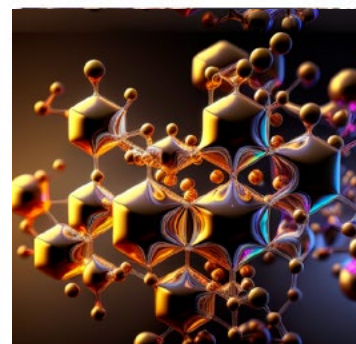
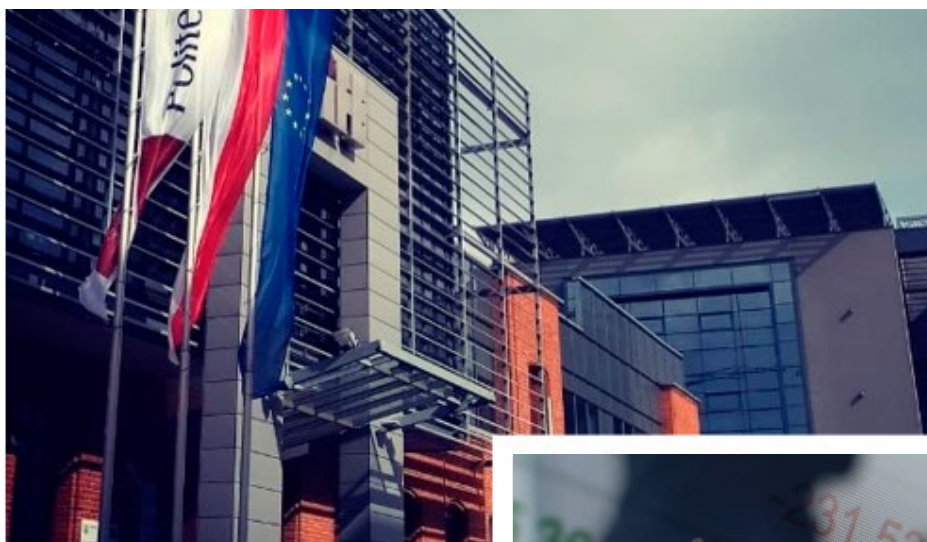




Lodz University  
of Technology



2022

## REPORT

on the activities of Lodz University  
of Technology

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*Ladies and Gentlemen,*

*Lodz University of Technology is developing dynamically, responding ever more broadly to the needs of our community and environment. After a difficult period of pandemics, our calendar is once again filled with events. We organized the EUG 2022 European University Games with great success, officially opened the Business Zone, and celebrated the 30th anniversary of IFE. The campus was filled with students and staff members for whose children we have launched the Non-Public Kindergarten of Lodz University of Technology. This complements the idea of multigenerational education and is an excellent implementation of the University's Mission III.*

*Summing up 2022, I would like to point out that we are constantly improving the quality of education, as evidenced by obtaining 11 programme accreditations, including the prestigious ABET accreditation. We have successfully applied for research projects as part of international programmes. The past year has brought us 7 project funding agreements under Horizon Europe.*

*This activity is reflected in the excellent results of the evaluation of the scientific activity quality for 2017-2021. Three out of 12 disciplines run at TUL received the highest grade A+. This success was possible thanks to the commitment of a large number of our researchers, staff, doctoral students and students, for which give my thanks.*

*I've only mentioned a few examples of our achievements over the past year. Here is a report containing a comprehensive summary of the activities of Lodz University of Technology in 2022. With thanks for your commitment to so many projects and the results of which we are proud, I encourage you to read on.*



*Professor Krzysztof Jóźwik Ph.D., D.Sc.  
Rector of Lodz University of Technology*

## JANUARY

A contract was signed for the second stage of the "Alchemium - the magic of tomorrow's chemistry" investment project.



TUL received PLN 11.5 million from European Funds for the thermal modernisation of two buildings - the Centre of Excellence for Universal Design (CDPU) and the Non-Public Kindergarten of TUL.

## FEBRUARY

Two bronze medals were won by TUL students in the 4th World Ice Swimming Championships in Głogów. Aleksandra Bednarek and Tomasz Józefiak were called up to the national team.

The winners of the Minister of Education and Science Awards were Prof. Jan Awrejcewicz for lifetime achievement and Prof. Jacek Banasiak for scientific achievements.



The Ministry of Education and Science granted additional funds (PLN 10.5 million) to TUL for the University's development.

## MARCH



The title of 'Silver Engineer 2021' in the 28th edition of the Technical Review Readers' Poll was awarded to Assoc. Prof. Anna Masek.

Kajetan Duszyński, a PhD student at ISD TUL, won the gold medal in the 400 m run at the 67th Polish Indoor Championships in Toruń. TUL student Natalia Jabrzyk won the gold medal in the women's team run at the World Academic Championships in Lake Placid.

## APRIL

Significant advancement of TUL in the Times Higher Education Impact Rankings.

The Laboratory for Intelligent Building Management Systems at the Faculty of Electrical, Electronic, Computer and Control Engineering of TUL was opened.

## MAY



Awarding of statuettes and diplomas to the winners and runners-up of the TUL Rector's Awards.

"Lodz Eureka" statuettes:

In the Technology category for the interdisciplinary team of researchers from TUL and UL composed of Assoc. Prof. Piotr Dziugan, Assoc. Prof. Joanna Bertowska, Prof. Krzysztof Śmigielski; Dr. Szymon Nowak, Assoc. Prof. Zdzisława Romanowska-Duda, UL Prof.

- In the Art category for Dr. Krzysztof Guzek.



## JUNE

The prestigious distinction Person of the Year 2022 was awarded to Prof. Beata Kolesińska from the Faculty of Chemistry of Lodz University of Technology.

TUL was granted the right to use the [HR Excellence in Research](#) logotype for the next 3 years, until June 17, 2025.

In the Perspektywy Educational Foundation's ranking of higher education institutions, among technical universities, TUL was ranked fifth, and among academic universities in 10th place.

Prof. Jacek Kucharski from TUL was appointed the KAUT representative on the [Label Committee of the European Network for Engineering Education](#).



## JULY



On 17 July, the [European University Games - EUG 2022](#), of which TUL was the main organiser, kicked off in Łódź.

The oak tree 'Fabrykant' growing in Klepacz Park on the TUL campus won the [Tree of the Year Competition](#) organised by the Gaja Club.



## AUGUST

TUL moved up in two world rankings - in Webometrics we were ranked 13th in Poland and 994th in the world, in URAP the University was ranked in 15 disciplines.

TUL signed an agreement with the National Fund for Environmental Protection and Water Management to [subsidize the thermal modernization of TUL buildings](#).





## SEPTEMBER

The grand opening of the '[Business Zone](#)', the seat of the Faculty of Organization and Management at Campus B in the modernized B17 building, which also houses the Centre of Papermaking and Printing.

Prestigious [ABET accreditation](#) awarded for two fields of study at TUL.

## OCTOBER

[Meeting of the Committee](#) on Strategic Problems of Higher Education of the Conference of Rectors of Academic Schools in Poland (KRASP) at TUL.

[Lodz University of Technology is the 4th most popular university in Poland](#) according to information from the Ministry of Education and Science on the results of university enrollment for the 2022/2023 academic year.

The grand opening of the [Non-Public Kindergarten of TUL](#).



## NOVEMBER



A huge success for TUL alumnus [Dr. Sławosz Uznański](#), who was included in the list of astronauts announced by the European Space Agency (ESA) in Paris.

The project of the academic community "[Green campus - garden on Skorupki Street](#)" won the vote of the Lodz Civic Budget.

Signing a declaration to strengthen cooperation between public universities in Lodz within the framework of the [Lodz Academic Partnership \(LPA\)](#).

## DECEMBER

The new president of the Lodz Branch of the [Polish Academy of Sciences](#) was elected: a scientist from TUL, Prof. Andrzej Bartoszewicz.

A cooperation agreement was signed between TUL and the [ŁKS Men's Basketball Association](#).

Centre for the [Study of New Biologically Active Compounds Potentially Useful in Medical Diagnostics](#) opened at TUL.



# COMMUNITY OF LODZ UNIVERSITY OF TECHNOLOGY



**2 662**  
employees

**1 207**  
academic teachers

**10 593**  
students

**445**  
doctoral students

**421**  
international students and doctoral students



# STUDENTS

In 2022, a total of 10,593 students were educated at Lodz University of Technology, i.e. 6.1% less than in the previous year.






women accounted for  
**38.6%** of the total  
students



## students with disabilities

There were 158 students with disabilities, of which 144 were full-time students and 14 part-time students

## TUL Students (first and second cycle) in 2020-2022\*

|                              | 2020  | 2021   | 2022  |
|------------------------------|---|--|---|
|                              |  |  |  |
| <b>Total</b>                 | <b>12 377</b>   | <b>11 283</b>  | <b>10 593</b>   |
| <b>Full-time studies</b>     | <b>10 142</b>   | <b>9 428</b>   | <b>8 931</b>  |
| I cycle                      | 8 423   | 7 847  | 7 504   |
| II cycle                     | 1 719   | 1 581  | 1 427   |
| <b>Studia niestacjonarne</b> | <b>2 235</b>  | <b>1 855</b>   | <b>1 662</b>  |
| I cycle                      | 1 280   | 996  | 853   |
| II cycle                     | 955   | 859  | 809   |

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

The largest number of students (over 500) studied Computer Science (861), Applied Computer Science (743), Management and Production Engineering (601), Architecture (570) and Construction (559).

There were 367 international students (planning to study in Poland for at least one academic year) at Lodz University of Technology, including:

- full-time – 348,
- part-time – 19.

International students accounted for 3.5% of the total number of students.

Among international students, the largest number came from Ukraine (177), Belarus (70), France (35), Italy (13), and Turkey (7).

## International students







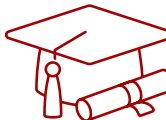
## Alumni

In 2022, a total of 2,606 people will graduate from Lodz University of Technology, including 70 foreigners.

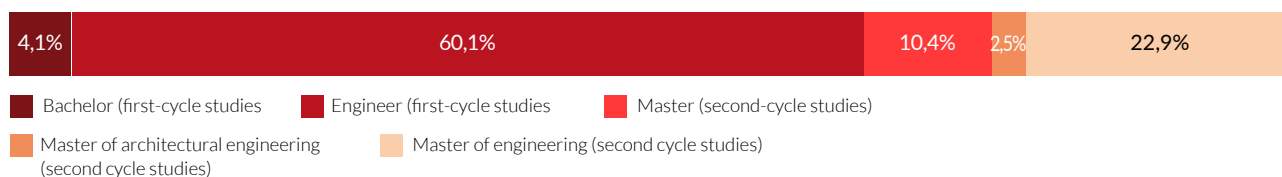


women accounted for **44.4%** of the total number of graduates

### TUL Graduates in 2020-2022

|                   | 2020  | 2021   | 2022  |
|-------------------|---|--|---|
|                   |  |  |  |
| <b>Total</b>      | <b>2 962</b>  | <b>3 157</b>   | <b>2 606</b>  |
| Full-time studies | 2 462   | 2 633  | 2 167   |
| Part-time studies | 500   | 524  | 439   |

### Graduates by degree obtained in 2022.



## Student Government

In 2022, 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 programmes.

The Student Government carried out a number of initiatives and cultural events aimed at integrating the student community, among others:

- Lodz University of Technology's Juwenalia Week 2022;
- Adapciak TUL 2022 - adaptation camp for first-year students;
- The best of 10 - a general knowledge quiz for students of TUL;
- Student Community Gala 2023;
- Election of the Best Teacher of the Year 2021/22.

## Successes of students and research clubs

In 2022, there were numerous successes of TUL students and research clubs, including:



### Team GUST

2nd place in the International Small Wind Turbine Contest 2022.

The students designed a domestic four-bladed wind turbine with a horizontal axis of rotation. The device achieved record results, producing more than 1KWh of electricity in 13 m/s winds.



### Lodz Solar Team

1st place in the international solar electric vehicle race - iLumen European Solar Challenge 2022. The student team from TUL took part in the Cruiser category.



The RAPTORS team from SKaNeR Research Club took 1st place in the European Robotics League rescue robot competition, in the Emergency category.

The DVD Unicorns team designed the game "Bzzz! - Together in Power," which won the Best Gameplay category of the Indie Showcase competition at the international Game Access Conference in Brno.

Adam Lewczuk, a student of Telecommunications and Computer Science at the International Faculty of Engineering (IFE), as one of the top ten students at technical universities in Poland, was a finalist of the Student Nobel Prize.

As part of the second edition of the "Students' Research Clubs Create Innovations" programme, the Ministry of Education and Science awarded PLN 496,000 to TUL research clubs for the implementation of 8 projects - the highest amount at any university in Poland: SKaNeR (two projects), UbiComp, SKN Main, SKN.NET, Lodz Solar Team, Iron Warriors and NANO.

Three student research clubs at TUL - Iron Warriors, Lodz Solar Team and GUST Project - were winners in the programme The Best of the Best! 4.0. The Ministry of Education and Science grant of PLN 295,000 will enable the winners to conduct further research and participate in international competitions.

In the Lodz Programmer of the Year 2022 competition in the "Student category" organised by the Lodz ICT Cluster, the five winners included 2 students from Lodz University of Technology, 2 students from the University of Lodz and 1 student from the Social Academy of Sciences. Each of the winners received a scholarship of PLN 5,000



## Academic Sports Club AZS TUL

Lodz University of Technology is home to the [Academic Sports Club AZS TUL](#), which has approx. 500 student members. They have the opportunity to pursue their passions in sports: volleyball, basketball, soccer, handball, futsal, power triathlon, athletics, swimming, judo, sports climbing, sports aerobics, tennis, table tennis, snowboarding, skiing, chess, bridge, badminton. There are also two competitive sections within the AZS TUL: water polo and floorball.

The athletes of the AZS TUL Club participated in over 44 competitions.

### medals

- 10 gold, 13 silver and six bronze medals in the overall individual classification;
- 27 gold, 9 silver, 15 bronze in the individual classification of technical universities;
- 1 gold, 1 bronze in the overall team classification;
- 5 gold, 1 silver, 3 bronze in the team classification of technical universities.

### places won

- 3rd place in the medal classification;
- 6th place in the classification of technical universities;
- 12th overall.

There is a section for people with disabilities in the AZS TUL Club, which represents TUL at the Polish Integration Championships. In 2022, the section won:

- 3 gold, 1 silver, 2 bronze medals in weightlifting;
- 1 gold, 2 bronze medals in table tennis.

The participation of athletes of the AZS TUL Club in the European Universities Games Lodz 2022, held at our University, was a great success. Lodz University of Technology was represented by nearly 100 athletes in team and individual sports. Our team, mainly swimmers and karatekas, won 3rd place overall in the university classification with 6 gold medals, 1 silver and 1 bronze.



# DOCTORAL STUDENTS

In 2022, Lodz University of Technology educated 445 doctoral students (total participants of doctoral studies full-time students and doctoral students at the Interdisciplinary Doctoral School), i.e. 10.5% less than in the previous year.






women accounted for  
**47.9%** of among the total  
doctoral students



**9** doctoral students  
with disabilities

## PhD students at TUL in 2020-2022\*.

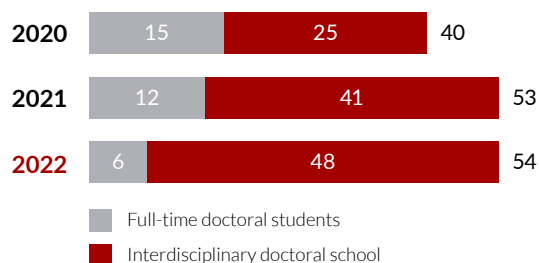
|                                   | 2020  | 2021   | 2022  |
|-----------------------------------|---|--|---|
|                                   |  |  |  |
| <b>Total</b>                      | <b>578</b>  | <b>497</b>   | <b>445</b>  |
| Doctoral Studies                  | 376   | 253  | 158   |
| Interdisciplinary Doctoral School | 202   | 244  | 287   |

\* as of December 31

In 2022, there were 54 international doctoral students at Lodz University of Technology and they accounted for 12.1% of the total number of doctoral students. There were 21 women among the international doctoral students.

The largest number of international doctoral students came from the Islamic Republic of Iran (14), Ukraine (6), China (5) and India (5).

## International doctoral students



## Doctoral Student Government

Representatives of the Doctoral Student Government of Lodz University of Technology 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 and discussions were held on problems and solutions leading to the improvement of the situation of doctoral students at universities.

In December 2022, during the Elective Convention of the National Representation of Doctoral Students in Warsaw, work began on the establishment of the "Covenant of Doctoral Students of Natural Science Universities". The new initiative is intended to unite doctoral students at universities providing training in pro-natural sciences, in particular in engineering, medical, agricultural, science and life sciences, as well as veterinary sciences.



# STAFF

In 2022, Lodz University of Technology employed a total of 2,662 people. Total employment decreased by 96 people compared to the previous year.



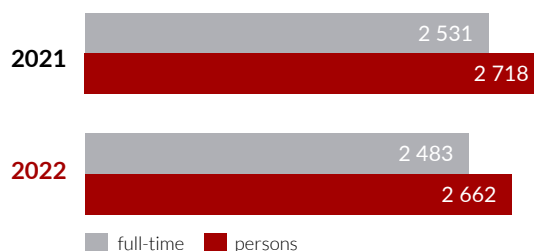
women accounted for  
**52.1%** of the total



**53** persons with disabilities, of whom:

- 20 people with mild disabilities,
- 30 people with moderate disabilities,
- 3 people with severe disabilities.

## Employed staff\*



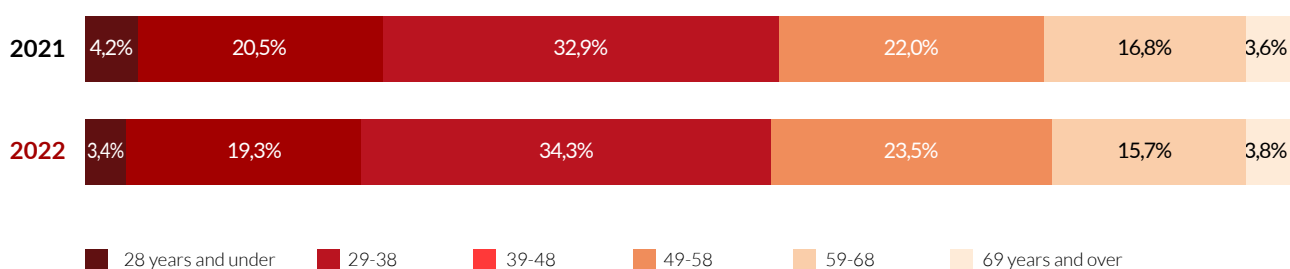
\* as of December 31

In 2022, TUL employed a total of 58 foreigners.

A total of 75 people retired, including:

- 51 non-academic staff,
- 24 academic staff.

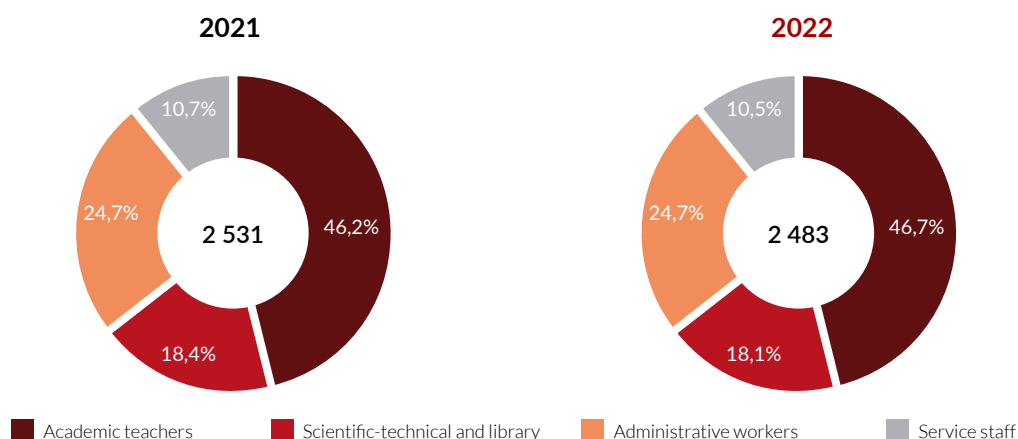
## Age structure of TUL staff



The largest age group was 39-48 years old (57.5% in this age group were women).

Women were also in the majority in the 49-58 and 29-38 age groups, at 56.0% and 53.1% respectively.

## Employment structure by staff group (FTEs)



## Academic teachers

Employment in the group of academic teachers decreased by 7 persons compared to 2022.



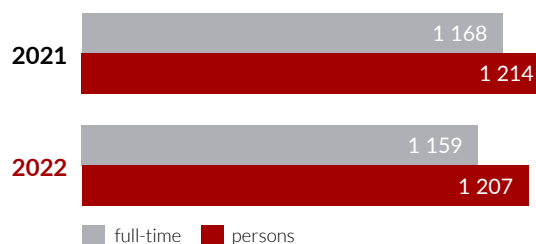
Women accounted for **39.2%** of the total number of academic teachers



9 persons with disabilities, including:

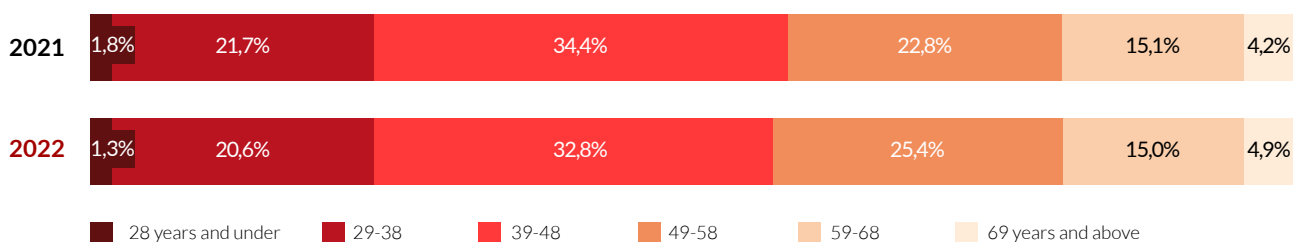
- 4 people with mild disabilities,
- 4 people with moderate disabilities,
- 1 person with severe disabilities.

