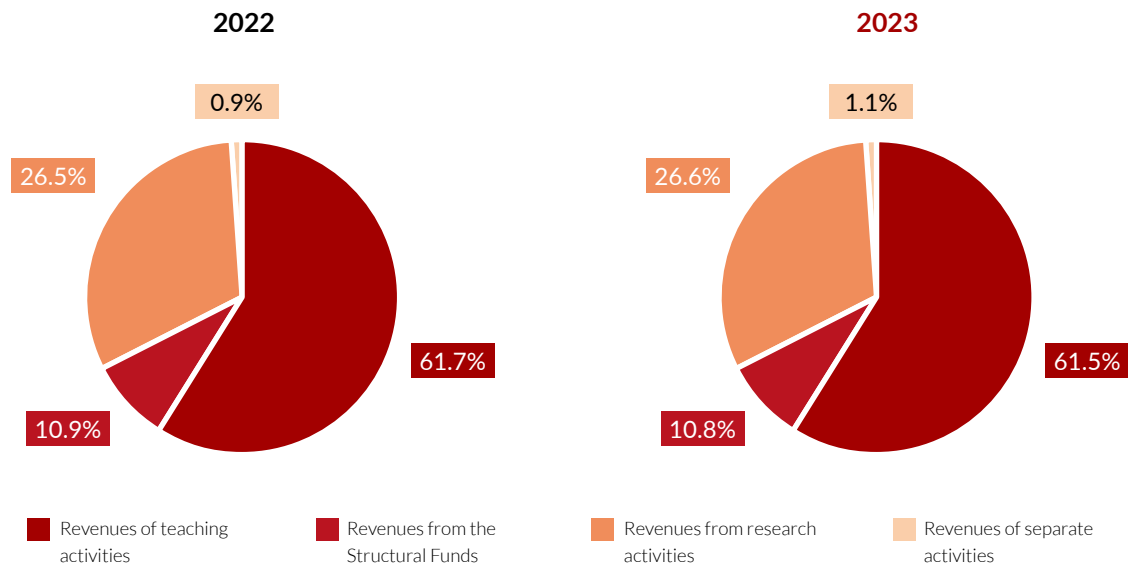
Comparative income statement in 2022 - 2023 (thousands PLN)

	2022	2023
Result on sales	-15 638,10	-18 008,09
of which:		
- teaching activities	-17 776,39	-20 386,46
- research activities	2 569,53	2 285,58
- separate business activity.	-537,09	-13,28
- sales of goods and materials	105,85	106,07
Result on other operations	19 190,44	19 409,26
of which:		
equivalent to depreciation	13 607,65	16 605,42
Operating profit	3 552,34	1 401,17
Result on financial operations	-429,40	1 563,88
Gross profit/loss	3 122,94	2 965,05
Corporate income tax	56,13	125,97
Net profit/loss	3 066,81	2 839,08