## Employment of academic teachers

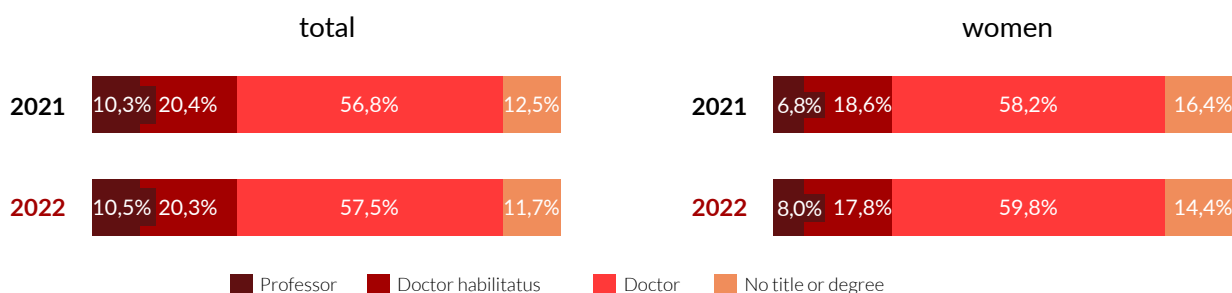


TUL employed 39 foreigners in the group of academic teachers.

## Age structure of academic teachers



## Academic teachers by title or degree

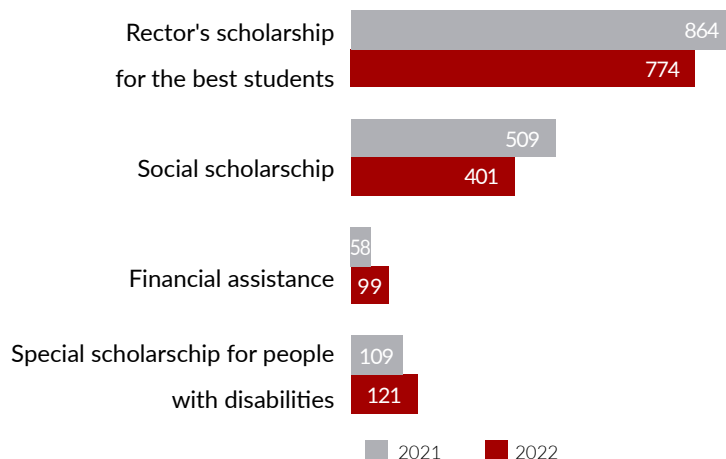


# SUPPORT FOR TUL COMMUNITY

## Material assistance and scholarships

Students and doctoral students in temporary need of assistance can apply for an allowance. In 2022, 104 students of Lodz University of Technology, including 5 doctoral students, benefited from such assistance. 121 students and 2 doctoral students benefited from the scholarship for disabled persons. Rector's scholarships were awarded to 774 students and 11 doctoral students.

### Scholarship for TUL students in 2021-2022



### Lodz University of Technology Foundation Scholarship

Since its inception (established in 2011), the Lodz University of Technology Foundation has supported student activity, the activities of research clubs and the TUL Student Government. One of the initiatives of the TUL Foundation is a competition for one-off academic scholarships for particularly talented TUL students.

The 10th edition of the programme "[Scholarships to the Power](#)" was held under the patronage of the Minister of Education and Science and the Rector of Lodz University of Technology. More than 130 applications were submitted by first- and second-cycle students from all faculties at TUL and 16 winners were selected to receive one-off scholarships of PLN 5,000.

### 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 16th time; 23 people received awards, including 8 students from TUL.

### Youth in Lodz Scholarships

In the "Youth in Lodz" scholarship programme, 80 companies - partners of the programme - offered scholarships to 122 winners. 67 TUL students received awards.

## Scholarships of the President of Lodz

The 12th edition of the scholarship programme of the President of the City of Lodz in the academic year 2022/2023 produced 43 finalists and laureates of subject Olympiads, including 10 TUL first-year students. The scholarship amounted to PLN 1,200 or PLN 1,500 per month, depending on achievements.

## TUL Residential Campus

In 2022/2023, the residential campus accommodated:



In 2022, there was a 22% increase in accommodation and a 9% increase in the foreign exchange group (Erasmus+).

Student accommodation rental income increased by 21%, driven by a higher number of people using the accommodation and an increase in fees for places in student halls of residence.

During the EUG 2022 European University Games in July, 1,750 beds were made available in TUL halls of residence.

## 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  | 1 137                   | 435 588,4       |
| Individual holiday recreation allowance ("self-arranged countryside holiday")  | 5 440                   | 3 630 100,0     |
| Recreation of children of eligible persons   | 2 886                   | 3 550 500,0     |
| Christmas box allowance for children   | 830                     | 103 480,0       |
| Allowance for childcare in nurseries and kindergartens   | 120                     | 120 242,6       |
| Benefits   | 230                     | 568 700,0       |
| Senior Citizens' Club (trips, theatre tickets, concerts, club meetings)  | approx. 200             | 69 026,0        |
| Recreational (fishing club, excursions) and cultural-educational activities (concerts, meetings and TUL art gallery) | approx. 350             | 168 368,1       |
| Loans for renovation and modernization of housing  | 114                     | 1 130 200,0     |
| Loans to purchase housing, improve housing conditions  | 36                      | 1 780 000,0     |
| Employee pension scheme  | 1 274                   | 1 089 668,0     |
| Sailing Club   | approx. 150             | 49 071,5        |



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 Wiartł near/Pisz in the region of the Great Masurian Lakes](#)
  - [Holiday Resort "Zenit" in Jastrzębia Góra near Władysławowo](#)
- and [from the TUL Sailing Base in Roganty.](#)

### Sports activities for TUL staff

In 2022, the TUL Sports Centre significantly expanded the range of activities on offer for the University's staff, taking into account their interests and needs. The Centre offers daily swimming classes in the pool for learning and improving swimming, as well as water gymnastics, stretching and stabilisation, Pilates and body art, aerobics, self-defence, healthy back classes, strength training and Latino dance. Nearly 250 TUL employees benefited from the range of sports activities on offer and were able to receive funding for activities.

The large-scale initiative was also made possible thanks to the cooperation with ACDS Sports Bay, where pool and dance classes are held.

### 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 2022, 375 students and doctoral students with disabilities and special needs used the services of BON at TUL. The Office for Persons with Disabilities provided:



- psychological consultations in Polish and English,
- psychological consultations in Ukrainian and the establishment of a support group for Ukrainian students meeting regularly on BON premises,
- psychiatric consultations with a specialist,
- anti-addiction support,
- vocational activation of students with disabilities,
- specialized equipment, including educational support equipment,
- support for students in the process of applying for Individual Organization of Classes and Individual Study Programmes
- support for the education process through the organisation of additional, complementary teaching and language classes.

Workshops and training for students with disabilities to develop psychosocial skills were conducted at BON TUL. Training on accessibility was organised for staff, including safe evacuation of people with disabilities.

As part of the cooperation with the TUL Sports Centre, regular sports activities were held for people with disabilities. In 2022, the BON Manager's Cup Sports Competition was organised, as well as the LIFT for HEALTH International Weightlifting Tournament during the European University Games.



In 2022, BON published a further 2 issues of the magazine promoting TUL, "AION - Academic Handbook for Persons with Disabilities", distributed free of charge to all universities in Poland and other educational institutions.

## Occupational health and safety

In 2022, the health and safety section carried out:

### Trainings:



Initial health and safety training for 302 people.



Periodic health and safety inspections: 419 people trained through self-directed learning, 112 people in the form of instruction.

### Health and safety inspections of organizational units:

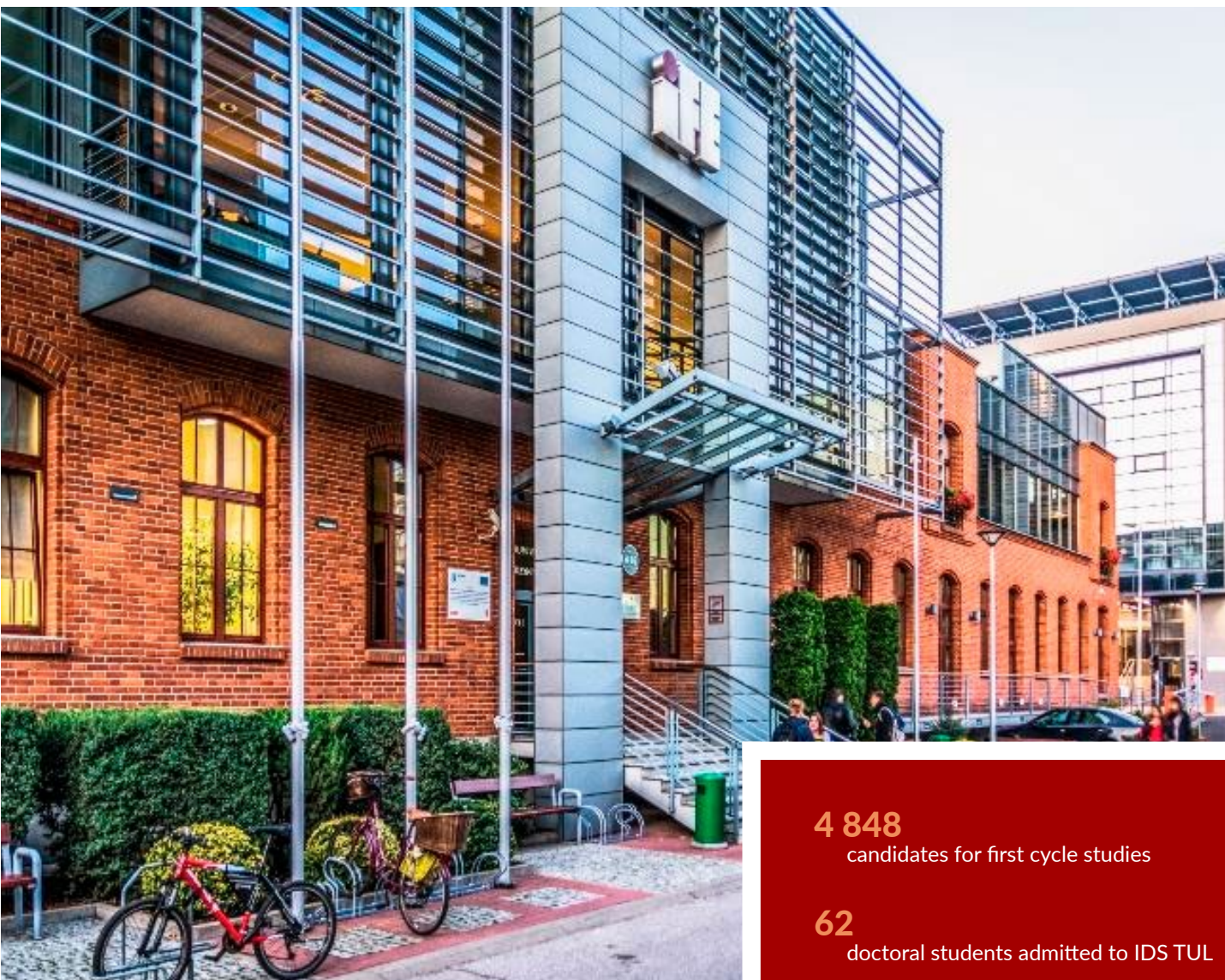


7 inspections.



149 recommendations issued.

# EDUCATION



**4 848**  
candidates for first cycle studies

**62**  
doctoral students admitted to IDS TUL

**64**  
fields of study

**264**  
postgraduate students

# ADMISSIONS

Enrolment figures for 2022 include enrolment for undergraduate and graduate programmes beginning in the winter semester of the 2022/2023 academic year and enrolment for graduate programmes in the summer semester of the 2021/2022 academic year.

In the 2022 enrolment, TUL offered 3,914 places for undergraduate studies, and for graduate studies 1,475 in the summer semester and 1,476 in the winter semester.

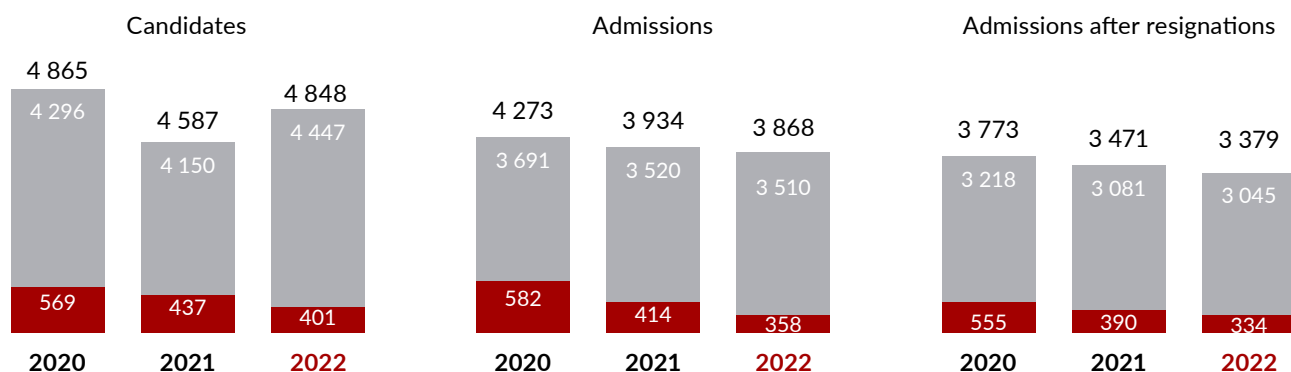
The enrolment limit for foreigners was 463 places for undergraduate studies, and for graduate studies 198 places in the summer semester and 297 places in the winter semester.

## Candidates and admitted persons

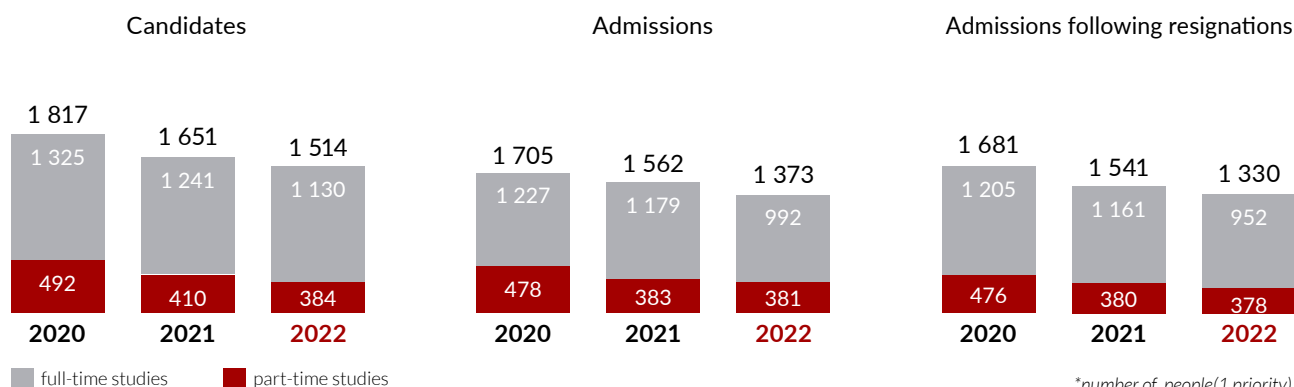
The majority of candidates for studies of the first and second cycles came from the łódzkie voivodeship (first-cycle 74.1%, second-cycle 84.1%). The next five regions in terms of the number of candidates were mazowieckie (1st cycle 9.3%, 2nd cycle 7.0%), wielkopolskie (1st cycle 2.9%, 2nd cycle 1.7%), kujawsko-pomorskie (1st cycle 2.8%, 2nd cycle 1.6%), śląskie (1st cycle 2.4%, 2nd cycle 0.8%) and świętokrzyskie (1st cycle 2.0%, 2nd cycle 0.9%).

Included in a single admission fee, the university offered each applicant the opportunity to select as many as 8 fields of study in order of preference.

### Admissions to first-cycle studies in 2020-2022\*.



### Admissions to second-cycle studies in 2020-2022\*.



■ full-time studies ■ part-time studies

\*number of people(1 priority).





### Women admitted to study at TUL in 2022

#### Candidates

1,334 women (28% of the total) applied for 1st cycle studies

681 women (45% of the total) applied for 2nd cycle studies

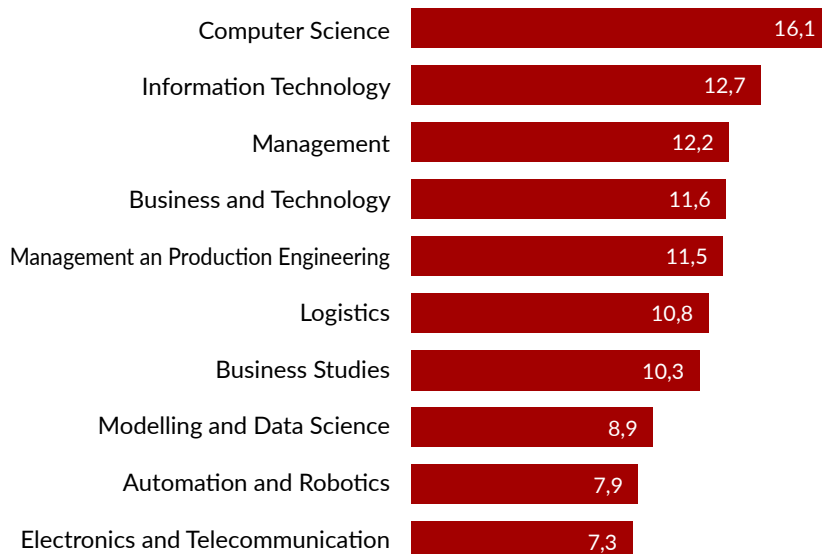
#### Admissions

934 women (28% of the total) admitted to 1st cycle studies

646 women (49% of the total) admitted to 2nd cycle studies

In 2022, a total of 126 international students were enrolled, including 108 for first-cycle studies (of which 41 are women) and 18 for second-cycle studies (of which 9 are women).

### Most popular fields of first-cycle studies by number of applications per place



21 (25% less than last year) laureates and finalists of central-level olympiads in the fields of study were admitted to the first year of undergraduate studies:

|   |  |
|---|--|
| 1 | Construction                                 |
| 3 | Electronic and Telecommunication Engineering |
| 1 | Information Technology                       |
| 3 | Modelling and Data Science                   |
| 4 | Applied Computer Science                     |
| 1 | Textiles and Fashion Industry                |

|   |                                     |
|---|-------------------------------------|
| 2 | Computer Science                    |
| 1 | Food Technology and Human Nutrition |
| 1 | Transport                           |
| 2 | Mechanical Engineering              |
| 1 | Biotechnology                       |
| 1 | Chemical Analytics                  |

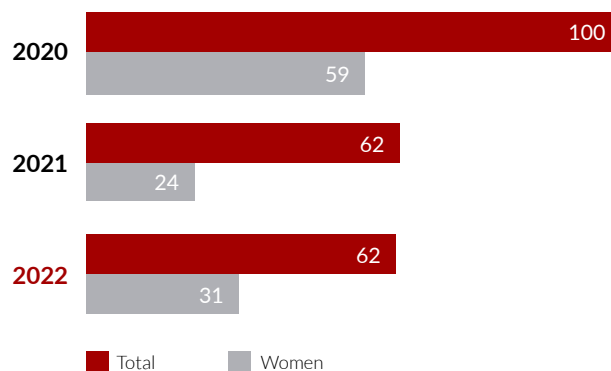
## Admissions to the Interdisciplinary Doctoral School (IDS) of TUL

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 programme "Implementation Doctorate" and in regular mode. The admission limit in the regular mode for the academic year 2022/2023 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).

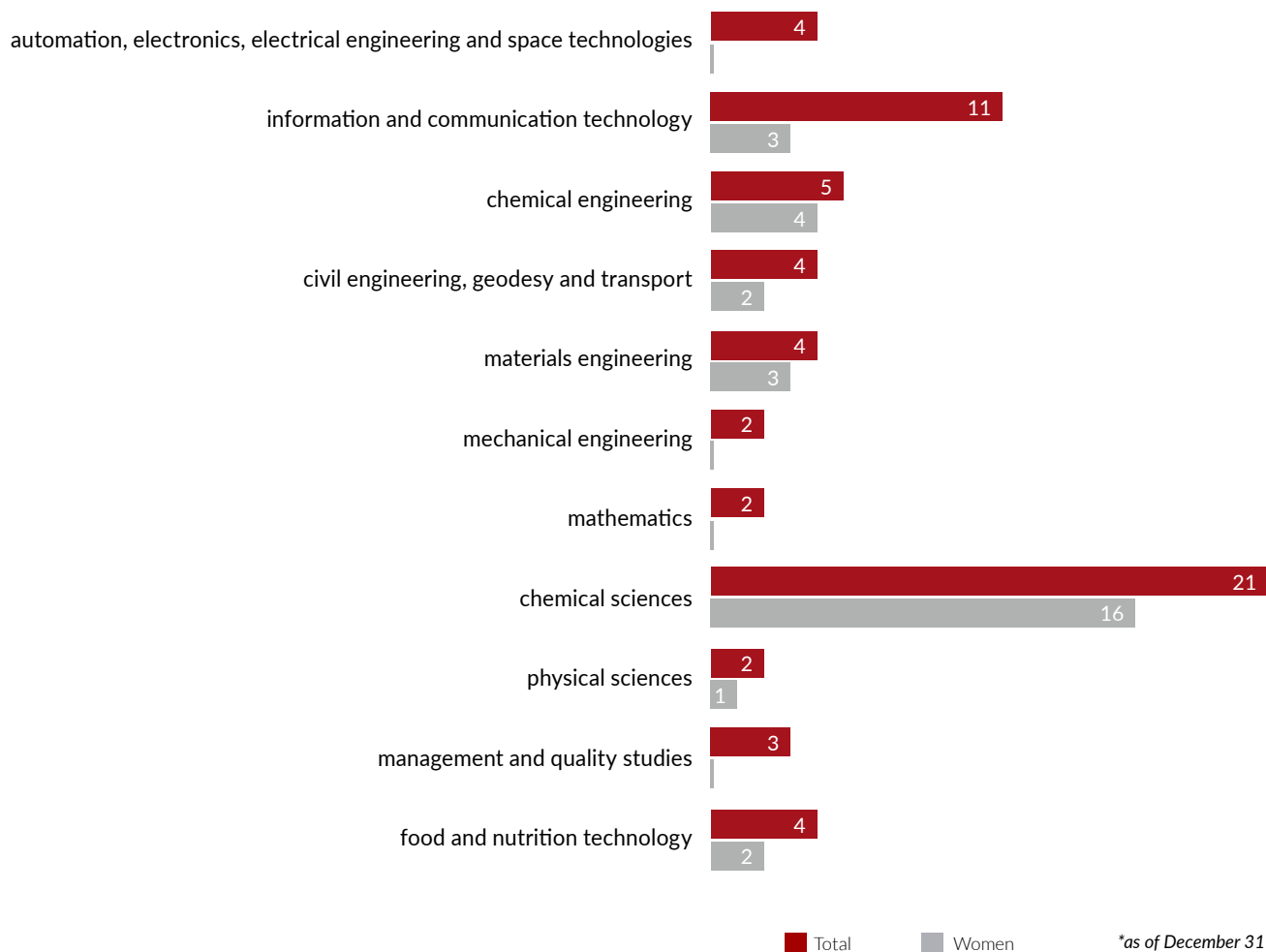
As part of TUL's cooperation agreement with IDEAS NCBR signed in 2022, a joint admission process to IDS TUL took place. IDEAS NCBR supports the development of young researchers working on artificial intelligence and IT solutions for the digital economy.

In 2022, 8 international doctoral candidates (including 2 women) from the following countries took up doctoral studies: Islamic Republic of Iran, Pakistan, India.

#### Doctoral candidates who took up studies at the IDS TUL\*



#### Doctoral candidates who took up studies at the IDS TUL in 2022 by discipline



# EDUCATIONAL OFFER

## First-cycle and second-cycle studies

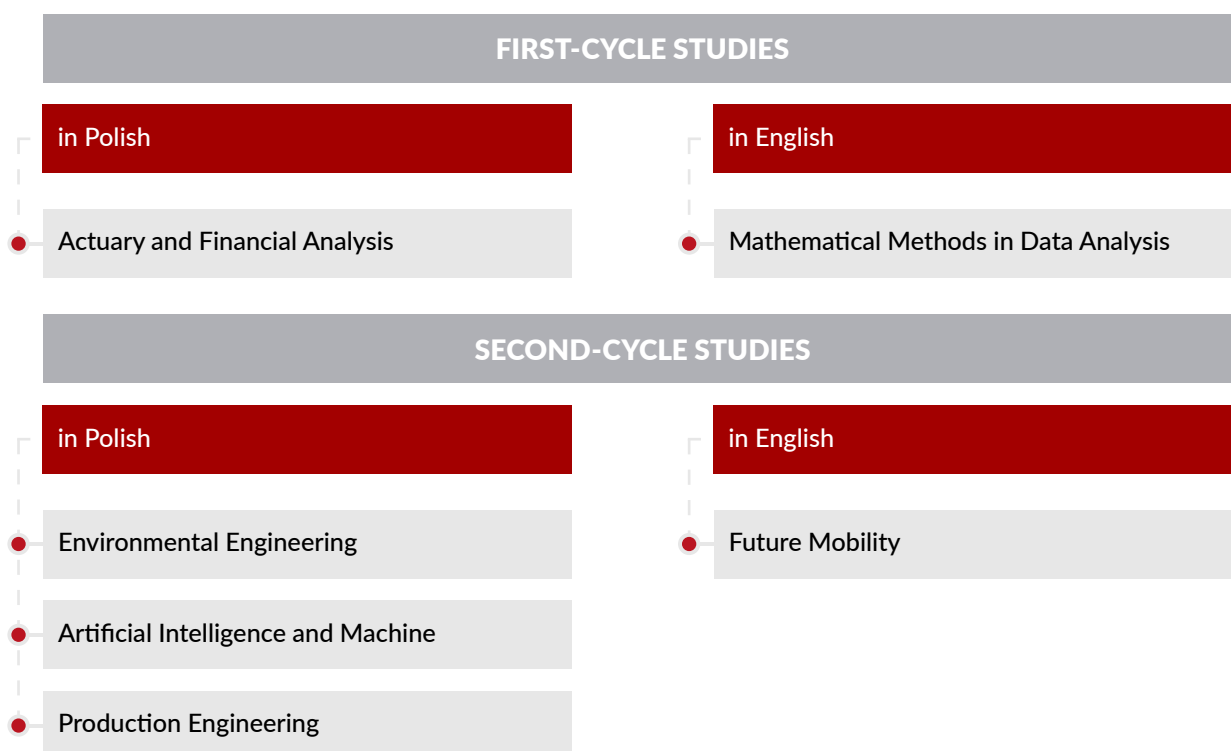
The educational offer at Lodz University of Technology is becoming richer every year thanks to cooperation with industry. Observing changes in the socio-economic environment, the University is improving educational programmes to ensure the effectiveness of learning in accordance with the needs and expectations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

In 2022, the university offered education in 64 fields among them 19 in English and one in French. Lodz University of Technology educated students at 9 faculties and at the International Faculty of Engineering (IFE).

The educational offer of TUL also includes fields of study run in cooperation with other universities in Poland. Studies in the field of Construction Chemistry are run in cooperation with AGH University of Science and Technology in Krakow and Gdansk University of Technology. The Bioeconomy undergraduate programme is a unique interuniversity field of study, delivered as part of a collaboration agreement between three technical universities: Lodz University of Technology, Warsaw University of Technology and the Military University of Technology. Dental Technology is a field of study co-run with the Medical University of Lodz.

As part of its offer of education with partner universities from abroad, TUL extended the double degree agreement in the field of electronics and telecommunications (second-cycle studies) with the University of Naples Federico II.

## New fields of study



## International Faculty of Engineering (IFE)

IFE (International Faculty of Engineering) is a university-wide unit which has been providing education in foreign languages for 30 years, and celebrated its anniversary in 2022.

IFE offers studies in 18 fields without fees: 17 run in English and 1 bilingual field of study, exclusive English-French, Gestion et Technologie. 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 2022, 353 undergraduate students and 96 graduate students were admitted to IFE. Graduation diplomas were awarded to 207 IFE students.



### E<sup>2</sup>TOP - Programme for the most talented students

In 2022, in the first edition of the E<sup>2</sup>TOP programme (Excellence in Engineering: Talents in Research with Opportunities Programme) 6 students were selected to carry out research projects in the TUL laboratories with the support of five mentors. The students visited Faurecia (currently Forvia), the Automotive Seating Factory in Grójec, where they had the opportunity to learn about the management of the production process. As part of the

E<sup>2</sup>TOP initiative and the allocated research grant funds, each participant received PLN 5,000 to retrofit a lab station or to meet individual needs necessary to complete the project. Finalists participated in international scientific conferences, summer schools or training courses.

All students successfully completed the second semester of study, including the course "Research Project I" implemented as content outside the study programme. The programme participants received high grade point averages for the semester as well as for the whole year.

### Language Centre of TUL

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

In September 2022, LC TUL organised the 4th edition of the Lektor High-Tech Conference. As in previous years, the conference was an opportunity to engage in academic dialogue and exchange experiences, knowledge, and reflections among language teaching experts. The conference was held in the modern and well-equipped halls of the Institute of Physics at Lodz University of Technology.



120 participants

45 speakers

17 universities



### Lodz HCI Summer School 2022

In 2022, a summer school on human-computer interaction issues was organized at TUL. The Lodz HCI Summer School 2022 featured workshops in project groups and lectures by prominent professors from more than a dozen European and American universities, including Chalmers University of Technology, University of St. Gallen, and James Madison University.

### Competence Development Centre

The main objectives of the project are to improve the competencies of course participants, prevent social exclusion and promote social and vocational activities.

In 2022, the following courses took place: an English course for seniors, Internet without Secrets, Fundamentals of Computer Use and Administration, courses in health care, courses in history and regionalism, courses in natural sciences, courses in art history, Fundamentals and Applications of Thermal Imaging in Industry, CAD in Knitting Techniques, Spreadsheet, Mobile World for Children and Youth, Internet Marketing, Fundamentals of Industrial Pneumatics.

Due to the geopolitical situation and the outbreak of war in Ukraine, the project was also adapted to the needs of Ukrainian nationals. They were offered courses in Polish, English, in entrepreneurship such as spreadsheet use and courses in cyber security.

In 2022, 288 people were trained in the project.

### Interdisciplinary Doctoral School TUL



A new curriculum was introduced at IDS TUL, in which the number of hours in the core courses module and elective courses was reduced. The curriculum allows the doctoral candidate to choose courses according to their interests within different disciplines, allowing for interdisciplinarity in learning as well as the acquisition of soft skills, while providing the opportunity to focus on research work.

2022 was another year in which IDS TUL successfully applied under the 6th edition of the 'Implementation Doctorate' programme. The Ministry awarded funding in the total amount of PLN 4,846,605.32 to 15 projects within six disciplines.

In 2022, a mid-term evaluation was conducted for the second time to improve the quality of education and verify the progress of the doctoral candidates at mid-term. The mid-term evaluation was completed successfully for all 77 second-year doctoral students.

Within the framework of the STER - Internationalization of Doctoral Schools programme, a number of informational and promotional documents were developed, another six films promoting scientific disciplines were produced - [Steer your future with IDS](#), and rules were developed for financing additional courses to improve the competencies of doctoral candidates.



During the reported period, relevant documents were prepared under the task "Cadet's wings - mobility support". The Committee awarded finances for 15 mobilities planned for 2023.

Intensive efforts were also made within the framework of the "POWER" project, in which IDS TUL is implementing a doctoral module. 29 scholarships were awarded to fourth-year doctoral students for outstanding academic or artistic achievements. As part of the visiting professors' lectures aimed at enriching the educational offer, TUL hosted ten distinguished scientists from foreign universities and research institutions from Italy, Greece, Germany, the United States, Romania, Croatia and the Czech Republic, among others. This was the first year that funding was granted for a foreign internship (France) and participation in international conferences.

## Postgraduate studies

In 2022, TUL launched 12 postgraduate programmes:



3 new postgraduate programmes were established:

- Modelling Water and Wastewater Systems in Engineering Practice;
- Clothing Design;
- Interior Design.

The number of postgraduate students in 2022 was 264 (including 116 women) and there was a 3.5% increase in participants compared to last year. There was 1 foreign postgraduate student.

In 2022, a postgraduate course "Municipal Waste Management" 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 functioning with-in it, which guarantees the high quality of vocational certificates, postgraduate certificates issued under the system.

Number of postgraduate students



## 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.

**30 000  
PUPILS**  
in competitions  
over 10 years

Competitions in the Fascinating Physics series and the InfoSuccess computer science competition have been held at TUL since 2012. This series consists of:

- *First Step to Success* interdisciplinary competition for elementary schools,
- InfoSuccess IT competition,
- Physics competitions *Beautiful Experience*, *Fascinating Explanation* and *Fascinating Physics* conducted for both levels,
- competitions aimed at secondary school students *First Step to Nobel Prize* - physics and *First Step to Fields Medal* - mathematics.

In 10 years, more than 30,000 students from different regions of Poland have taken part in organized competitions. At the elementary level, winners and finalists receive additional points in secondary school admission. At the secondary level, the winners of competitions after passing the Matura exam can count on certificates entitling them to apply to Lodz University of Technology without the admission procedure for their chosen field of study.

### Matura preparation courses

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

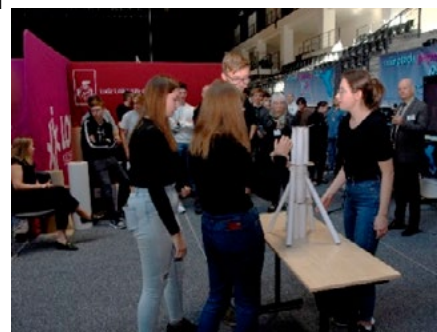
The Centre for Mathematics and Physics Education ran two full-time courses at the extended level in mathematics and in physics. In 2022 TUL candidates could also benefit from online materials in the form of videos, animations, tests, teaching modules and competition tasks, as well as from interactive textbooks posted on the E-Physics and E-Mathematics website.

### National English Olympiad for Students of Technical Universities for Secondary Schools 2022

More than 1,000 high school students from all over Poland took part in the first stage of the Olympiad (school preliminaries). 80 students qualified for the second stage of the Olympiad. Honorary patronage for the 3rd 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 Paper Olympiad for secondary school students, the primary goal of which - besides having fun - was to familiarize young people with the possibilities offered by paper. Teams competed in three competitions, which required the preparation of a specific



construction from paper. Eighteen teams from 13 schools across the country entered the Olympiad. Fifty-eight people took part in the grand finale, which was held at the TUL Sports Bay.

### Chemistry Competition of the Three Faculties at TUL

The national competition for high 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, which aims to encourage young people to deepen their knowledge of chemistry, and to seek out and promote students who are 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.

### IT Championship Center

TUL is implementing a nationwide grant project as a leader in partnership with AGH University of Science and Technology in Krakow, Wroclaw University of Technology, Warsaw University of Technology, Gdansk University of Technology, "Digital Dialogue" Association, and the "I Love Math" Association. The aim of the project is to increase the competence of teaching staff, i.e. those who conduct extracurricular classes in computer science, as well as to activate young people gifted in computer science, stimulate creativity and promote teamwork within the framework of computer science circles.

The 2022 CMI Conference Key to the Competencies of Tomorrow was held with the participation of nearly 200 participants and prominent guests.

## Strengthen cooperation with universities and scientific institutions

### Lodz Academic Partnership

The rectors of six public higher education institutions in Lodz - the Academy of Fine Arts, the Academy of Music, the Film School, the University of Lodz, the Medical University and Lodz University of Technology - in November 2022 signed a "Declaration to strengthen cooperation between public universities in Lodz within the framework of the Lodz Academic Partnership." The partnership encompasses the most important missions of Lodz universities: scientific and artistic activities, education, and relations with the socio-economic environment.



### Cooperation with Kozminski University

On June 23, 2022, Kozminski University and Lodz University of Technology signed a cooperation agreement. The document covers research cooperation, joint scientific projects and publications, exchange of good academic practices and mobility of employees, students and doctoral students, as well as support for academic entrepreneurship, with particular attention to commercialization processes.



### Cooperation with the School of Fire Service

Lodz University of Technology and the Main School of Fire Service (SGSP) have formalized a long-standing cooperation. The agreement covers scientific, research and development, as well as teaching and organizational activities.

## QUALITY OF EDUCATION

The year 2022 was a busy time for the University Committee on the Quality of Education. The commission prepared a number of amendments to the following ordinances:

- On the *Internal Educational Quality Assurance System* describes in detail the objectives and scope of the system, the structure and each of the units implementing the educational quality process at the University;
- Regarding tools for assessing the quality of education;
- On *Surveying the Educational Process* defines the rules for conducting mid-term and post-semester surveys. A new tool for assessing the quality of learning in teaching activities is the mid-term diagnostic survey, which was first conducted for all subjects in the summer semester of the 2021/22 academic year. It aims to quickly identify the source of any problem so that steps can be taken to solve it. The mid-term diagnostic survey was conducted using the Sphinx Campus system, a new survey and reporting tool;
- On *Class observation* defines the rules for conducting systemic interventions and peer observations, which are a new form of class aimed at exchanging good practices among academic teachers.

In addition, the tasks of the Field of Study Council have been clarified and the tasks of the Chairperson of the Field of Study Council has been specified in the amendment to the Ordinance on determining the method of appointment, rules of operation and organization of the Field of Study Councils and the IFE Council at Lodz University of Technology.

In 2022, the University conducted one procedure for the nostrification of a first-degree diploma from the Brest State Technical University (Belarus), in environmental engineering.

### Accreditations

In 2022

The Polish

Accreditation

Committee

gave a positive  
evaluation

#### for a period of 6 years:

- – Management and Production Engineering - first-cycle (*Faculty of Organization and Management*),
- – Textiles and Fashion Industry - first-cycle (*Faculty of Material Technologies and Textile Design*),
- – Textile Engineering - second-cycle (*Faculty of Material Technologies and Textile Design*)
- – Management - first- and second-cycle (*Faculty of Organization and Management*),
- – Environmental Engineering - second-cycle (*Faculty of Process and Environmental Engineering*),

#### for up to 2 years:

- – Management and Production Engineering - second-cycle  
(*Faculty of Organization and Management*).

## KAUT accreditations 2022:



- EUR-ACE Bachelor Label for: Mechanics and Mechanical Engineering  
(Faculty of Mechanical Engineering),
- EUR-ACE Bachelor Label for: Computer Science  
(Faculty of Electrical, Electronic, Computer and Control Engineering),
- EUR-ACE Bachelor Label for: Mechatronics  
(Faculty of Electrical, Electronic, Computer and Control Engineering),
- EUR-ACE Bachelor Label for: Chemistry  
(Faculty of Chemistry),
- EUR-ACE Master Label for: Mechanics and Mechanical Engineering  
(Faculty of Mechanical Engineering),
- EUR-ACE Master Label for: Computer Science  
(Faculty of Electrical, Electronic, Computer and Control Engineering),
- EUR-ACE Master Label for: Mechatronics  
(Faculty of Electrical, Electronic, Computer and Control Engineering),
- EUR-ACE Master Label for: Chemistry  
(Faculty of Chemistry),
- EUR-ACE Master Label for: Chemical Technology  
(Faculty of Chemistry).

Lodz University of Technology is a leader in KAUT accreditation, having 13 accreditations for first-cycle studies and 12 for second-cycle studies in 2022.

Accreditation by the U.S.-based ABET (Accreditation Board for Engineering and Technology) has been awarded to degree programmes in English:

- Computer Science (Faculty of Electrical, Electronic, Computer and Control Engineering)
- Information Technology (Faculty of Technical Physics, Information Technology and Applied Mathematics).

30 current international  
accreditations

3 institutional  
evaluations/accreditations

27  
programme accreditations

Within the framework of the MEiN "Foreign Accreditation" project, implementation of 7 projects continued. In 2022, these activities included:

- Preparation of supporting documentation for:
  - ABET accreditation for the Information Technology programme,
  - ABET accreditation for the Computer Science programme,
  - ECTN accreditation for Chemistry, first-cycle,
  - ECTN accreditation for Chemistry major, second-cycle,
  - ECTN accreditation for Chemical Technology, second-cycle,
- Final reporting (financial and asset-financial) to the MEiN and preparation of supporting documentation in connection with projects that ended in 2021,
- Analysis of CEEMAN accreditation guidelines (continued),
- Collecting information for the preparation of a self-study report for the ACEEU and preparing a self-study report for this accreditation.

## Tutoring

TUL participation in the *Masters of Didactics* Programme enabling the enrichment of forms of personalized education, which include tutoring, coaching, mentoring, among others.

September 2022 marked the end of the international tutoring training courses implemented under the MD project by the staff of TUL.

A total of 75 TUL tutors have completed training sessions organized at 5 foreign partner universities in Europe.

The potential and possibilities of academic forms of tutoring work at TUL translated into taking steps to implement the tutoring model into university practice. It consists of three main components differentiated by the educational needs of students receiving tutoring and coaching services at TUL. These include:

- Pastoral tutoring
- Tutoring for talented
- Peer tutoring

In the 2022/2023 academic year, personal tutoring for IFE students (first year, first-cycle) was introduced as a pilot at TUL. Special emphasis is placed on supporting the student as an individual. Personal tutoring is a tailor-made offer that students identify in a detailed survey conducted at the beginning of the academic year.

Tutoring for the talented provides an opportunity for students to benefit from a professional path of academic and professional development under the guidance of a tutor who supports the student in their work and facilitates the expansion of their knowledge.

Peer tutoring is no less popular than other forms of tutoring at TUL. It takes advantage of the scientific and research potential of our University's students and encourages fruitful student collaboration. It is also a teaching strategy in which students provide assistance to their peers or lower-year students with learning difficulties.

## Teaching excellence of the university

In 2022, the Ministry of Education and Science awarded funding to the "Teaching Excellence of Universities" project, among other things, to improve the competence of staff and the quality of education. Under the project, the University has the opportunity to develop two models in the area of education quality management. The first concerns the design and improvement of study programmes based on international best practices. The second model is a new path for developing the teaching and personal competencies of university teachers using a digital badge system.

## WorldSkills

On March 31, 2022 TUL officially joined the Coalition of Polish university representatives for WorldSkills Poland and the Euroskills 2023 competition for the first time in Poland.

WorldSkills Poland is an initiative that encourages young people to improve their professional skills through the prestigious international WorldSkills and EuroSkills competitions, with 31 countries from

Europe and as many as 85 countries competing in the global edition, WorldSkills. They are accompanied by various presentations, demonstrations, exhibitions, conferences and industry seminars.

TUL organized a study tour of staff and students to Gdansk in November 2022, where the national qualifiers for Poland Skills were held.

### Regional Coordination Team for the implementation of the Integrated Skills Strategy 2030 in the Lodz Voivodeship

The Regional Coordination Team for the implementation of the Integrated Skills Strategy 2030 in Lodz Voivodeship was appointed on October 4, 2022 and included Lodz University of Technology joining forces with numerous research centres and institutions from the world of business and the local government. The tasks of the Team include, in particular: Analysing problems and needs and searching for possible solutions, influencing lifelong learning policy, supporting the educational policy of the Lodz region and promoting vocational training.

### TUL in rankings



The Times Higher Education Impact Ranking ranked TUL among the top Polish universities. The university moved up in the overall ranking from the 801-1000 range to the 601-800 range. In the world ranking for activities towards Goal 8 Economic Growth and Decent Work, TUL was ranked in the high 101-200 range (ranking first among Polish universities); for Goal 17 Partnerships for the Goal TUL was ranked in the 201-300 range; for Goal 9 Innovation, industry, infrastructure TUL was ranked in the range of 301-400; for Goal 10 Less inequality in the 401-600 range; for Goal 3 Good health and quality of life in the 601-800 range.

A diploma for TUL for the university's significant advancement in the Times Higher Education Impact Rankings was received by Prof. Krzysztof Jóźwik, Rector of TUL.

The awards gala was held for the first time ever in Poland and was the culmination of the first edition of the ScienceCon 2022 international conference, organized by PCG Academia, Elsevier and Times Higher Education.



In the Shanghai Ranking's Global Ranking of Academic Subjects (GRAS), TUL was ranked for the first time in the Energy Science & Engineering discipline, ranking between 301-400.

Lodz University of Technology was included in the URAP by subject (Field-based University Ranking by Academic Performance), ranking in 15 disciplines (in the previous edition it ranked in 7). In the 5 disciplines in which TUL was ranked last year, we saw a rise; in the other 2 there was a fall.



University Ranking by  
Academic Performance



In the Webometrics ranking, Lodz University of Technology saw a significant rise and was ranked 13th in Poland (up from 26th) and 994th in the world (up from 1769th).

## ENTERING THE LABOUR MARKET



### TUL Careers

Office organized or co-organized many events, including:

#### The 17th edition of the Academic Job Fair:

- approx. 80 exhibitors from various industries corresponding to the profiles of education at Lodz University of Technology and UMED in Lodz,
- 30 free online training courses attended by nearly 500 people,
- 4,500 registered participants,
- 3,500 people viewed the video of the official opening on ATP's FB alone.