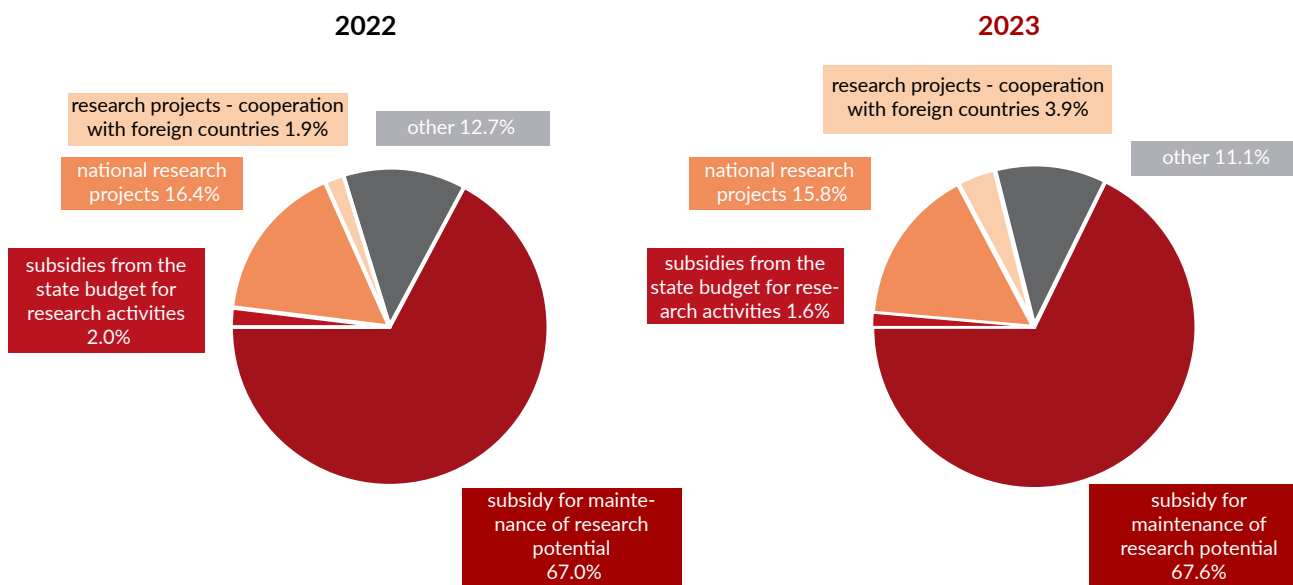
Revenues from core operations in 2022-2023 (thousands PLN)

	2022	2023
Income from core operations	534 528.07	572 146.20
of which:		
Revenue of teaching activities	329 928.32	352 126.04
of which:		
subsidy for maintenance of teaching capacity	256 363.50	276 644.80
subsidies from the state budget, including a pro-quality subsidy	1 832.22	562.61
fees for teaching services	14 396.31	16 608.18
other	57 336.29	58 310.45
Revenue from structural funds	58 024.26	61 630.98
Revenue from research activities	141 807.96	152 182.82
of which:		
subsidy for maintenance of research potential	95 015.17	102 794.25
of which:		
IDUB subsidy	5 781.60	5 781.60
subsidies from the state budget for research activities	2 897.52	2 461.36
national research projects	23 207.37	24 030.25
research projects - cooperation with foreign countries	2 683.35	5 956.80
other	18 004.55	16 940.17
Revenue of separated activities	4 767.52	6 206.35

Structure of revenue from core operations



Structure of revenue from research activities



Subsidy in 2022-2023 (thousands PLN)

	2022	2023
Ministry of Education and Science subsidy	357 856.50	389 143.60
of which:		
subsidy for maintenance of teaching capacity	256 363.50	276 644.80
subsidy for maintenance of research potential	95 015.17	102 794.25
subsidy to finance fixed assets	6 477.83	9 704.55

The total amount of the Ministry of Education and Science subsidy consists of a base subsidy of PLN 337 271.80 thousand and funds in the amount of 51,871.80 thousand transferred in the form of an increase in subsidies for specific activities, of which:

- PLN 23,561.50 thousand - to increase the salaries of the University's employees as of January 01, 2023,
- PLN 13,274.00 thousand - to finance the full-year effects of salary increases realized as of 1. 10. 202,
- PLN 3,754.70 thousand - for one-time salary supplements on the occasion of the 250th anniversary of KEN;
- PLN 5,781.60 thousand - to increase the subsidy to the University for joining the program "The Excellence Initiative - Research University";
- PLN 1,500.00 thousand - one-time increase for current operations;
- PLN 4,000.00 thousand - one-time increase on the initiative of the Minister for renovation of student halls of residence

Funds addressed to specific activities were used as intended in 2023, with the exception of funds for student housing renovations, which were secured for use in 2024 within the reserve created for this purpose.

The base subsidy of PLN 337 271.80 thousand was distributed in accordance with the rules adopted by the Senate for the distribution of subsidies for the maintenance and development of teaching and research potential in 2023.