#### Hackathon - HAcK for Health

The goal of the event was to organize a design and training sprint, during which participants, working in interdisciplinary teams under the guidance of mentors from the medical and technology industries, created an innovative solution to a pressing social problem. The event was organized by UMED in Lodz, with TUL as a strategic partner.

#### Competition: Young in Lodz I have an idea for a startup!

Lodz University of Technology, as a strategic partner of the programme, organized the opening event of the competition in the Sports Bay, during

**TUL Careers Office** organized or co-organized many events, including:

which workshops were held for mentors and startups with a joint workshop connecting mentors with startups. The event was attended by more than 100 people.

Among the 14 best projects, an honourable mention and an award of PLN 6,000 from the Rector of TUL was given to the project *Micro-encapsulated preparation of bee honey for biomedical applications*. The award-winning team includes employees of the Institute of Food Technology and Analysis at TUL.



### **Santander Universidades Programme - Business in Practice**

The fifth edition of the cyclical Business in Practice event, financed by a donation agreement, was conducted for the second time not only for students, graduates and employees of the University of Lodz, but for all universities in Poland. 1,578 people applied, but due to the limit on seats, 500 people took part. Training topics in 2022 included sales and negotiation.

### **Talents of Lodz University of Technology**

The new initiative of TUL Careers Office was born out of a deep understanding of the processes taking place in the labour market. Talents are being discovered among students, doctoral students and TUL graduates who demonstrate diligence, ambition and high competence. A communication space between young people and the labour market is being built through the Careers Office website and social media.

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

Interviews with TUL graduates, in which they talk about their careers, help present students with possible career prospects, development paths and strategies for navigating the labour market. The project fosters stronger ties between the University and its graduates.

# TUL FOR LOCAL COMMUNITY



**887**

Children between the ages of 7-17 in the Children's University of TUL programme

**573**

students of the University of Third Age TUL

**41**

exhibitions in TUL art galleries

## TUL KINDERGARTEN

Lodz University of Technology is a university for all generations, with educational offerings for children, teenagers, students, young scientists and seniors. Complementing the Long-Life Learning concept is the opening in 2022 of a non-public kindergarten at TUL.

In a modern, two-story kindergarten building, on an area of 1,100 m<sup>2</sup>, more than 100 children can be provided with care and attractive leisure activities. Inside there are five teaching rooms, each with its own colour and name visualized on the wall. Each room has an interactive monitor, toys, teaching aids and a decorated corner according to Maria Montessori pedagogy.

Adjacent to the kindergarten building is a kindergarten garden, where each group has its own mini vegetable garden and a playground equipped with accessories with the appropriate safety certificates.

The kindergarten's offer includes activities for the all-round development of children and to make the time spent in the kindergarten more varied:

- English,
- rhythmic classes,
- speech therapy,
- ecology for the preschooler,
- little cook's corner,
- little chemist's corner.



## CHILDREN'S UNIVERSITY OF TUL



ŁUD TUL is a non-departmental unit, where children can deepen their interest in the world and learn the secrets of technical knowledge in a simple and fun way.

- 53 children aged 7 years
- 766 children aged 8-12
- 68 participants aged 13-17
- 10 ŁUD TUL volunteers
- 10 so-called "large" lectures
- 397 workshops for children aged 8-12
- 60 online workshops
- 37 workshops for children aged 7
- 10 workshops for children aged 7 with their parents
- 28 workshops for young people aged 13-17

From 2020 to 2022, ŁUD was a partner in the Horizon 2020 funded international project PHERE-CLOS (Partnerships for pathways to Higher Education and science engagement in Regional Clusters of Open Schooling). One of the project's events in 2022 was a trip to Vienna for the 20th. Kinderuni Wien (KUW). Nine ŁUD volunteers aged 16-18 conducted several workshops in English and Polish, and

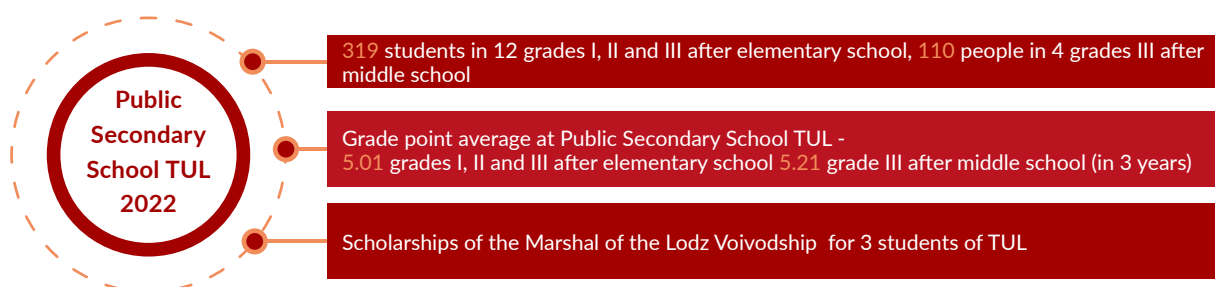


animated games. For several days they shared their experiences and collected new ones.

In September, volunteers travelled to Bucharest for the project's closing conference, where they conducted workshops for representatives of formal and informal education institutions.



## PUBLIC SECONDARY SCHOOL OF TUL



School successes:

- 3rd place in the Lodz region in the Ranking of High Schools of the Educational Perspectives Foundation;
- 1st place in the Lodz and Swietokrzyskie regions for the basic Matura exam in compulsory subjects (Polish, Mathematics, English);
- 1st place in the region due to the result of the Mathematics extended Matura;
- Participation (with success) in many central finals of subject Olympiads and international competitions.



The Public Secondary School of TUL celebrated its 15th anniversary in 2022.

The high school was established in 2007 and has already educated more than 1,000 graduates. The main initiators and builders of our Secondary School were the then Rector of TUL, Prof. Jan Krynski, Vice-Rector for Student Affairs, Prof. Ireneusz Zbicinski, and Tomasz Koze-

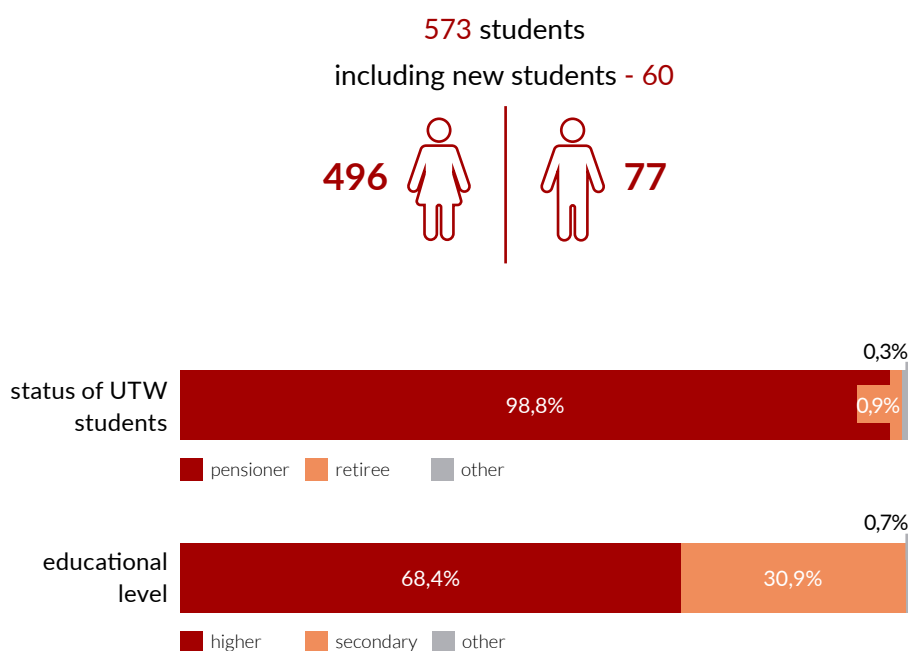
ra, the school's director since its inception.

From the beginning, it was an elite school, gathering exceptionally talented young people, as confirmed by the high school graduation exams.



# UNIVERSITY OF THE 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. In 2022, UTW TUL education took place both remotely and on-campus.



UTW TUL has implemented the following forms of activities:

**General lectures** - 94 hours.

Activities carried out on site and remotely, using our own platform.

Lecture topics included: 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** - 996 hours.

UTW TUL in 2022 offered 18 additional classes, including 3 new ones: computer administration, retro cinema, music.

**Open classes for community 60+**, as part of Competence Development Center

project - Courses to prevent social exclusion of seniors. A total of 264 hours of course activities were completed for 186 people in 2022.

Participation of UTW TUL in conferences and events, including:

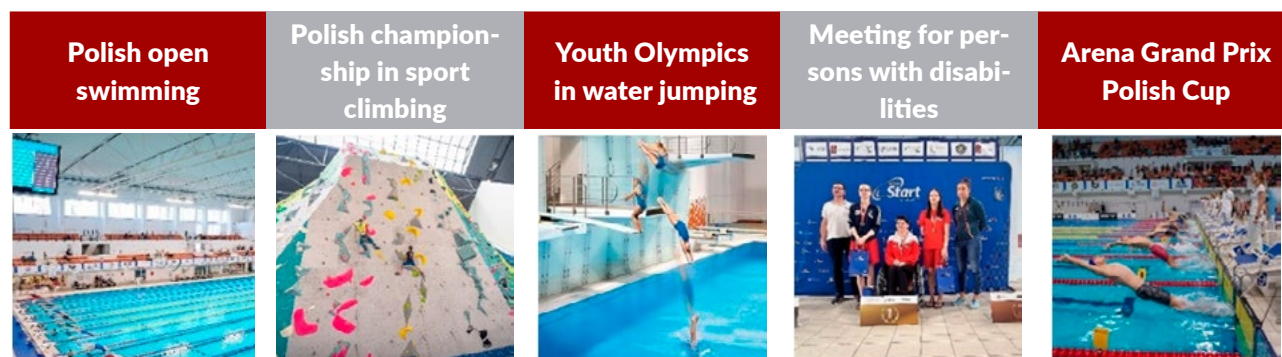
- Webinar entitled "Cyber security from the perspective of the financial services customer - practical aspects";
- International Day of the Elderly and International Music Day at the Lodz Philharmonic;
- The conference, combined with a thematic debate entitled "The importance of the topic. "This is what your future may look like as well. Everyday Life of Polish Seniors."
- VI Senior Economy Congress;
- Lectures and workshops at the Museum of Art MS1 and MS2.



## TUL SPORTS AND EDUCATION CENTRE "SPORTS BAY"

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

International and domestic events:



### European Universities Games - EUG 2022

The European Universities Games were held in Lodz from July 17 to 30, 2022.

This largest academic sports event was hosted by Lodz University Technology, the AZS and the city of Lodz.

A huge role in the success of the event was played by the EUG Lodz 2022 Organizing Committee appointed by the Rector, whose activities were coordinated on behalf of the Rector by Eng. Dominik Leżański and Dr. Ewa Brochocka - director of the Sports Centre at TUL. The European Universities Games in Lodz integrated the academic community from all over Europe, and Lodz University of Technology presented itself as a University that can perfectly combine science and sports.



During the closing ceremony of the EUG 2022, the Rector of TUL, Prof. Krzysztof Jóźwik, ceremoniously handed over the flag of the European University Sports Association to the organizers of the Games, which will be held in Miskolc and Debrecen, Hungary, in two years' time.

**TUL in the general classification:  
3rd place with  
8 medals, including 6 gold**



**20  
DISCIPLINES**

**5 000  
ATHLETES**

**400  
UNIVERSITIES**

**PARTICIPANTS  
FROM 37  
COUNTRIES**

## CULTURE AND ART

The Thursday Cultural Forum series provides an opportunity to meet well-known artists and intriguing personalities. The meetings with the guests were recorded in the TUL Auditorium and then premiered on Facebook and YouTube. A total of 7 meetings were held, during which it was possible to listen to talks by Prof. Jaroslaw Braek (an outstanding opera singer), Kajetan Duszyński (gold medallist at the Tokyo Olympics), Otylia Jędrzejczak (a Polish swimmer), or Dorota Chotecka-Pazura (a film and dubbing actress).

The Music at the TUL concerts continued online, and as of April returned to on-site meetings. In 2022, 2 recordings of concerts were published, while music lovers could meet at 7 concerts in the Performance Hall at TUL.

The TUL Academic Choir celebrated its 70th anniversary. On this occasion, a unique performance was held of Light Music Technique, which they presented in the historic boiler room of Karol Scheibler's power plant.

A performance by the TUL Academic Choir was a highlight of the Opening Ceremony of the European Universities Games 2022 at the Atlas Arena.

The Academic Orchestra held 48 rehearsals. In addition, they performed five concerts, including I Will Survive and the Christmas concert in the TUL Performance Hall. They could also be heard at the 13th Arythmix 2022 Atrial Fibrillation Conference at the Hilton Hotel in Warsaw, or at the Business Day Gala at the Municipal Cultural Centre in Zgierz. The team also prepared performances of new songs: Easy on me by Adele; a suite from the musical La la land; and the theme from the movie How to Train Your Dragon.

Student Radio ŻAK of Lodz University of Technology is the oldest licensed academic radio station in Poland, broadcasting in Lodz and the surrounding area. In 2022, the radio station celebrated its 63rd birthday, which went under the slogan EXPERIMENT.





## 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 41 exhibitions (in 2019-21) for the academic and local community. The openings and meetings held brought together a large number of artists and art lovers, who were able to learn about Japanese culture and art, among other things. An exhibition of paintings by Ewa Tomporek-Fukuoka titled "Images from Japan" was presented at Biblio-Art Gallery.

The building of the Faculty of Chemistry, "Alchemium", became a new exhibition venue for the "Politechnika Gallery". The opening ceremony was accompanied by an exhibition of works by acclaimed artist Dr. Piotr Mastalerz, a professor at the University, entitled "Interior areas".

## Museum of Lodz University of Technology

The Museum of TUL collects, preserves and disseminates collections related to the history, tradition and activities of the University. The collected objects come primarily from donations and deposits made by graduates, employees and people associated with the University, as well as faculties and units of TUL. In 2022, a total of 30 items were entered in the register and inventory books.

The Museum's exhibition offer is enriched by temporary exhibitions prepared alongside the permanent exhibition, which are the main form of popularizing the Museum's collections and its activities.

The permanent exhibition presented in the main hall with an area of 78 m<sup>2</sup> was enriched in the reporting year with a plaster bust of the University's first Rector, Professor Bohdan Stefanowski.

In May 2022, a temporary exhibition titled "Stanisław Kiełbasiński: An outstanding scholar and extraordinary man - Righteous Among the Nations" was prepared for the 77th jubilee.

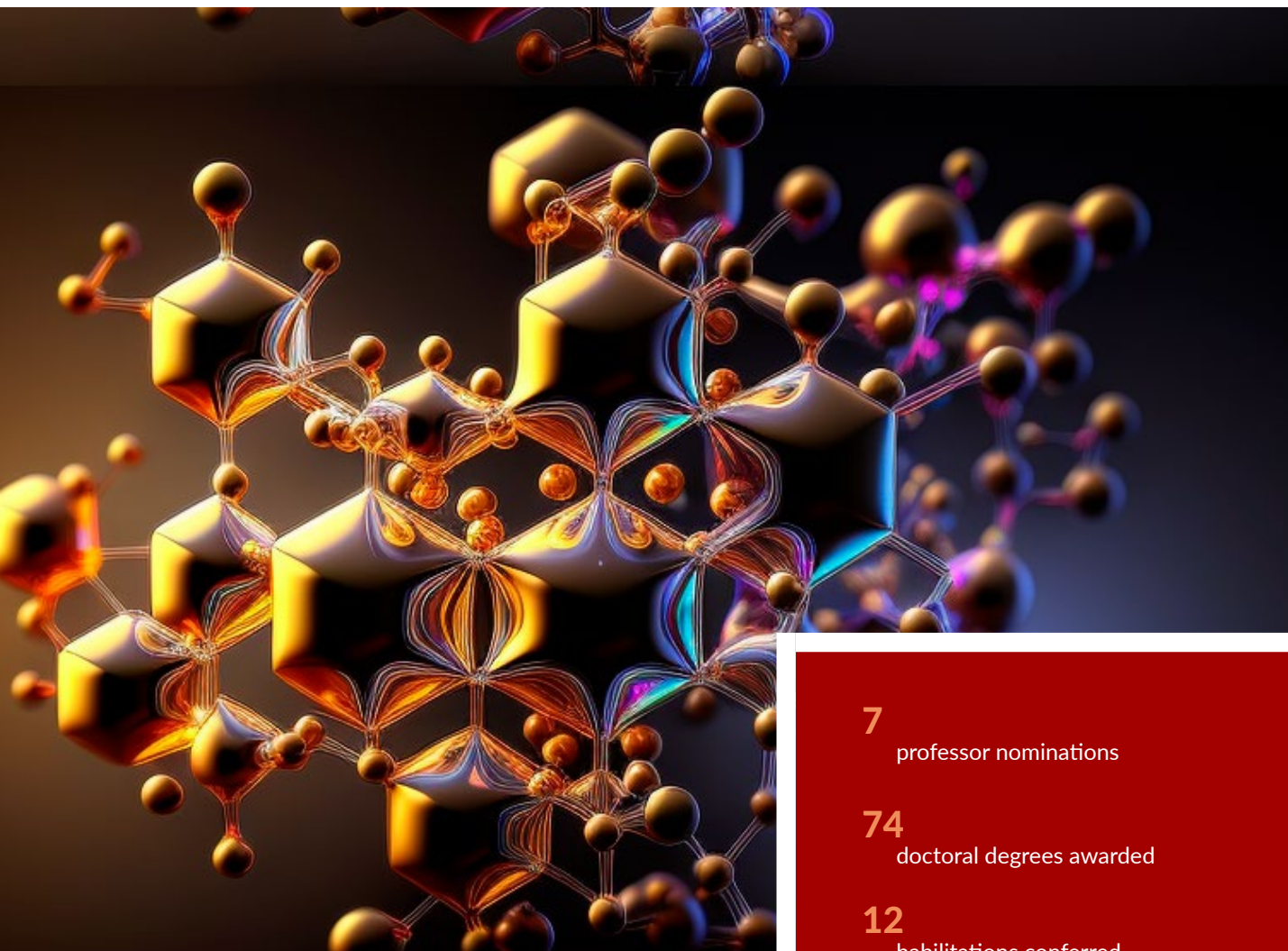
For the inauguration of the 2022/2023 academic year, the museum prepared a temporary exhibition, "Stopped in the Frame: The first studios and laboratories of the Lodz University of Technology".

In 2022 a total of 213 people visited the museum, including several organized groups.





# SCIENCE



**7**  
professor nominations

**74**  
doctoral degrees awarded

**12**  
habilitations conferred

**104**  
ongoing national NCN grants

**248**  
publications by doctoral candidates of IDS TUL

# EVALUATION OF SCIENTIFIC QUALITY ACTIVITY

An evaluation of the quality of scientific activity was conducted for the years 2017-2021 and covered 12 disciplines at Lodz University of Technology.

The university achieved excellent results, receiving three A+ grades, six A and three B+. The results of the evaluation of the University's scientific activities testify to the high quality of the research carried out, the good financial effects and the significant impact of the activities of the University on the quality of life and economic development.

| A+   | A   | B+   |
|--|---|--|
| <ul style="list-style-type: none"> <li>chemical engineering</li> <li>chemical sciences</li> <li>food and nutrition technology</li> </ul> | <ul style="list-style-type: none"> <li>information and communication technology</li> <li>materials engineering</li> <li>mechanical engineering</li> <li>mathematics</li> <li>physical sciences</li> <li>management and quality studies</li> </ul> | <ul style="list-style-type: none"> <li>architecture and urban planning</li> <li>automation, electronic, electrical engineering and space technologies</li> <li>civil engineering, geodesy and transport</li> </ul> |

## SCIENTIFIC DEVELOPMENT OF STAFF

### Degrees and academic titles

In 2022, the title of professor was awarded to 7 academic staff at TUL, including 6 women:

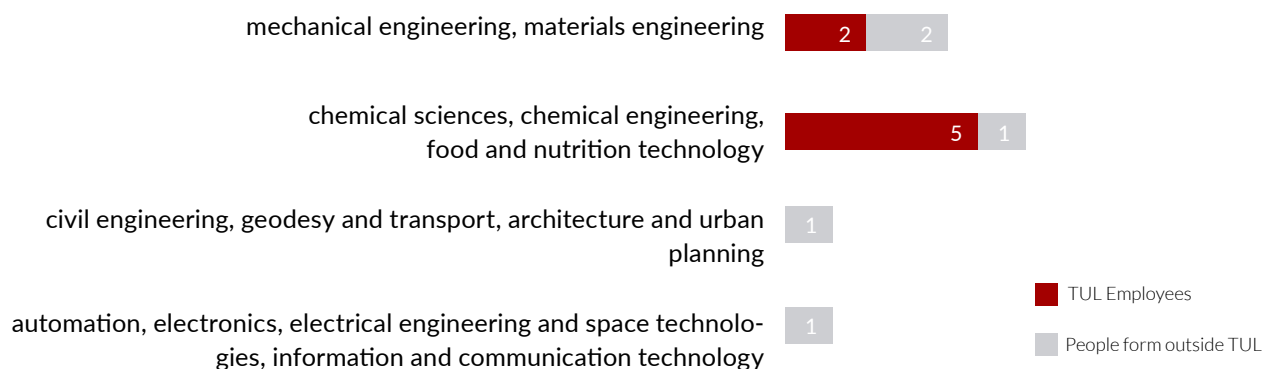
|  |
|--|
| Faculty of Mechanical Engineering<br>Prof. Jacek Sawicki   |
| Faculty of Electrical, Electronic, Computer and Control Engineering<br>Prof. Irena Wasiak<br>Prof. Anna Fabijańska |
| Faculty of Material Technologies and Textile Design<br>Prof. Małgorzata Matusiak                                   |
| Faculty of Biotechnology and Food Sciences<br>Prof. Joanna Leszczyńska<br>Prof. Katarzyna Śliżewska                |
| Faculty of Process and Environmental Engineering<br>Prof. Hanna Kierzkowska-Pawlak                                 |

10 TUL employees were awarded postdoctoral degrees, while doctoral degrees were awarded to 15 employees of the University.

Lodz University of Technology conferred 74 doctoral degrees in 2022 (60 in 2021) and 12 habilitation degrees (6 in 2021), including 5 to people from outside TUL.

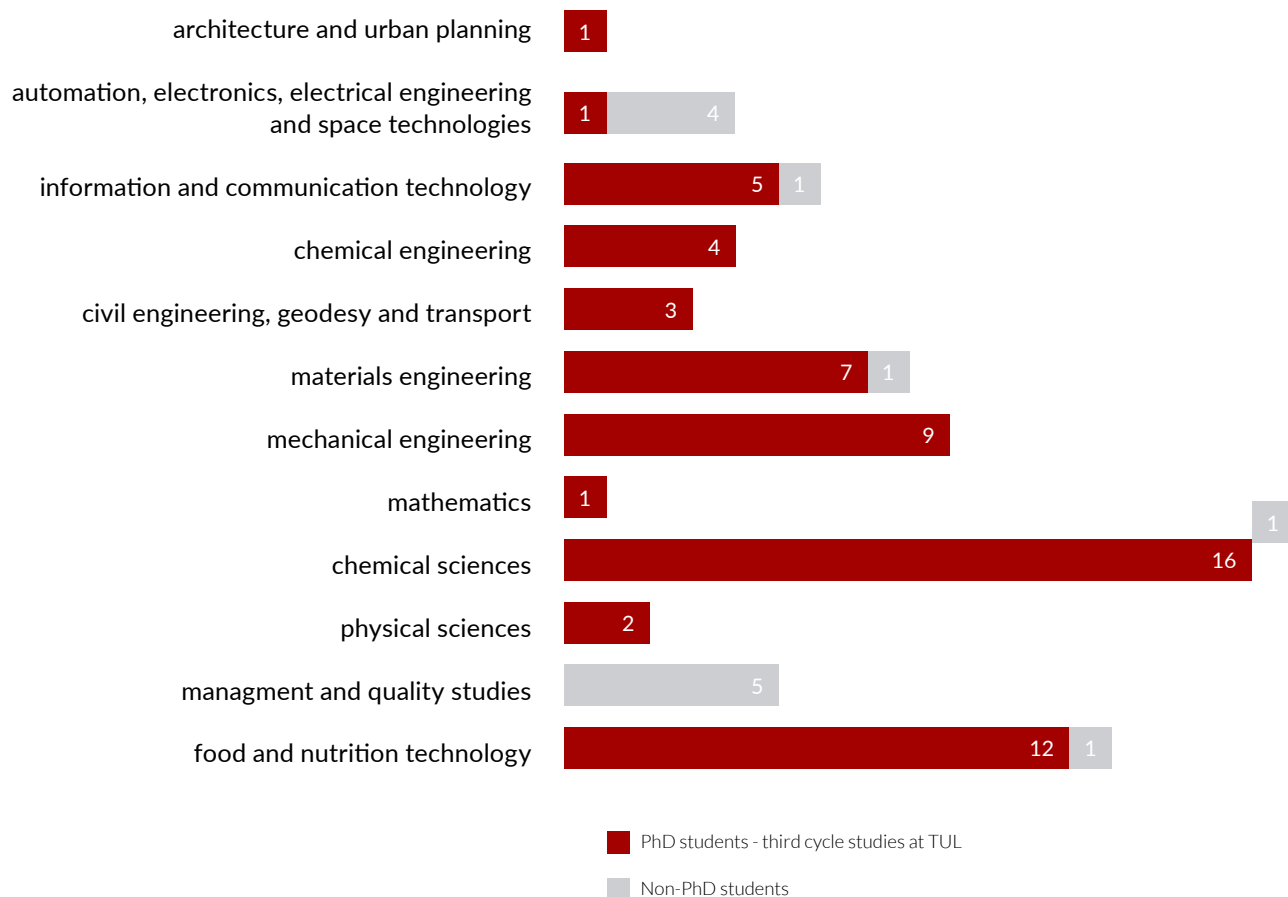
### Habilitations conferred by TUL in 2022

*Council for Academic Degrees in disciplines:*



### PhD degrees conferred by TUL in 2022

*Disciplines:*



## Prizes and awards for TUL scientists in 2022

The 2022 Scholarship for Outstanding Young Scientists Showing Significant Achievements in Scientific Activity was awarded to Tomasz Boruta, PhD, assistant professor in the Department of Bioprocess Engineering at the Faculty of Process and Environmental Engineering at TUL.

The 2022 awards of the Minister of Education and Science were given to:

- For significant achievements in scientific activities - Prof. Jacek Banasiak from the Institute of Mathematics at the Faculty of Technical Physics, Information Technology and Applied Mathematics;
- For lifetime scientific achievements - Prof. Jan Awrejcewicz, head of the Department of Automation, Biomechanics and Mechatronics at the Faculty of Mechanical Engineering.

### Association of Chemistry and the Environment

Prof. Małgorzata Szynkowska-Jóźwik, Dean of the Faculty of Chemistry at TUL, has become vice-president of the European Association of Chemistry and the Environment (ACE) and will be the only Polish representative on the association's 12-member Board of Directors.

The election for ACE vice president was made at the association's general assembly, during the 22nd European Meeting on Environmental Chemistry.



### Stanisław Kostanecki Medal

During the 64th Congress of the Polish Chemical Society in Lublin, Prof. Łukasz Albrecht, Vice Rector for Science, received the Stanisław Kostanecki Medal - a prestigious award of the scientific community of chemists presented for outstanding achievements in organic chemistry.



### Winner of the Scientist of the Future award

Lucyna Bilińska, PhD, from the Department of Molecular Engineering, received the Scientist of the Future award for her original research project *Modern wastewater treatment with plasma-prepared catalyst for textile wastewater recycling*.

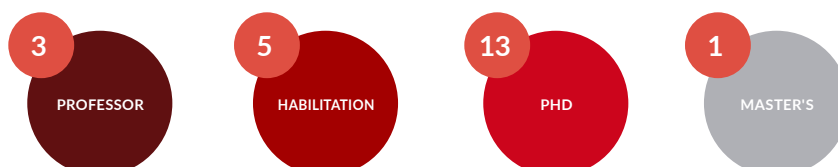


## Academic Scholarships

### 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 15th edition of the competition for scientific scholarships from the TUL Own Scholarship Fund, 22 scholarships were awarded:



### Bronowicki Family Scholarship

The first edition of the Bronowicki Family Scholarship for academic performance by TUL students, was held in 2022.

The scholarships are financed by funds donated to the TUL Own Scholarship Fund by Founder Allen J. Bronowicki PhD, an aerospace engineer, US citizen and son of a Polish World War II soldier.

The laureates were 6 undergraduate students, distinguished by their educational results and scientific achievements, such as publications, patents and implementation of research projects.



## RESEARCH PROJECTS

### Implementation of research projects

In 2022, 226 project applications were submitted in competitions announced by research funding institutions. A total of 59 research projects were accepted for implementation.

A total of 246 research projects were carried out in 2022 by TUL employees.

The university has successfully applied for research projects from international programmes. In 2022 TUL has signed 7 funding agreements for projects under Horizon Europe, placing it among the top technical universities participating in the new European Union framework programme.

For the first time, TUL is the coordinator of international research programmes:

- 2 coordinations in Horizon Europe:

- *SUSTainable industrial DESIGN of TEXtile structures for composites (SustDesignTex)*- The project is coordinated by Assoc. Prof. Marcin Barburski, from the Institute of Architecture of Textiles at TUL.

- *BIOmass Valorisation via Superheated Steam Torrefaction, Pyrolysis, Gasification Amplified by Multidisciplinary Researchers TRAINing for Multiple Energy and Products' Added VALUEs (BioTrainValue)* - The project is coordinated by Szymon Szufa, Ph.D., from the Faculty of Process and Environmental Engineering at TUL.

- 1 coordination in the Life programme:

- *Complex Awareness Raising and Behaviour Change for the Mercury-Free City Environment (Life Mercury-Free)* - The project is coordinated by Prof. Volodymyr Mosorov of the Institute of Applied Computer Science at TUL.

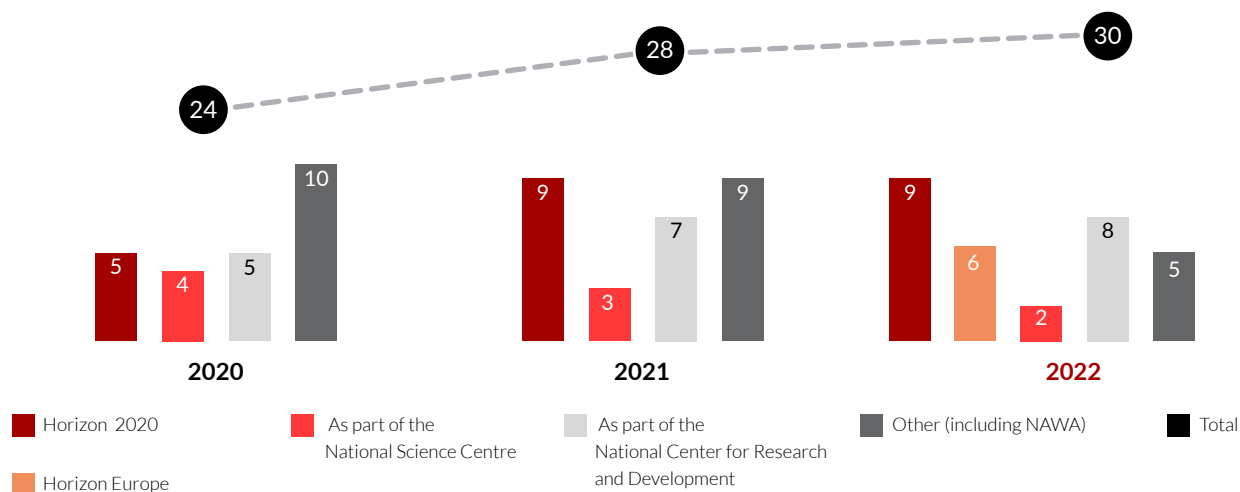


### Value of costs incurred for the implementation of international projects under the co-financing

|      |                      |
|------|----------------------|
| 2020 | PLN 2,658.7 thousand |
| 2021 | PLN 3,499.1 thousand |
| 2022 | PLN 5,229.0 thousand |



### International research projects implemented in 2020-2022

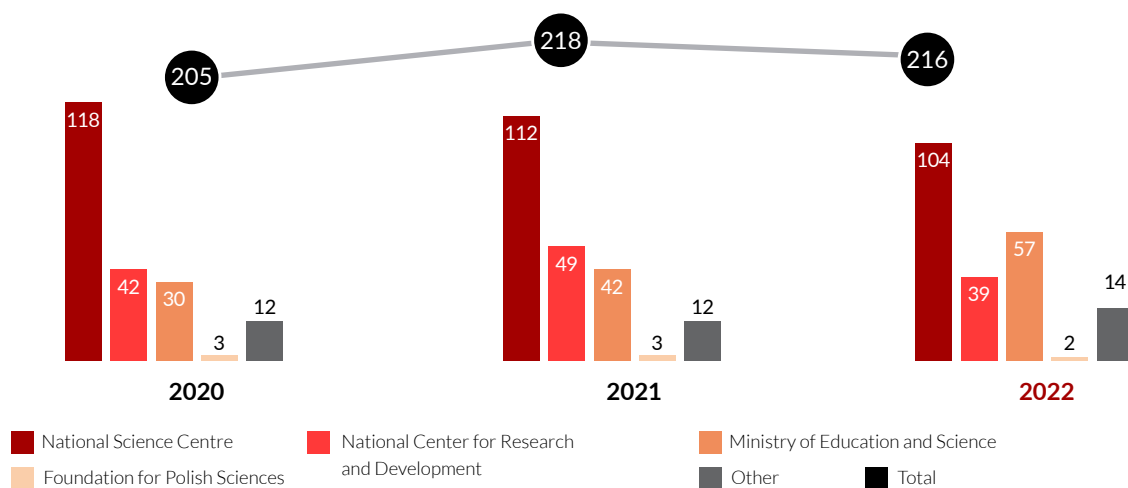


### Value of costs incurred for national projects under the co-financing

|      |                        |
|------|------------------------|
| 2020 | PLN 37,743.0 thousand  |
| 2021 | PLN 46,176.5 thousand. |
| 2022 | PLN 43,895.2 thousand  |



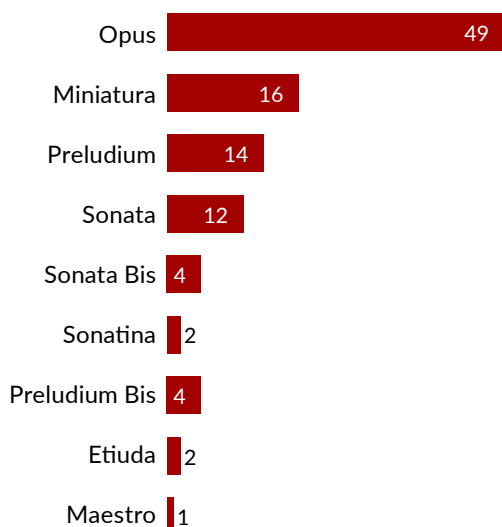
### National research projects implemented in 2020-2022



### TUL in NCBR programmes

According to the National Centre for Research and Development (NCBR) report published in 2022 "Scientific institutions - experience in applying and implementing R&D projects", Lodz University of Technology was among the five most active scientific institutions that received funding from NCBR programmes in 2015-2021. The university implemented 51 projects, most of them in a leadership role. The BRadar+ survey covered universities, research institutes, institutes and centres of the Polish Academy of Sciences - regardless of whether they acted as leaders or consortium members.

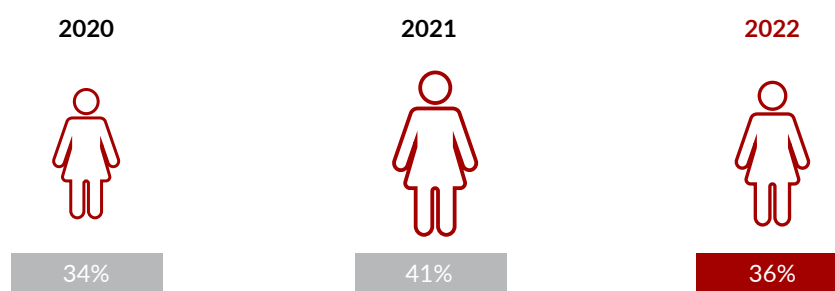
#### Number of national projects funded from NCN in 2022.



National projects funded by the National Science Center accounted for 42% of the total number of projects implemented at TUL.

The value of costs incurred for the implementation of national projects under NCN funding in 2022 amounted to PLN 9,799.4 thousand.

#### Research projects coordinated by women



## Support for project planners

### Language Support Centre

In 2022 TUL has launched a new initiative called Language Support Center (LSC) as a form of support for grant applications in English. Linguistic proofreading in the project documentation may increase the chance of receiving project funding in the application process. The initiative is jointly implemented by the Project Service Centre and the TUL Language Centre.

### Newsletter

The academic community was regularly informed about the opening of research grant competitions and training courses - Information Bulletin (when a newly announced competition was announced, the supervisor of the competition at TUL was indicated).

### Increasing the attractiveness of the image of the scientist and their research

A series of training sessions on enhancing the attractiveness of the image of the scientist and their research was conducted. Participants in the training learned about trends in the dissemination of research papers and their authors, learned about the benefits of online visibility, including in terms of preparing research grant applications.

The meetings were led by experts from Adam Mickiewicz University in Poznań. The lectures and individual consultations were attended by 100 people.

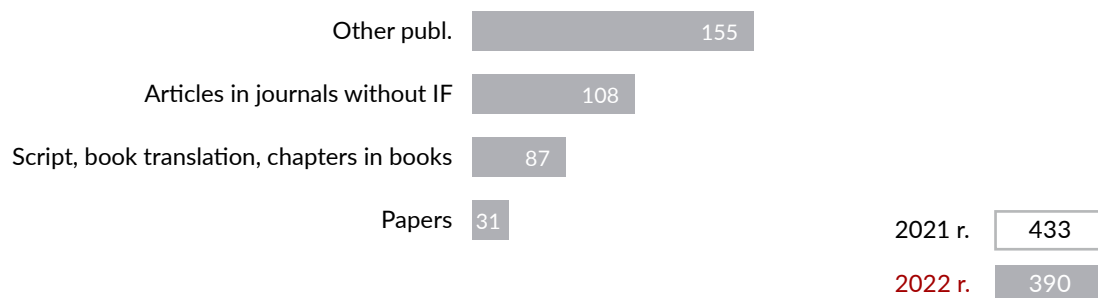
## PUBLICATIONS

In 2022, researchers at Lodz University of Technology published a total of 1,678 publications. Publications with an international focus accounted for 76.8% of total TUL publications.

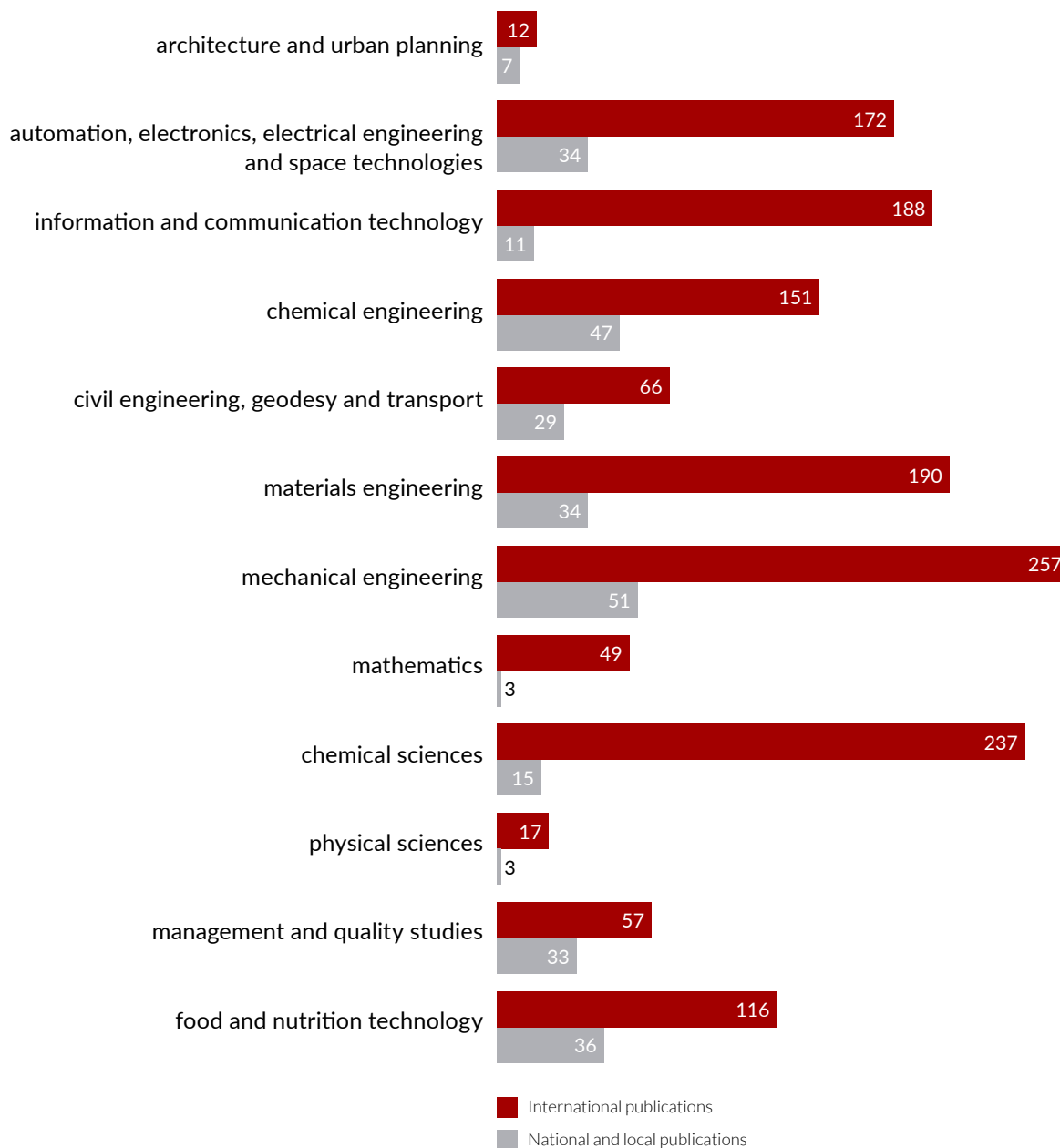
### International publications

|  |               |
|--|---------------|
| Articles in journals with Impact Factor<br>(from JCR database) | 887           |
| Papers   | 137           |
| Articles in journals without IF                                | 124           |
| Script, book translation, chapters in books                    | 58            |
| Other publ.  | 79            |
| Monographs   | 2             |
| Textbooks  | 1             |
|  | 2021 r. 1 431 |
|  | 2022 r. 1 288 |

## National and local publications



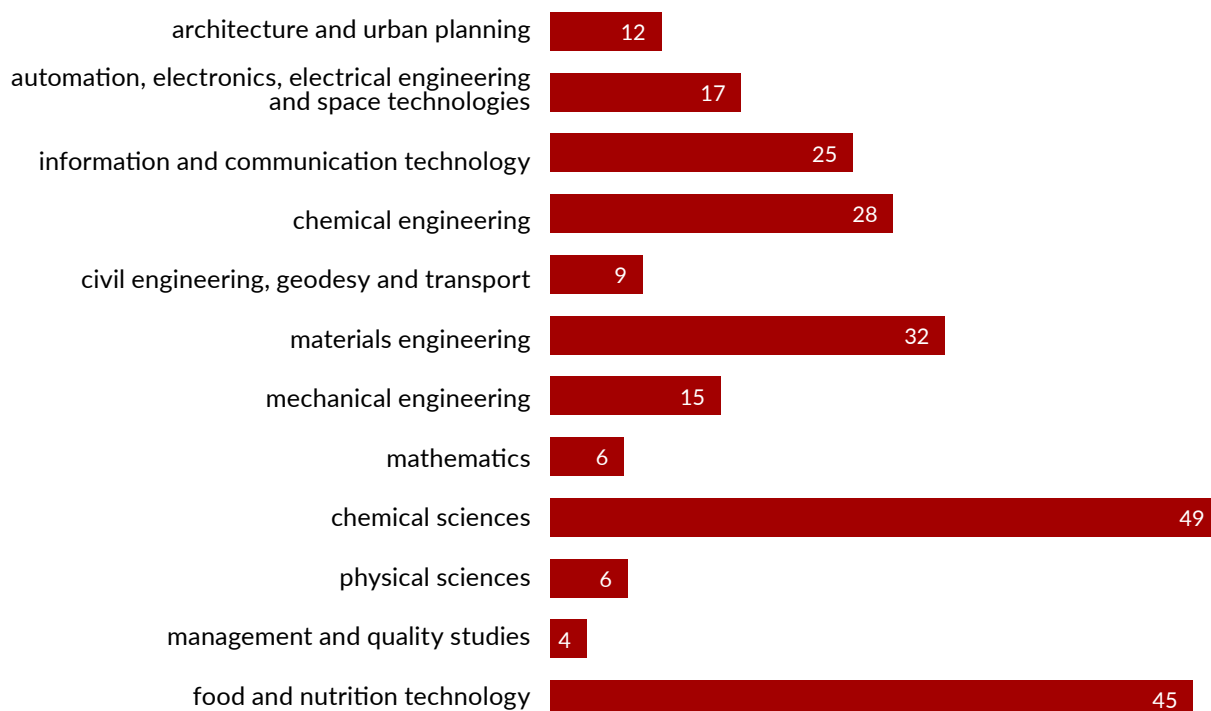
## Lodz University of Technology publications in 2022 by discipline



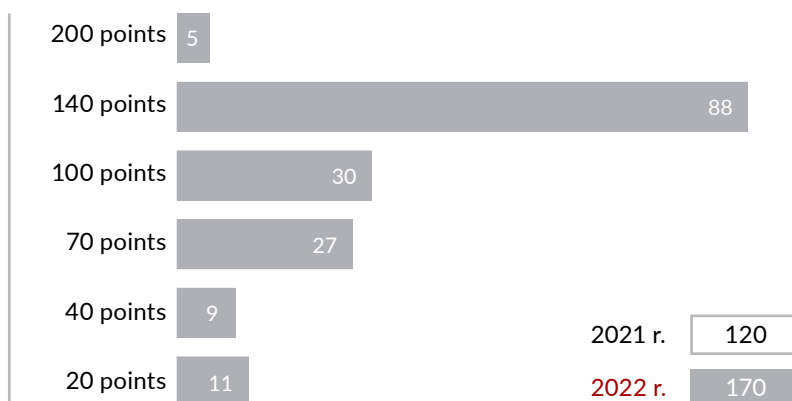
## Publication activity of PhD students of IDS TUL

PhD students from the Interdisciplinary Doctoral School of Lodz University of Technology were authors and co-authors of 248 publications published in 2022 (in 2021 - 149).