From the subsidy the following were separated

- funds remaining in the Rector's reserve in the amount of PLN 34,415.80 thousand, consisting of:
 - PLN 11,844.00 thousand - general reserve and reserve for mitigation of subvention distribution;
 - PLN 1,000.00 thousand - funds for the activities of student organizations, scientific circles, student and doctoral student government;
 - PLN 1,200.00 thousand for the promotion of TUL;
 - PLN 1,800.00 thousand to finance costs related to the write-off of the Social Insurance Fund for pensioners and the repayment of interest on the investment loan;
 - PLN 2,500.00 thousand - ensuring the implementation of important strategic goals;
 - PLN 6,000.00 thousand - co-financing of own participation in EU projects and ongoing central investments;
 - 800.00 thousand - subsidizing the employer's contribution to Employee Capital Plans,
 - PLN 4,000.00 thousand - funding of scholarship payments at IDS TUL;
 - PLN 5,000.00 thousand - to subsidize renovations included in the master plan
- funds for centralized units in the amount of PLN 78,512.56 thousand, which were divided by amount according to the historically formed share of these units in the amount to be distributed depending on the size of the subsidy.
- funds for decentralized units in the amount of PLN 224,343.44 thousand were distributed using the applicable MEIN algorithm. The subvention funds for the decentralized units used the PLN 9,704.55 thousand for the purchase and construction of fixed assets

Funds from the Rector's reserve were used in the amount of PLN 22,800.00 thousand to finance, as intended, the purposes specified in Ordinance No. 70/2022. In particular, to finance: Rector's awards, task and incentive allowances, reimbursement of effects related to teaching exemption, Open Access publications, current tasks of organizational units, fees incurred for supervisors of PhDs of IDS TUL, mitigation of the effects of subvention distribution for Faculties that would have a reduction in subvention of less than 2% from the previous year as a result of algorithmic distribution, etc. The remaining funds from the Rector's reserve in the amount of PLN 11,343.40 thousand remained in the account.

The IDUB subvention funds were used in their entirety - mainly to fund awards to support the scientific activity of staff, doctoral candidates and students, to support the improvement of the skills of young researchers (FU2N fund, E² TOP), and to subsidize the participation of researchers in international conferences.

Salaries

Salaries at TUL in 2022-2023 (thousands PLN)

	2022	2023
Total remuneration	280 096.50	307 425.89
of which:		
from the employment relationship	260 793.67	287 257.14
of which:		
personal	243 104.03	267 912.62
annual bonus salaries	17 689.64	19 344.52
mandate agreements and contracts for specific work	19 086.83	19 966.75

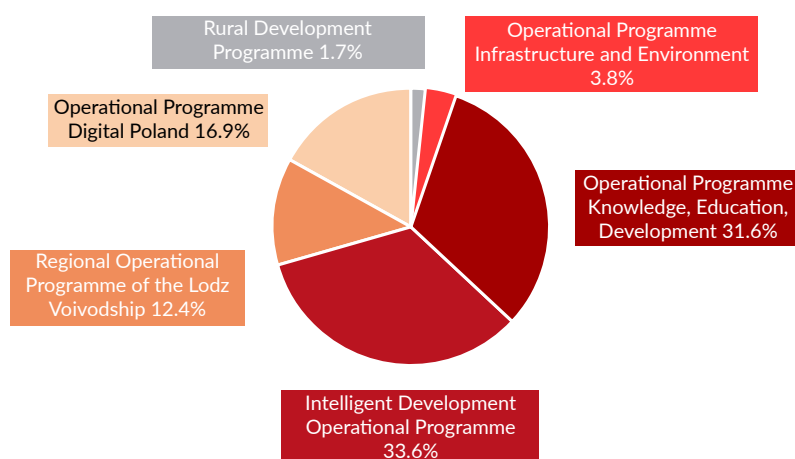
Structural Funds

In 2023, Lodz University of Technology implemented 41 projects from structural funds in the following operational programs:

Operational Programme Knowledge, Education, Development	13 projects
Intelligent Development Operational Programme	17 projects
Regional Operational Programme of the Lodz Voivodeship	2 projects
Operational Programme Digital Poland	4 projects
Rural Development Programme	4 projects
Operational Programme Infrastructure and Environment	1 project

The structure of funds obtained under the Structural Funds in the financial perspective 2014 -2020

As part of the Structural Funds in the 2014-2020 financial perspective, TUL has received funding for a total of PLN 386,736.74 thousand, including in 2023 PLN 3 097.95 thousand



Investment and renovation activities

In 2023, investment expenditures amounted to PLN 107,100.69 thousand, including investments started in the reporting year at PLN 18,198.64 thousand.

Investments (thousands PLN)		
	2022	2023
Expenditure	71 836,41	107 100,69
By funding source:		
Ministry of Education and Science	26 537,66	45 345,21
Structural Funds	16 206,72	24 710,37
Own funds	19 716,22	23 169,85
Subsidy funds	6 477,83	9 704,55
Other	2 897,98	4 170,71

In 2023, the implementation of the second phase of the investment 'Alchemium-magic of tomorrow's chemistry' was continued, including construction of a modern conference, teaching and laboratory building for the Faculty of Chemistry at Lodz University of Technology.

The reconstruction of the A7 building, which has become modern and environmentally friendly, was completed.

The building underwent a comprehensive energy retrofit, installing modern ventilation systems for heat

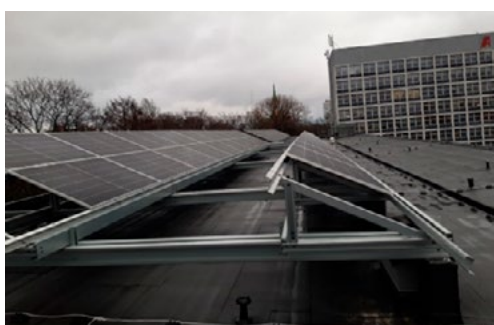


recovery and energy monitoring and management systems, water-efficient fixtures, energy-efficient lighting and photovoltaics. The added value of the measures taken is the reduction of emissions of harmful substances and dust.

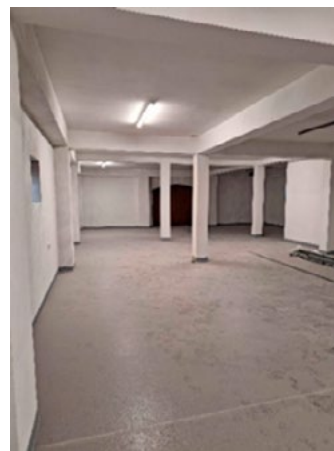
The building will house laboratories and teaching rooms of the Faculty of Process and Environmental Engineering. Part of the space will be occupied by the Centre for Universal Design, created as part of the "Accessible Lodz University of Technology" project, which will gain a FabLab creative space, and will be complemented by a state-of-the-art VR lab and an ergonomics lab.

Other investments in 2023 included:

- Replacement of the parking system on TUL campuses A and B, increasing efficiency of parking management, locating vacant spaces, automation of the charging process and access control, and automation of entrance gates within TUL campuses;
- Installation of photovoltaic systems on the roofs of buildings A4, A33, A28, B7 and B28 (Sports Bay);



- Renovation of building B7 (Faculty of Civil Engineering, Architecture and Environmental Engineering), involving its adaptation to the requirements and regulations for fire protection of facilities, in order to increase the safety of building users;
- Replacement of interior lighting with LEDs and replacement of heads;
- Installation of two video walls and operator workstations for monitoring low-current CCTV installations and parking system in the Monitoring and Control Centre for the TUL infrastructure - a task called "Supply of the Monitoring and Control Centre for the Infrastructure of TUL";
- Securing and reconstructing the Sailing Club building in Roganty;



- Elimination of architectural barriers in buildings C3, A33 (installation of an elevator), B10 (reconstruction of the entrance area along with reconstruction of part of the existing parking lot with the designation of parking spaces, as well as installation of a vertical platform (elevator) and ramps for the disabled) under the project "Accessible Lodz University of Technology."



Refurbishment costs (thousands PLN)



	2022	2023
	8 836.29	6 746.14

In 2023 a number of renovations were carried out at TUL, including:

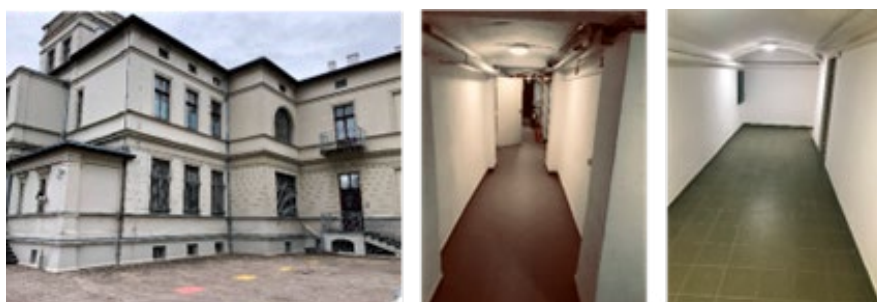
- Renovation of rooms in building A17 - Bursar's Office and Human Capital Management Centre (comprehensive renovation of 3 rooms located in the facility, including replacement of furniture and adaptation of one of the rooms to a social room for employees);
- Renovation of central heating nodes in buildings A4 and A11;



- Connection to the district heating network with the construction of heat substations in buildings A13 and A17;
- Refurbishment of the main switchboard reserve connection in building C-10;
- Renovation of the facade Together with insulation of the foundations of building B25 - Language Centre;

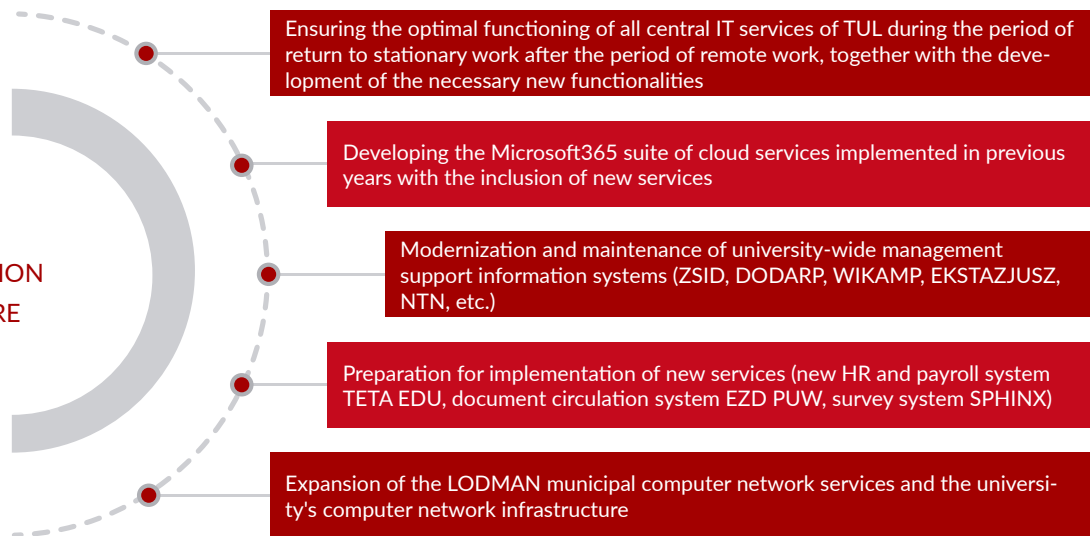


- Repair of tower roofing and local repair of reinforced concrete structures of building B22 - Main Library;
- Repair of foundation wall insulation in building B4 - Faculty of Process and Environmental Engineering. The renovation work also included the replenishment and repair of plaster at the base and ground level, as well as interior repair and finishing work in the basement rooms of the building;
- Repair of vertical insulation of the foundations and renovation of the basement room in building A13 - Admissions Office;
- Renovation of the public kitchen at a holiday resort "Dworek" in Konopnica;
- Renovation of 4 bathrooms at a holiday resort "Cis" in Szklarska Poreba.