### Publications of PhD students of IDS TUL in 2022 by discipline



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



## TUL Publishing House

A total of 30 publications were issued in 2022:

- 21 printed publications with a total circulation of 2,799 copies,
- 9 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. – 274 029,
- other non-electronic collections – 231 513,
- magazines in vol. – 132 606.

Providing access to electronic collections:



- Electronic sources (databases and services) – 89,
- titles of full-text books (Polish and foreign) – 504 964,
- titles of journals and other publications with full-level access texts – 56 615.

### Support of the TUL Library for students and employees from Ukraine

The TUL Library has prepared an e-learning course "Managing Scientific Information and Literature" in Ukrainian.

The course consists of seven modules aimed at preparing students to use the scientific literature available electronically, create their own collections of publications, and use scientific literature in the teaching and scientific process.

## DEVELOPMENT OF RESEARCH POTENTIAL

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

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

### FU<sup>2</sup>N- Young Researchers' Skills Improvement Fund

One of the University's initiatives undertaken for the development of young scientists is the FU<sup>2</sup>N programme. As part of the first edition of the competition in 2022, 56 winners were selected - 34 doctoral students and 22 young scientists, who received funding for in-house TUL grants.

### FACE - Fund for Academic Conference Excellence

Under the 2022 FACE programme, 5 applications have been submitted for funding participation in prestigious international scientific conferences.

### Joint MUL and TUL award for publications

The university strengthened its cooperation with the Medical University of Lodz (MUL) by organizing a competition for the prize of the Rector of Lodz University of Technology and the Rector the Medical University of Lodz for the best scientific publication published jointly in 2021. The goal of the competition was to activate joint research activities and promote the outstanding scientific achievements of the staff of the two universities.

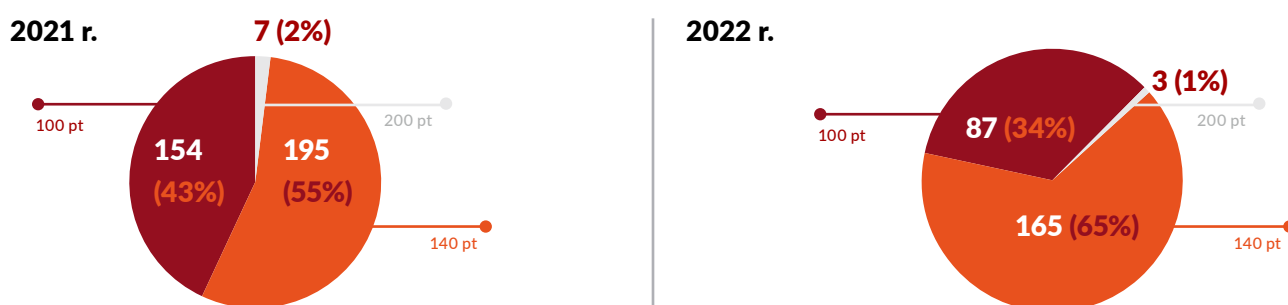


Two teams made up of scientists from both universities received PLN 80,000 to continue their joint research.

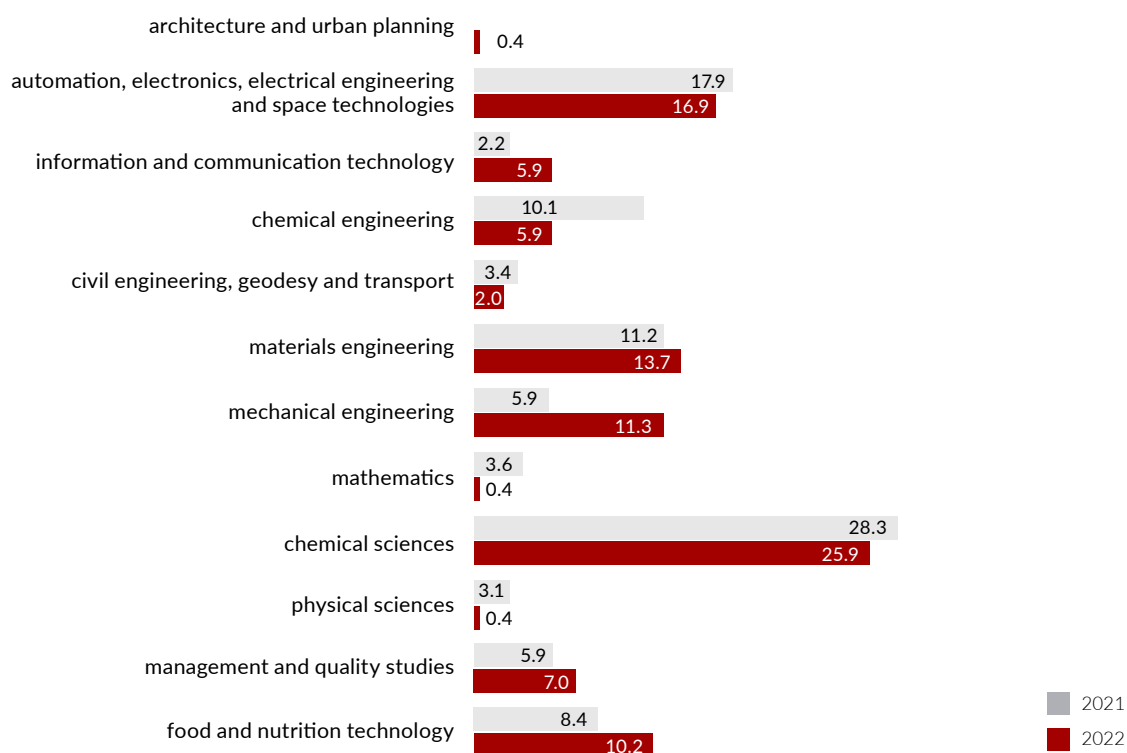
### Funding for Open Access publications

Within the framework of the Task Budget, entitled "Intensification of publication activity of employees, doctoral students and students of TUL through funding of OPEN ACCESS publications", Lodz University of Technology in 2021 subsidized 356 publications for a total amount of PLN 3,102.5 thousand. In 2022, the subsidization of Open Access publications continued with the allocation of PLN 2,931.9 thousand to support 255 publications.

Number of subsidized publications in 2021 - 2022



Share of funded publications per discipline (%)





## Awards to support scientific excellence

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

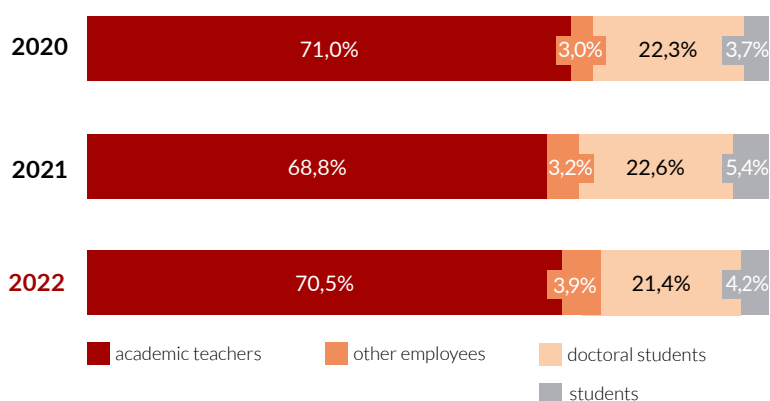
In 2022, awards continued to be made within the framework of funds allocated to support scientific excellence of employees, doctoral students and students of TUL.

The value of awards paid under the IDUB programme in 2020-2022 totaled PLN 12,684.0 thousand, including in 2022 PLN 4,646.3 thousand.

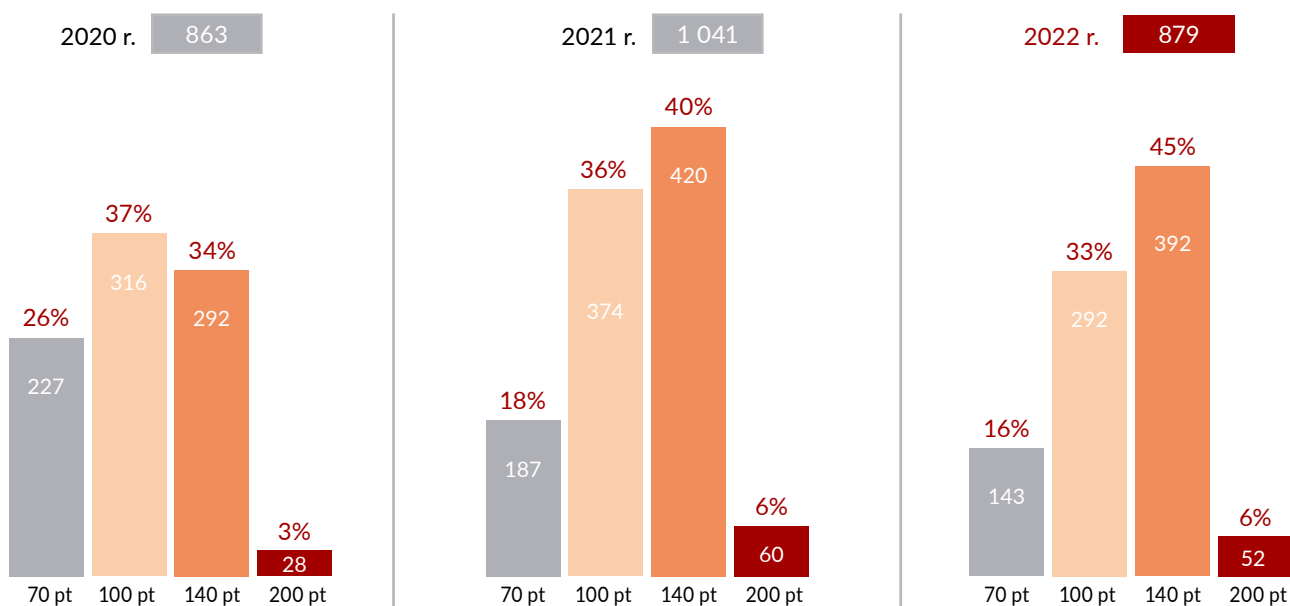
### Award recipients in 2020-2022

|   | 2020 | 2021  | 2022 |
|---|------|-------|------|
|  | 868  | 1 052 | 889  |
|  | 41%  | 40%   | 40%  |

### Individuals awarded by author status



### Number of publications for which awards were presented



## New initiatives

### EIT Health

In May 2022 Lodz University of Technology joined the international community partners of the European Institute of Innovation and Technology in the Health pillar. EIT Health is a European Commission body, operating within the structure of Horizon Europe, created to strengthen innovation in key areas of development in the European Union.

During the EIT Health open day, where the special guest was Ms. Franscesca Avolio Regional Director of EIT Health, the academic community learned about the opportunities arising from being part of the European community in this field.



### 3W Interdisciplinary Innovation Center

In December 2022, during the 2nd 3W Congress, held in Warsaw, Poland, the TUL joined the 3W Interdisciplinary Innovation Center. On behalf of the University, the agreement was signed by Prof. Łukasz Albrecht, Vice-Rector for Science. The initiative is designed to strengthen cooperation between the scientific and business communities and create a friendly ecosystem that will improve the process of commercialization of innovative solutions in the areas of water, hydrogen and coal.

### Coalition for Advancing Research Assessment (CoARA)

Lodz University of Technology has joined the Coalition for Reforming Research Assessment - CoARA. The coalition brings together more than 500 scientific institutions from around the world. Its goal is to develop good practices for evaluating scientific research based on the responsible use of bibliometric indicators, as well as qualitative evaluation and analysis of other forms of scientific activity.

As part of the "Agreement on Reforming Research Assessment," which TUL has committed to fulfilling, research assessment covers 3 areas:



evaluation of organizations  
and research units



evaluation of research  
projects



evaluation of individual  
researchers and research  
teams

### Applications of artificial intelligence

A series of intra-university seminars has been initiated by the Rector's Artificial Intelligence Team, which disseminates AI research and methodologies in the TUL community. The idea of the seminar series focuses on inviting all faculties to scientific cooperation, as well as improving IT competence (especially in AI) in non-IT faculties and providing real problems and inspiration to IT faculty members in university-wide scientific cooperation.

# COOPERATION



**65**  
protection titles obtained  
at the Patent Office of the Republic of Poland

**12**  
spin-off companies

**23**  
strategic partners

**27**  
projects under  
Erasmus + Action 2 programme



# COOPERATION WITH THE ECONOMIC ENVIRONMENT

## Clusters

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

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

As part of the activities of the Lodz ICT Cluster, a continuation of the "Join IT in Lodz" series under the slogan "Welcome on board" was organized in 2022, focusing on the history of young IT professionals from abroad, primarily from Eastern Europe, who have taken up studies in Lodz and employment in Lodz-based IT companies. The series showed that the city of Lodz is a multicultural city, and that TUL attracts people with different backgrounds.



**"Partner for development - excellence in cooperation with the socio-economic environment".**

The cooperation of Lodz University of Technology with the Lodz ICT Cluster has been recognized by the Polish Accreditation Committee. The Presidium of the Polish Accreditation Committee distinguished Lodz University of Technology in the category "Partner for development - excellence in cooperation with the socio-economic environment". This distinction testifies to the very high quality of IT education at Lodz University of Technology, in consultation with leading IT companies. PKA appreciated, among other things, the initiatives of the Education Task Force such as observation of classes by specialists from IT companies.

### Recommendation of subjects by companies in the cluster

In November 2022, a "Subject Recommendation" programme was adopted, through which companies in the Lodz ICT Cluster officially recommend a subject as being in line with their needs.

The premise of this proprietary programme, 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.

### Trends I(T) Revolutions

The Lodz ICT Cluster has prepared a series of technology debates with the participation of Cluster experts. This is a new initiative to promote the latest technologies in the ICT industry. In them, IT professionals undertook discussions on the topics of: *AI as a way for Poland to break out of the middle-income trap*; *Cloud vs. costs - how to count them so you don't miscalculate*; *Think B? IoT/loB/Smart business solutions*. Each of the debates, published on YouTube, has more than 22,000 unique views.



### XV European Economic Forum - Lodz 2022

Lodz University of Technology was the content partner of the event, and among the speakers and moderators of the panels were a number of the University's employees, including Prof. Agnieszka Zakrzewska-Bielawska, Dean of the Faculty of Organisation and Management, Prof. Lukasz Kaczmarek, Vice-Dean for Development of the Faculty of Mechanical Engineering, Assoc. Prof. Eng. Anna Masek, TUL Prof.

As part of the Forum, panel discussions were also led by representatives of clusters coordinated by the university, including: Lodz ICT Cluster - panel *Cyber security - what everyone should know*. Among the distinguished group of panellists-specialists in the field of cyber security-was Prof. Andrzej Romanowski, Vice-Rector for Education at TUL. Lodz Energy Wave Cluster has become a partner of the panel "*Trends in the development of innovation in the energy industry*".



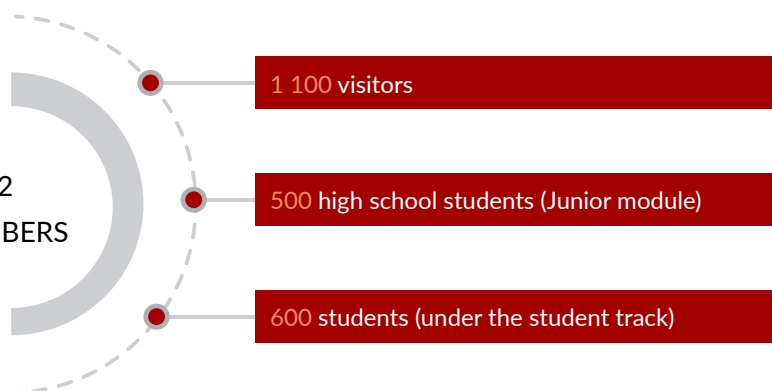
### Lodz Days of Information Technology (LDI)

The Lodz ICT Cluster organized the sixth edition of Lodz IT Days. In 2022, after two years of remote working, the event returned to the campuses of Lodz University of Technology and the University of Lodz.

An important aspect of LDI is the "Junior" module, aimed at high school students. TUL was visited by more than 400 high school and technical students from Lodz and the Lodz region. The students had the opportunity to learn about the university's offerings in the area of computer science, the activities of the scientific circles, as well as check out the computer games created by students of the Faculty of Technical Physics, Information Technology and Applied Mathematics, and learn about the work of robotics students from the Faculty of Electrical, Electronic, Computer and Control Engineering. The meeting's programme for prospective IT students was complemented by talks by industry professionals on how to start a career in IT.



### ŁDI 2022 IN NUMBERS



## "Technologies of tomorrow - debates at Lodz University of Technology"

The debates at TUL are a new initiative featuring invited experts from the industry and academia. The project was initiated by Prof. Lukasz Kaczmarek, Vice-Dean for Development, Faculty of Mechanical Engineering at TUL.

Three debates were held in 2022: *Artificial intelligence (AI) a challenge for companies not only in the IT sector*, *Chemistry and materials engineering - an offer for a closed loop economy* as part of the National Innovation Fair of Polish Universities and Research Institutes, and *RES + Intelligent Energy Management = Energy Independence?* as part of the 3rd Forum for Business and Sustainable Development - Lodz 2022.

## Corning Day

After a two-year hiatus due to the epidemic situation in the country, Corning Day was organized at TUL. The meeting provided an opportunity for students from the five faculties of TUL to learn about the solutions and opportunities offered by the company, which is a global leader in fibre optic technology, the students could also test the acquired knowledge in practice under the guidance of Corning experts.

## Pactt Science Business Innovation Expo 2022

The Centre for Innovation and Entrepreneurship of Lodz University of Technology organized the National Innovation Fair of Polish Universities and Research Institutes (PACTT SCIENCE BUSINESS INNOVATION EXPO 2022). This was a pioneering initiative, during which the business world had the opportunity to learn about the latest technological solutions and services offered by the Polish scientific community in one place. The fair was accompanied by panel discussions and seminars on the latest scientific research and financing of innovative technology implementations.



**70**  
EXHIBITORS







**500**  
VISITORS

## Protection of intellectual property

In 2022 Lodz University of Technology obtained 65 protection titles from the Polish Patent Office. Cases pending before the Polish Patent Office included 172 applications for patents and 86 applications for utility models.

Exclusive rights upheld at the Polish Patent Office:

- 428 patents for inventions,
- 5 utility model protection rights,
- 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  | Utility models  | Integrated circuit topographies   | Patents   | Protective rights for utility models  | Rights from registration of integrated circuit topographies                         |
| 2021 - 41   | 2021 - 3  | 2021 - 2  | 2021 - 98   | 2021 - 0  | 2021 - 2  |
| 2022 - 61   | 2022 - 2  | 2022 - 0  | 2022 - 62   | 2022 - 3  | 2022 - 0  |

According to the 2021 report published by the Patent Office of the Republic of Poland, Lodz University of Technology continues to rank 2nd according to the number of granted patents filed for protection by domestic and foreign entities.

In foreign patent offices in 2022 the University reported:

- 1 invention in PCT mode,
- 1 community design.

Exclusive rights upheld before foreign patent offices:

- 4 patents in Switzerland/Lichtenstein,
- 5 patents in the UK/ Britain,
- 5 patents in Germany,
- 4 patents in France,
- 1 patent in the US,
- 1 patent in Italy,
- 1 patent in Japan,
- 1 patent in Spain,
- 1 patent in Norway,
- 1 patent in Luxembourg,
- 1 patent in Belgium,
- 1 patent in Monaco,
- 1 patent in Ireland.

## Commercialization

### Innovation Incubator 4.0

In 2022, within the framework of the third edition of the "Innovation Incubator 4.0" project, the implementation of pro-development projects initiating the transfer and commercialization of knowledge continued:

- Actions were taken to initiate cooperation between the scientific community and the business environment, including the search for entities interested in implementing the results of scientific research and development work;
- 3 meetings were organized in the series "Modern technologies in your company - brunch with Lodz University of Technology", to which machine tool manufacturers, entrepreneurs from the non-ferrous metal foundry industry and representatives of companies in the field of thermal imaging technologies were invited;
- As part of the "Competition for the best idea for a spin-off company, " a spin-off company, C CUBE, was established, operating as a Simple Joint Stock Company engaged in non-destructive testing of structures made of composite materials.

In 2022, there were 12 companies (including 2 new ones) of the spin-off type established for the commercialization of the results of the research of TUL.

- 4 projects received pre-implementation support aimed at improving their technological readiness and preparing them for implementation into industry;
- The latest solutions authored by the University's scientists were promoted at prestigious science to business exhibitions and fairs at home and abroad.