COMPUTING AND INFORMATION SERVICES CENTRE AT TUL



remote working mechanisms

- Solutions implemented in 2018-2022, maintained and developed in 2023, allowed the effective remote or hybrid operation of the TUL and handling the significantly increased demand for IT services.

safety and reliability

- The expansion of the optical network of the University Computer Network (USK) continued. The work carried out in 2023 led to the optimization of the use of more network nodes.

server infrastructure

- In the area of cloud computing and data, the reorganization of storage space and the implementation of a container environment (docker) continued, mainly for PLATON and MAN-HA computing clusters, but also for new projects;
- Work continued on the BLUE OCEAN computing cluster for the purpose of classes with selected groups of TUL students;
- The annual review of existing solutions was revisited, and work continued on integrating the systems of various nodes toward a central IT security system;
- A comprehensive implementation of the M365 Defender system has begun;
- The authentication service infrastructure has been re-inventoried. LDAP has been working on optimizing and developing the rebuilt system using JAVA technology. The work performed allowed the system to be adapted to work with the new EZD PUW and TETA EDU systems;

Realised tasks
under actions
of TUL Com-
puting
& Information
Services
Centre

Realised tasks
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Centre

- Work has begun on multi-component authentication in all central TUL services;
- The transfer of selected services of lesser importance to the server room in the CTI building continued. The server room was rebuilt, emergency power was brought in and equipment acquired from the National Data Warehouse project was installed.

data storage

- Storage services optimized for the new Microsoft M365 A5 cloud;
- STRYCH service was maintained to ensure storage of important local files by units critical to the University's operation;
- due to the intensive development of the group messaging service, the servers in the domain info.p.lodz.pl were hardware strengthened to ensure the smooth functioning of the mechanisms of the TUL announcements, Rector's Announcements, as well as support for several thousand discussion forums functioning in the subjects on the WIKAMP platform.

IT systems

- The Integrated Didactics Information System has been adapted to the new statutory requirements, the new findings of the SID committee and changes in the POL-on data reporting system. Work continued on rebuilding this system toward full service integration and creating a new multi-platform Integrated Teacher Terminal using SMS-based second factor authentication. A fourth, optimized version of ZTN was implemented in 2023.

technical support

- As part of the work in the "Accessible Lodz University of Technology" project, the central system of websites of all units of Lodz University of Technology was expanded. This system, a multisite class, running on docker technology, allowed to unify the graphical presentation of the TUL main page and all faculties. Work is underway to implement the websites of the other TUL units into the new system,
- New functionalities were added and the central HelpDesk ticketing system, which had been improved by the E-Learning Centre for several years, was modernized

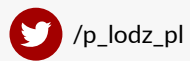
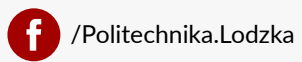
expansion of information technology infrastructure of science

- Work continued in the PRACE-LAB project, which aims to expand the IT infrastructure of science and launch specialized innovative HPC and Cloud Computing services on it for the purposes of scientific and R&D work by R&D and

Realised tasks
under actions
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economic units. The services will be organized within 4 distributed research laboratories, equipped with HPC server clusters and systems for storing, archiving and managing data, especially the results of ongoing calculations, simulations and experiments;

- In 2023, the expansion of the MSK LODMAN network and the provision of services therein to units and users from the R&D, administrative and economic communities of the Lodz region continued;
- The implementation of the PIONIER-LAB project - National Platform for Integration of Research Infrastructures with Innovation Ecosystems, which involves the construction of new, unique research laboratories and the use of the existing PIONIER national fibre optic network continued.



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