The best TUL technological solutions presented at the Kaohsiung International Invention and Design Expo in Taiwan were honoured with 3 medals:

- Gold medal - *Bioactive formulation for obtaining eco-friendly fabrics with antibacterial, antifungal and antiviral properties;*
- Silver medal - *A method of measuring the effective value of current especially in cables and conductors of LV and MV power networks;*
- Bronze medal - *A method of producing a filter material with hydrophobic and bactericidal properties for tracheotomy, especially for a tracheotomy tube insert* received a bronze medal.

### The Centre for Innovation and Entrepreneurship of TUL

The University's activities in the field of knowledge transfer and commercialization of innovative technologies are carried out by the Centre for Innovation and Entrepreneurship at TUL, which has a Quality Management System certificate according to the ISO 9001:2015 standard (as the only all-university unit in Poland with ISO in the field of knowledge transfer and commercialization of innovative technologies) and the status of an Accredited Innovation Centre, awarded by the Minister of Development and Technology.

The accreditation, granted for two years, i.e. until March 2024, raises the profile of TUL by expanding the existing range of scientific and research services provided to businesses, which are subsidized under EU programmes.



### Revenue from commercialization\*

|      |                    |
|------|--------------------|
| 2021 | PLN 300.6 thousand |
| 2022 | PLN 226.3 thousand |

\*net worth

In 2022, technology licensing agreements for AWZ and exAWZ software were signed. A contract has also been concluded for the use of technology developed as part of the Grydsen project - innovative psychological therapies for seniors using VR technology.

The salaries paid to the developers of the applied projects amounted to more than PLN 97 thousand.



In the area of dissemination of knowledge regarding protection of intellectual property and commercialization of innovative technologies, mandatory training was conducted for newly hired employees.

The training is aimed at raising awareness about the benefits of commercialization and knowledge transfer, as well as educating on the risks of losing intellectual property rights.

### Contract research services

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

|      |                       | including work<br>commissioned by: | domestic entities     | foreign entities     |
|------|-----------------------|------------------------------------|-----------------------|----------------------|
| 2021 | PLN 16,512.4 thousand |                                    | PLN 11,787.4 thousand | PLN 4,725.0 thousand |
| 2022 | PLN 17,379.3 thousand |                                    | PLN 11,062.8 thousand | PLN 6,316.5 thousand |

### Theses and project work carried out in cooperation with industry



**77**  
completed design  
works with industry



**60**  
completed theses  
with industry

## Theses for the region

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

- dissertation - 1,
- thesis - master's degree - 4,
- engineering thesis- 1.

## Accredited Testing Laboratories

In 2022, 5 accredited research laboratories will be operating at TUL:

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

## Newly established laboratories at TUL



Laboratory of Intelligent Building Management Systems - Institute of Mechatronics and Information Systems.



Research Center for New Biologically Active Compounds Potentially Useful in Medical Diagnostics at the Faculty of Chemistry.

## Workshop for Active Use of Technology (PAKT)

In December 2022, the first pilot Workshop for Active Use of Technology (PAKT) opened at TUL. The workshop integrates the educational community - pupils, students, as well as teachers and university lecturers. Class participants can not only absorb knowledge, but actively acquire and use it. PAKT is a space that inspires creative use of new digital technologies using innovative pathways, classroom and training scenarios. The project is financed by the Digital Poland Operational Programme, Priority Axis III. Digital Competence of Society, Measure 3.2 Innovative Solutions for Digital Activation.



## Cooperation with external partners established in 2022

### Plan to improve energy efficiency of buildings in Lodz

A memorandum of cooperation to improve the energy efficiency of Lodz's construction industry was signed by Lodz University of Technology, the City of Lodz, the Royal Danish Embassy in Poland and Danfoss. In carrying out the "New Generation Engineers" project, the TUL students will network with Danfoss experts, attend workshops and lectures, and visit reference facilities in Denmark and energy efficiency knowledge exchange centres. The two most active students participating in the project will have the opportunity to pursue an internship with Danfoss, at any Danfoss plant around the world.



### Cooperation with the company Polskie Elektrownie Jądrowe

The main objectives of the cooperation agreement concluded between TUL and Polskie Elektrownie Jądrowe (PEJ) in October 2022 are: development of personnel potential in the nuclear power sector, promotion of modern materials and technologies used in the nuclear industry. The agreement also provides for the possibility for top graduate students to receive internships at the Company.

Lodz University of Technology is the first university with which PEJ has signed an agreement.



### Cooperation with MakoLab S.A. and Eutonomy

Lodz University of Technology has established cooperation with the companies MakoLab S.A. and Eutonomy, which aims to develop and use intelligent measurement and control systems in residential buildings. The agreement will also benefit construction and IT students, who will have the opportunity to gain knowledge and build their academic and professional experience.

### Agreement with Accenture

TUL and Accenture Poland have signed a letter of intent regarding joint activities to improve student education, as well as cooperation in development and scientific research activities. Students will have the opportunity for internships and student placements at Accenture.



### Cooperation for eco-innovation

Anwim, which owns and operates the MOYA gas station chain, has become a new partner of Lodz University of Technology in 2022. The agreement provides for the company's support of projects already underway by the university, as well as the initiation of new joint initiatives in support of sustainable development goals. Student activities within the partnership are to include, among other things, working on solutions to harness wind energy for individual users, as well as spreading awareness of renewable energy.

### The agreement on cooperation between TUL and IDEAS NCBR

The goal of the cooperation undertaken with IDEAS NCBR is to build a space that is friendly to conducting innovative research, as well as education in the area of artificial intelligence and machine learning. The agreement includes the creation of additional places for doctoral students.

### Selected projects acquired in 2022 in cooperation with the economic environment:

Horizon Europe funded the project:

#### Hybrid Electric propulsion system for regional AiRcraft (HE-ART)

The project is building prototypes of a hybrid propulsion system for aircraft used in regional transport service. Lodz University of Technology is one of the 30 partners in the project, which unites leading engine manufacturers: Rolls Royce and Safran with aircraft manufacturers ATR, Airbus and Leonardo, as well as with scientific units. The coordinator of the project at the University is Prof. Krzysztof Jóźwik, and the amount of funding for TUL is PLN 1.2 million.

#### Sustainable Industrial Design of Textile Structures for Composites (SustDesignTex)

TUL is coordinating the project, which it is carrying out together with universities from Sweden, Germany, Spain and a Polish company, Wademekum LTD. The concept of the research project on the design and evaluation of new composites for textile reinforcement is based on the specialties of each university. The developed lightweight textile structures will be presented at conferences and implemented in Polish companies, of which Wademekum is a representative.

The leader of the project is Assoc. Prof. Eng. Marcin Barburski, TUL Prof. The amount of funding for TUL is PLN 4.1 million.

The NCBR programme awarded funding to the project:

#### New structuring methods for printing of QD-LEDs for signage application

The goal of the project is to develop a methodology for manufacturing multilayer light-emitting diodes with an emission layer based on environmentally friendly quantum dots (QD-LEDs) using printing techniques. The project was carried out in cooperation with the Fraunhofer Institute for Applied Polymer Research and industrial partners QWERTY and ALLRESIST GmbH.

The coordinator of the project at the University is Assoc. Prof. Eng. Beata Łuszczynska, TUL Prof. The amount of funding for TUL is PLN 1.7 million.

#### Household wind turbine for European prosumer micro renewable energy source

The main objective of the project is to develop an innovative, high-efficiency vertical axis wind turbine suitable for urban and suburban applications and capable of cooperation/integration with other Renewable Energy Sources. The consortium includes two Polish companies: Enerwis and Ergos related to the energy industry, and Turkish start-up Devcitech, the developer of the Enlil smart turbine. The project leader is Dr Eng. Michał Lipian. The amount of funding for TUL is PLN 501 thousand.





# 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.

In 2022, the office and the ECIU board were established at TUL, and work was undertaken to develop a [ECIU website at TUL](#). A [promotional video](#) was created to mark the creation of the website, in which the main values and benefits of participating in this Network are described.



At the May 2022 formal meeting of the TUL Senate, a lecture entitled ECIU University: *Building Together the Future of Higher Education in Europe* was delivered by ECIU President Màrius Martínez of the Universitat Autònoma de Barcelona.

The European Consortium of Innovative Universities has received support (18 million euros) from the European Union's Erasmus programme to continue building ECIU University. As a full member of the ECIU, TUL has joined the application process and is taking an active role in the implementation of the ECIUn+ project. The measures taken will strengthen the development of three key concepts in higher education: flexible learning pathways, micro-credentials and challenge-based learning.

The ECIU Consortium in 2022 has prepared applications for the projects:

- European Legal Status (ESEU - European Status for ECIU University), applying for funds to develop a legal scheme for ECIU European University;
- European Degree Label (FOCI – Future-proof Criteria for Innovative European Education). The project consists of developing mechanisms for awarding a European degree.



In December 2022, the European Consortium of Innovative Universities celebrated its 25th anniversary on the campus of the University of Twente in the Netherlands. The anniversary celebration was accompanied by a special ECIU exhibition "Back to the Future". For the anniversary exhibition, TUL has prepared an occasional short film, entitled ["ECIUman. Origins"](#), representing opportunities for learners in the consortium.

As part of the continuation of the ["Solidarity with Ukraine"](#) project, TUL received funding (PLN 1 million) for the ECIU4Ukraine project from the National Academic Exchange Agency. The project will be implemented in 2023. Together with ECIU partners, TUL will support 10 partner universities in Ukraine over the course of the year by bringing them closer to and involving them in ECIU European University activities. A number of activities have been planned,



including the purchase of equipment to enable Ukrainian students to access ECIU's educational offerings, participation in summer schools and conferences, participation in training courses, and promotional activities.

## Strategic Partners

- École nationale supérieure d'arts et métiers -ENSAM (France)
- École Supérieure de la Performance - INEMA (France).
- Hochschule für Technik und Wirtschaft des Saarlandes - HTW Saar (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)
- Technical University of Liberec (Czech Republic)

### 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 (Latvia)
- 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)

## International education projects at TUL

Within the framework of Action 2 of the **Erasmus+ Cooperation of Organizations and Institutions programme**, in 2022 TUL implemented as many as 25 educational projects, acting as a leader or consortium partner. In two other initiatives, TUL served as an associate partner. Among them are 3 projects coordinated directly by TUL, the implementation of which began in the reporting year:

- **The EQUINI** project "Implementation of effective practices for the development of students' emotional intelligence with particular emphasis on anti-discrimination activities at European universities"

The main objective of the project is to shape students' emotional intelligence - Emotional Quotient, and to implement effective practices for developing students' emotional intelligence with a special focus on anti-discrimination measures at European universities.

The project is implemented in partnership with the University of Algarve (Portugal), the University of Groningen (Netherlands) and coaching companies from France (SumFuo) and Poland (Team Coaching Rafał Nykiel). The partners will jointly develop tools for personal development and awareness of EQ - an EQUINI game with a mobile app, an application procedure and online tool for awarding

micro-credentials, and a guide for universities in implementing good practices.

The consortium's work is coordinated by Dr Eng. Dorota Piotrowska, TUL Prof. - Director of CWM.



■ **GreenTEX** project "Sustainable Design and Process in Textiles for Higher Education"

Currently, the textile and apparel industry is the second-largest industry burdening the environment - after the fuel industry. The project addresses issues including the needs of modern education and the labour market. The project fills an existing gap in knowledge and action on sustainable textiles. Lodz University of Technology (project coordinator) together with universities from Portugal (University of Aveiro), Lithuania (Kaunas University of Technology), the Czech Republic (Liberec University of Technology) and Croatia (University of Zagreb) will develop teaching materials for teachers and students. The work is being carried out by Dr. Monika Malinowska-Olszowy, TUL Prof., from the university's Faculty of Material Technology and Textile Design, and Dr Eng. Anna Laska-Leśniewicz of the Faculty of Mechanical Engineering.



■ **The DigiMat project** "Excellence for digital education in materials engineering"

The initiative aims to improve teachers' competence in conducting subjects and projects in a student-centered manner using digital technologies. Among other things, a set of guidelines for teachers and a set of tools to support online classes in specialized subjects will be developed, as well as scenarios for on-line classes in materials engineering, which will be launched on a special digital learning platform. Lodz University of Technology's partners are universities from the Czech Republic (Technical University of Liberec), Estonia (University of Tartu) and Greece (University of Thessaly). The project is coordinated by Dr Eng. Krzysztof Jastrzębski of the Faculty of Mechanical Engineering

## Welcome Point at TUL



The activity that will support the process of establishing a Welcome Point at Lodz University of Technology is the implementation of the project acquired in 2022. *Organization of Welcome Point dedicated to serving foreign students and staff at Lodz University of Technology.*

The aim of the project is to improve the competence of academic staff and the institution's capacity to welcome students, staff and visitors from abroad. In the long term, the project will contribute to increasing the attractiveness of TUL as a place to study and work for foreigners, and thus increase the level of internationalization of the university. EU funding for the project is PLN 225,896.00, and the implementation period is May 2022 - April 2023.

As part of the measures taken to improve the skills of CWM staff in dealing with foreigners, training was conducted in 2022:

- "Diplomatic protocol with elements of savoir-vivre" (3 editions) for 45 participants;
- "Professional office and business correspondence";
- "Principles of employment of foreigners and legalization of their stay in Poland" for 10 participants;
- "Guiding foreign visitors on a tour of the TUL campus and surrounding areas."

## In solidarity with Ukraine

In the period April-September 2022, TUL implemented the *Solidarity with Ukraine* project, funded by the National Agency for Academic Exchange, with the aim of enabling participants in the Programme - students and doctoral students who are citizens of Ukraine and have arrived in Poland since February 24, 2022 - to continue their studies, work on their dissertations or participate in other forms of education at Polish universities and institutes.

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

In 2022, the University has acquired the *ActiveD2-Active Double Degree Project Implementing a Shared Degree Model Based on Active Teaching and Learning Methods*, which is being implemented under the NAWA Strategic Partnerships programme. The goal of the project is to expand the educational offerings with new and innovative educational paths - dual degree and student exchange programmes.

As part of the project in 2022, 40 students of International Faculty of Engineering at TUL and 3 tutors from TUL went to France, to Châlons. Students participated in study visits to French companies in the Champagne region. They visited the well-known Champagne houses of Champagne Nicolas Feuillatte, Champagne Veuve Clicquot, Biscuits Fossier, Vandermoortele confectionery factories, and optical glass and decorative glass factories. In addition to visits to manufacturing plants, the students received training on strategy and running industrial projects with specialists invited by IN&MA's host university École Supérieure de la Performance.



## Student exchange

In the framework of student exchange, 417 students participated in it in 2022, 13% more students than in 2021. On the other hand, the number of foreign students coming to TUL increased by 11.2% compared to 2021.

Erasmus+ trips continued to dominate and accounted for 57.7% of all student trips in 2022.

Thirty-seven students of Lodz University of Technology went to conferences, seminars and workshops. As part of the IAESTE International Internship Programme for students, 13 students left, while seven arrived. Within the framework of the dual diploma programme, 21 students left, and 42 foreign students came to TUL.

## Departures and arrivals of students for studies and student internships



## ARRIVALS

2021 – 430

2022 – 478

## DEPARTURES

2021 – 369

2022 – 417

## Erasmus+ student departures and arrivals



Erasmus+

## ARRIVALS

2021 – 359

2022 – 284

## DEPARTURES

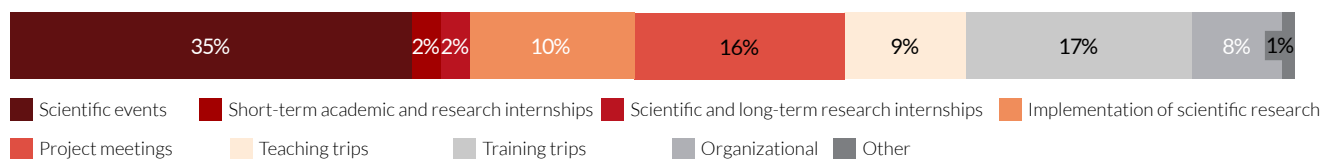
2021 – 281

2022 – 276

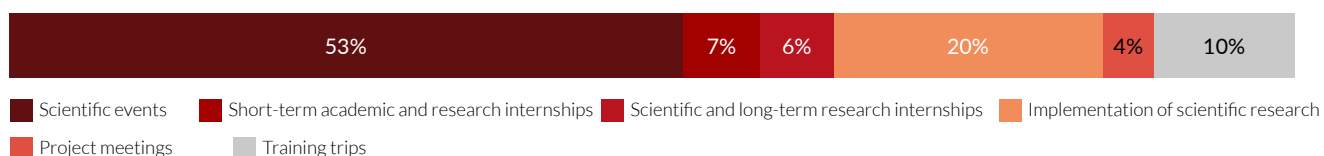
## Foreign contacts of employees and doctoral students

In 2022, Lodz University of Technology employees made 698 (171 in 2021) foreign trips of various nature. Doctoral students at TUL have made 87 (15 in 2021) trips abroad.

## Employee trips by purpose

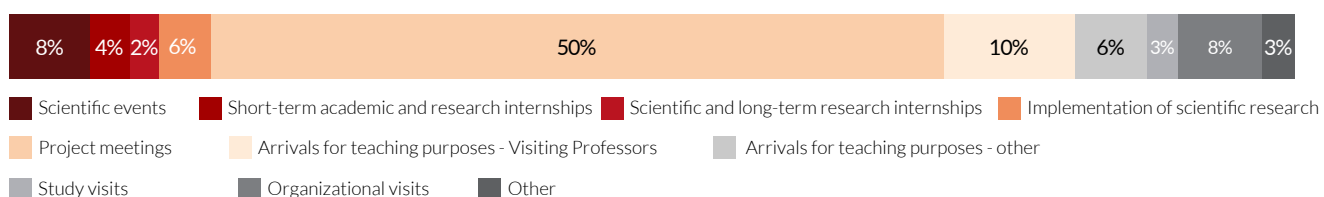


## Doctoral students' trips by purpose



In 2022, the University recorded 238 (124 in 2021) foreign visitor arrivals, of which 24 (6 in 2021) came as Visiting Professors.

## 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 172 international organizations, including, but not limited to:

- AIAA - American Institute of Aeronautics and Astronautics,
- AIS – Association for Information System,
- AMC - Association for Computing Machinery,
- AMS - American Mathematical Society,
- ASME – American Society of Mechanical Engineering,
- BPSA - International Building Performance Simulation Association,
- BUP - Baltic University Programme International Board,
- CIRP - The International Academy for Production Engineering,
- CIB - Conseil International du Bâtiment,
- EAA – European Acoustics Association,
- EAEA - European Architectural Envisioning Association,
- ECNP - European Center for Nanostructured Polymers,
- EFB - European Federation of Biotechnology,
- ESAO - European Society for Artificial Organs,
- IACM - International Association of Computational Mechanics,
- 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 2022, the TUL staff delivered 73 lectures (41 in 2021), at foreign universities, among others: Karlsruhe Institute of Technology (Germany), University of Nantes (France), University of Belgrade (Serbia), Porto University (Portugal), University of Akron (USA), University of Twente (Netherlands), University of Salento (Italy), Escuela Polytechnica Nacional (Ecuador), Universidad de Navarra (Spain), University of Thessaly (Greece), Kasetsart University (Thailand).

The University hosted 31 courses and seminars with the participation of foreign specialists.

## Events

### Culture Bite

The 3rd edition of the event integrating the entire academic community of TUL - students, staff and administrative employees - both Poles and foreigners - was held. The event was funded by the National Agency for Academic Exchange.



### International training conference for doctoral students from the Baltic Sea region

Guests from 7 countries: Estonia, Latvia, Germany, Slovakia, Sweden, Ukraine and Poland, came to Lodz University of



Technology to participate in the 9th edition of the international training conference for doctoral students from the Baltic Sea region - BUP 9th PhD Students training "Interdisciplinary-Multicultural-International". The conference is being held under an international agreement: Uppsala University (Sweden) - Lodz University of Technology. The event programme included lectures, Design Thinking workshops, scientific consultation of doctoral theses and presentations by doctoral students.

### Mobility Week 2022

After a hiatus of more than two years due to the COVID-19 pandemic, Mobility Week - a week of events promoting mobility among students and university employees - has returned to Lodz University of Technology. The event was accompanied by the presentation of prizes for Mobility Leaders at TUL, and the "My Erasmus with Leo the Lion" competition for employees was settled.

During the Erasmus Café, TUL employees were able to talk with experienced colleagues over coffee about opportunities for employees

to travel abroad as part of mobility programmes.



### Consultative meeting of the Educational Perspectives Foundation

An event was held at CWM at TUL to outline the strategy and goals of the Foundation and its cooperating universities for the coming year. TUL was honoured to host the event.

### Celebration of the 30th jubilee of the International Faculty of Engineering, IFE at TUL

In 2022, the International Faculty of Engineering IFE hosted two special events organized in celebration of its 30th anniversary. The first event "Meet the Future - IFE Alumni vs. IFE Students" was a unique opportunity

for students and the IFE alumni representing the business world to meet during a day-long battle of competence. The two worlds came together not only at company booths in the IFE building, but also during workshops. Two days later, in turn, a special anniversary meeting of the Faculty's graduates was held in the auditorium of the IFE building. More than 160 people who graduated from the IFE over several decades visited Lodz University of Technology again.

### XIII Polish-German Colloquium

In July 2022 TUL hosted the XIII. German-Polish Colloquium 2022 - Social infrastructure of higher education in the age of digitization. About 70 people mainly from Germany and Poland, but also representatives of other European institutions from Italy, France, Belgium, the Czech Republic, Lithuania, Luxembourg and Portugal, came to Lodz University of Technology to discuss and share experiences from the digitization process at universities accelerated by the pandemic.

### Erasmus+ InnHUB Lodz

An agreement announcing the establishment of the Erasmus+ InnHUB Lodz was signed as part of the celebration of the inauguration of the academic year at TUL. The regional innovation centre of the Erasmus+ programme at TUL will be located in the International Faculty of Engineering and will serve as an information centre, a place for workshops, training or meetings of representatives of science, innovation and business. The Erasmus+ InnHUB Innovation Centre will promote the Lodz region, strengthen international cooperation and support the implementation of numerous projects.



### French Academy for Young Engineers (FAMI)

The sixth edition of the French Academy of Young Engineers (FAMI) project, popular with students, was launched in October 2022. 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 and offers the opportunity to obtain a double degree at one of the French partner universities.

# UNIVERSITY GOVERNANCE



**PLN 3.1 million**  
net income

**PLN 71.8 million**  
investment expenditures

**PLN 95.0 million**  
subsidy for maintenance of research potential  
**PLN 5.8 million** IDUB subsidy

**PLN 256.4 million**  
subsidy for maintenance of teaching capacity

# ORGANIZATION

## Activities



10 meetings of the TUL Senate



79 resolutions of the TUL Senate



78 ordinances of the Rector of TUL

In 2022, 7 meetings of the Lodz University of Technology Council were held, during which 12 resolutions were passed.

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

### University-wide units

- Defense and Security Research Center of Lodz University of Technology was established

### Faculty of Civil Engineering, Architecture and Environmental Engineering

- The Department of Geotechnics and Engineering Structures was abolished by incorporating its resources and tasks into the Department of Concrete Construction;
- The Department of Mechanics of Materials was abolished by incorporating its resources and tasks into the Department of Structural Mechanics.

### Faculty of Biotechnology and Food

- the Department of Sugar Industry and Food Safety Management was established

### Faculty of Management and Production Engineering

- the Institute of Management and the Institute of Marketing and Sustainability were established;
- eliminated: the Institute of Social Sciences and Technology Management, the Department of European Integration and International Marketing, the Department of Management Systems and Innovation, the Department of Management, the Department of Production Management and Logistics;
- The Faculty of Production and Management Engineering was transformed into the Faculty of Organization and Management.

Appointed:

- Committee on Procedures for "Accessible Lodz University of Technology";
- Gender Equality Plan Implementation and Monitoring Team;
- Equality Plenipotentiaries;
- Rectoral Artificial Intelligence Team;
- Team for the development of IT tools for the management of scientific information of Lodz University of Technology.



## HR Excellence in Research

Lodz University of Technology received an extension for another three years - until June 17, 2025 - of the right to use the European Commission's HR Excellence in Research award. The university was among the research institutions awarded this important "mark of excellence" for the first time back in May 2016.

HR Excellence in Research is a distinction that brings greater recognition in the European research area, assuring scientists, including those from abroad, that TUL is an attractive partner in international projects and ongoing research.

## Electronic document management



In 2022, an agreement signed by TUL with the State Treasury - Podlaskie Voivodeship Office in Białystok and SGH in Warsaw - for SGH to support the work related to the implementation of the production version of the [EZD PUW](#) system at TUL was implemented.

The test version of the system was updated to the changes requested by the authors. A production version of the system has also been prepared. TUL passed an audit conducted by the Research and Academic Computer Network - National Research Institute.

The basis for the operation of the EZD PUW system is the practical application of the office and archival norms (the Office Instruction, the Instruction on the organization and scope of operations of TUL Archives, the Uniform Material List of Acts - JRWA), which were approved by the National Archives in Lodz. An ordinance has also been prepared for the implementation of the production version of the EZD PUW system as the primary way of handling cases at TUL from January 2023.

The established Team for the implementation of the EZD PUW system, in cooperation with the internal coordinators of the TUL units and the organizational units of TUL, prepared a number of guidelines, descriptions, ways of document circulation in the system.

## 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.

In 2022, the second [report on the implementation of the Sustainable Development Goals at TUL](#) was created, showing the academic community's commitment to achieving them. The information in the report covers initiatives in the areas of science, education, cooperation with partners, administrative and technical activities, and social responsibility of universities. The report was prepared by the University's Sustainability Team, whose task is to monitor, plan and coordinate activities at the University aimed at achieving the SDGs.

TUL is one of two Polish universities to join the [Race-to-Zero](#) initiative, which is being implemented in cooperation with the EAUC, Second Nature and the UN Environment Programme. The initiative aims to



develop a plan and take action to halve greenhouse gas emissions by 2030 and achieve climate neutrality in 2050.

Another edition of the [IDEA BOX](#) project was organized, in which employees and students of the University submit ideas to improve safety, comfort at work and study, and recreation at TUL. In the 2022 edition, more than 800 people participated in voting for ideas (you could vote for three ideas of your choice). The project is financed from the TUL task budget.



## MARKETING ACTIVITIES

[The TUL Open Day](#) was conducted in a hybrid formula. Over the course of two days, the University's staff and students answered questions for candidates, presented the fields of study and discussed admission policies. The stationary open day received 1,133 registrations, and about 400 unregistered people came to the TUL campus on the day of the event. The virtual day was attended by 300 people. Students were able to take advantage of a wide range of lectures and scientific demonstrations on the e-learning platform, had the opportunity to listen to presentations by lecturers and scientific circles, and talk to students representing all fields of study. The next day's event featured meetings with representatives of the University, presentations of fields of study and development opportunities, and inspiring lectures and workshops led by staff and students.

[The TUL Open Day vol. 3](#) online open door was aimed at prospective foreign students of TUL. In the brand-new recording studio of the Multimedia Centre of TUL, two students from TUL presented the audience with the most important information about studying at TUL in a short, friendly form. The event also featured the premiere of the film "A walk on the campus" in English. Employees of the University took part in a number of educational fairs around the world.

In 2022, the Promotion and International Information section at CWM issued the following promotional and informational materials, among others:

- [Guide for international students – English version,](#)
- [English-language guide for foreign visitors,](#)

In 2022, the series of interviews "[TUL - I chose well](#)" continued, in which high school students were presented with career paths after completing fields of study at TUL (6 interviews and 4 videos). The campaign produced 6 interviews and 4 videos in 2022. In total, the series featured 37 interviews and 4 videos with graduates working in 32 companies, in 39 different positions.

Other ongoing promotional activities aimed at attracting candidates include, but are not limited to, the "Girls to Polytechnics" campaign. The effect of carrying out the campaign is a successive increase in the number of women among the students of TUL. In addition, in cooperation with the "Perspectives" foundation, the University's participation in the International Baccalaureate Salon and the Woman in Tech Summit 2022 event was coordinated.

In cooperation with the City of Lodz, 3 meetings were held for high school graduates and teachers as



part of the "Get a taste of studying in Lodz" campaign.

A new series, "Career Wheels Are Rolling," was launched, which included 18 interviews with the presidents of the Student Scientific Circles operating at TUL. It was intended to encourage students to join the work of individual Study Circles after the pandemic.

In order to improve communication and highlight the activities of the rectoral authorities, the series titled "The Rector's Office" continued. "Around the University" with the participation of the Rector and Vice Rectors (3 videos).

## Websites and social media

The year 2022 brought further development of the [www.cwm.p.lodz.pl/en](http://www.cwm.p.lodz.pl/en) website - an increase in website traffic was observed (54,328 new visitors. The site has received more than 230,000 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 2022, the ongoing editing of the Lodz University of Technology's official web pages-viz:

- [NAME](#),
- [STUDY IN LODZ](#),
- [STUDY IN POLAND](#).

Cooperation with <https://www.otouczelnie.pl/> in promoting the IFE's educational offerings also continued.

Two Facebook fan pages were successfully run:

- [Fanpage IFE](#) (10,985 page views),
- [Fanpage Lodz University of Technology](#) (page reach 3,929,652, 17,528 page views).

Developed and led:



25 articles  
50,354 page views



1,282 subscribers



33 tiktoks  
1,349.2 thousand views



200 posts number of followers increased by 4,474 and as of December 31, 2022 amounted to 51,400 people.



230 published content  
The number of observers increased by 352 people to 3.8 thousand.



169 posts  
1,200 individual stories  
5.6 thousand observers



79 film premieres  
411 thousand views  
1.7 thousand subscriptions



494 posts  
25.5 thousand users of TUL fanpage  
720,700 recipients.  
99.4 thousand viewers of the fanpage "Rekrutacja PŁ"

## TUL in the media

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



200 press releases, published simultaneously in the online service "Press Information"



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



100 own information over 220,000 page views



Media Monitoring Institute - 24,266 media releases in which the name Lodz University of Technology appeared



press and trade magazines 1,586 materials



radio- 1,693 information



television- 1,255 programmes



web portals (excluding social media)- 19,732



2 numbers

[www.zycieuczelni.p.lodz.pl](http://www.zycieuczelni.p.lodz.pl) - 249 articles, 82,766 page views, 46,704 visiting users



The advertising equivalent, expressed in PLN, in 2022 was estimated by the Media Monitoring Institute at PLN 92.7 million.

# FINANCE

The year 2022 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 2022 amounted to PLN 557,762.12 thousand, while the amount of own costs is PLN 554,695.32 thousand. The gross financial result amounted to PLN 3,122.94 thousand, was reduced by corporate income tax of PLN 56.13 thousand.

The net result achieved (+ PLN 3,066.81 thousand), plus depreciation in the amount of PLN 6,265.49 thousand, allows for an increase in the basic fund in the amount of PLN 9,332.30 thousand, which is important for the development of the university. TUL can invest in development with subsidies from the Ministry of the Economy, EU structural funds and other European funds.

This makes the TUL an economically reliable partner and has the ability to finance its own participation in projects, which is a prerequisite for EU funding.

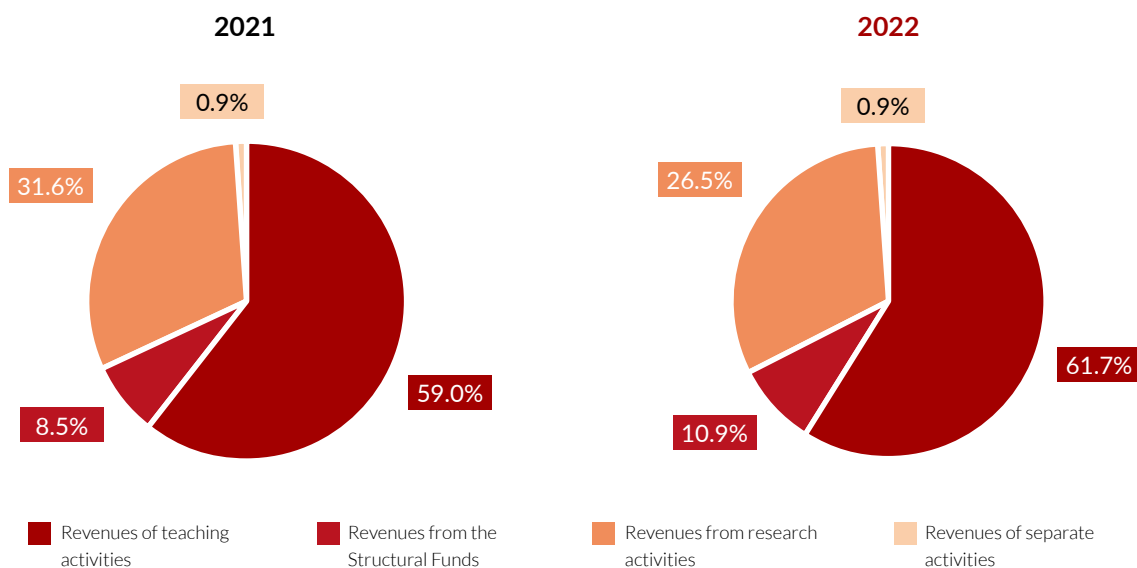
## Comparative income statement in 2021 - 2022 (thousands PLN)

|                                       | 2021            | 2022            |
|---------------------------------------|-----------------|-----------------|
| Result on sales                       | -8 795.61       | -15 638.10      |
| of which:                             |                 |                 |
| - teaching activities                 | -11 066.76      | -17 776.39      |
| - research activities                 | 2 555.99        | 2 569.53        |
| - separate business activity          | -366.55         | -537.09         |
| - sales of goods and materials        | 81.71           | 105.85          |
| Result on other operations            | 18 160.32       | 19 190.44       |
| of which:                             |                 |                 |
| equivalent to depreciation            | 11 538.29       | 13 607.65       |
| <b>Result on operating activities</b> | <b>9 364.71</b> | <b>3 552.34</b> |
| Result on financial operations        | -607.80         | -429.40         |
| Gross profit/loss                     | 8 756.91        | 3 122.94        |
| Corporate income tax                  | 51.08           | 56.13           |
| <b>Net profit/loss</b>                | <b>8 705.83</b> | <b>3 066.81</b> |

## Revenues from core operations in 2021-2022 (thousands PLN)

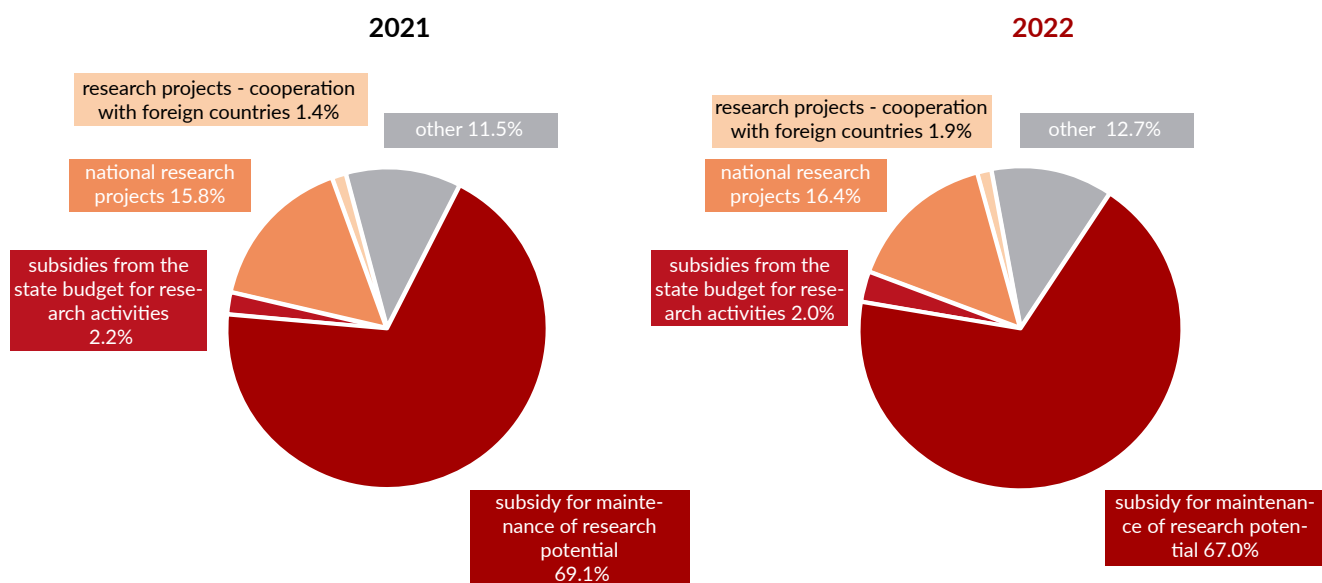
|  | 2021              | 2022              |
|--|-------------------|-------------------|
| <b>Income from core operations</b>                               | <b>487 261.10</b> | <b>534 528.07</b> |
| of which:  |                   |                   |
| <b>Revenue of teaching activities</b>                            | <b>287 771.09</b> | <b>329 928.32</b> |
| of which:  |                   |                   |
| subsidy for maintenance of teaching capacity                     | 232 831.87        | 256 363.50        |
| subsidies from the state budget, including a pro-quality subsidy | 2 503.96          | 1 832.22          |
| fees for teaching services                                       | 14 079.49         | 14 396.31         |
| other  | 38 355.77         | 57 336.29         |
| <b>Revenue from the Structural Funds</b>                         | <b>41 366.19</b>  | <b>58 024.26</b>  |
| <b>Revenue from research activities</b>                          | <b>153 967.56</b> | <b>141 807.96</b> |
| of which:  |                   |                   |
| subsidy for maintenance of research potential                    | 106 378.68        | 95 015.17         |
| of which:  |                   |                   |
| IDUB subsidy   | 5 781.60          | 5 781.60          |
| subsidies from the state budget for research activities          | 3 440.00          | 2 897.52          |
| national research projects                                       | 24 308.36         | 23 207.37         |
| research projects - cooperation with foreign countries           | 2 138.49          | 2 683.35          |
| other  | 17 702.03         | 18 004.55         |
| <b>Revenue of separated activities</b>                           | <b>4 156.26</b>   | <b>4 767.52</b>   |

## Structure of revenue from core operations





## Structure of revenue from research activities



## Subsidy in 2021-2022 (thousands PLN)

|   | 2021       | 2022       |
|---|------------|------------|
| Ministry of Education and Science subsidy     | 353 733.00 | 357 856.50 |
| of which:                                     |            |            |
| subsidy for maintenance of teaching capacity  | 232 831.87 | 256 363.50 |
| subsidy for maintenance of research potential | 106 378.68 | 95 015.17  |
| subsidy to finance fixed assets               | 14 522.45  | 6 477.83   |

The total amount of the Ministry of Education and Science subsidy consists of a base subsidy of PLN 333,932.50 thousand and funds in the amount of PLN 23,924.00 thousand, transferred in the form of an increase in subsidies for specific activities, of which:

- PLN 5,781.60 thousand - to increase the subsidy to the University for joining the programme "The Excellence Initiative - Research University",
- PLN 2,302.50 thousand - increases to fund the doctoral school,
- PLN 9,000.00 thousand - increase for the organization of EUSA 2022,
- PLN 219.90 thousand - funds for implementation of tasks within the ECIU network - for own contribution to the "European Universities 2022" project,
- PLN 3,301.50 thousand - one-time increase for current operations, due to the increase in inflation and the increase in prices of materials, services and energy carriers,
- PLN 3,318.50 thousand - salary increase for the University's employees as of October 1, 2022.

The base subsidy of PLN 333,932.50 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 2022.

From the subsidy the following were separated:

- funds remaining in the Rector's reserve in the amount of PLN 36,776.37 thousand, consisting of:
  - Reserve in accordance with the Senate resolution in the amount of PLN 13,576.37 thousand,
  - reserved funds for the implementation of projects within the task budget in the amount of PLN 2,200.00 thousand,
  - 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,
  - Ensuring the implementation of important strategic goals of the University in the amount of PLN 2,500.00 thousand,
  - PLN 2,500.00 thousand - financing of own participation in EU projects,
  - PLN 5,000.00 thousand - to subsidize the share of ongoing investments,
  - Subsidizing the employer's contribution to Employee Capital Plans in the amount of PLN 1,200.00 thousand,
  - Funding of scholarship payments at IDS TUL in the amount of PLN 4,000.00 thousand,
  - Subsidizing renovations included in the master plan in the amount of PLN 4,000.00 thousand;
- funds for centralized units in the amount of PLN 75,128.59 thousand were divided according to the principles set forth in Ordinance No. 78/2021 of the Rector of Lodz University of Technology.
- funds for organizational units from the decentralized group in the amount of PLN 222,027.54 thousand were divided according to the principles set forth in Ordinance No. 78/2021 of the Rector TUL and according to the current algorithm of the Ministry of Education and Science. As part of the subsidy funds for decentralized units, PLN 6,477.82 thousand was used for the purchase and construction of fixed assets. In addition, an amount of 5,200.00 thousand was allocated from the Rector's reserve for distribution to decentralized units to mitigate the effects of the increase in the price of energy carriers, which was divided in proportion to the energy costs incurred by the Faculties in 2021.

Funds from the Rector's reserve were used to finance the costs of promotion, student organizations, student and doctoral student government, tasks separated in the general subvention distribution, to subsidize current tasks and renovations at the requests of organizational units, to mitigate the effects of rising energy prices and the effects of subvention distribution - in the total amount of PLN 26,120.25 thousand. The funds of the task budget reserve were distributed to units according to the costs incurred for the implementation of tasks in the amount of PLN 3,330.87 thousand. The remaining funds of the Rector's reserve in the amount of PLN 7,325.25 thousand remained in the financial result.

The IDUB subvention funds were used in full - mainly to finance awards to support the scientific activity of employees, doctoral students and undergraduates, to support the improvement of the skills of young scientists (FUN fund), to subsidize the participation of scientists in international conferences.

## Salaries

### Salaries at TUL in 2021-2022 (thousands PLN)

|  | 2021       | 2022       |
|--|------------|------------|
| Total remuneration                                 | 269 500.40 | 280 096.50 |
| of which:  |            |            |
| from the employment relationship                   | 248 847.28 | 260 793.67 |
| of which:  |            |            |
| personal   | 231 518.90 | 243 104.03 |
| annual bonus salaries                              | 17 328.38  | 17 689.64  |
| mandate agreements and contracts for specific work | 20 437.12  | 19 086.83  |

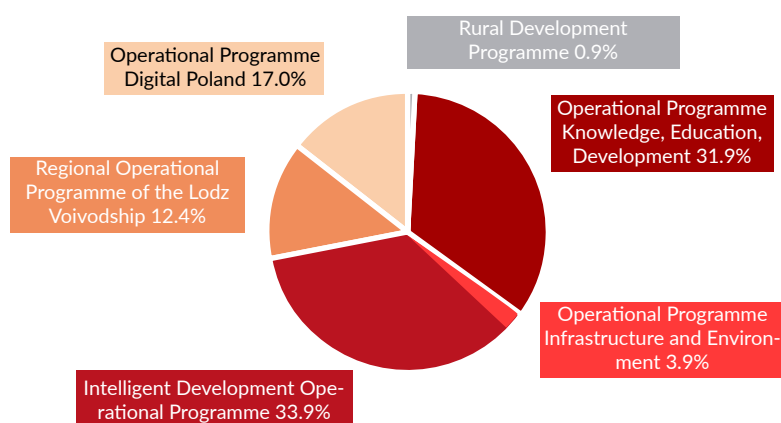
## Structural Funds

In 2022, Lodz University of Technology implemented 75 projects from structural funds in the following operational programmes:

|   |             |
|---|-------------|
| Operational Programme Knowledge, Education, Development | 30 projects |
| Intelligent Development Operational Programme           | 29 projects |
| Regional Operational Programme of the Lodz Voivodship   | 8 projects  |
| Operational Programme Digital Poland                    | 4 projects  |
| Rural Development Programme                             | 3 projects  |
| Operational Programme Infrastructure and Environment    | 1 projects  |

### 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 received funding for a total of PLN 383,638.79 thousand, including in 2022 PLN 36,747.29 thousand.



## Investment and renovation activities

In 2022, investment expenditures amounted to PLN 71,836.41 thousand, including investments started in the reporting year of PLN 26,103.23 thousand.

| Investments (thousands PLN)       |           |           |
|-----------------------------------|-----------|-----------|
|                                   | 2021      | 2022      |
| Expenditure                       | 57 093.25 | 71 836.41 |
| By funding source:                |           |           |
| Ministry of Education and Science | 5 759.32  | 26 537.66 |
| Structural Funds                  | 14 135.82 | 16 206.72 |
| Own funds                         | 22 631.77 | 19 716.22 |
| Subsidy funds                     | 10 167.24 | 6 477.83  |
| Other                             | 4 399.10  | 2 897.98  |



In 2022, a contract was signed for the construction of the second phase of the project "Alchemium - the magic of tomorrow's chemistry". Construction of a modern conference, teaching and laboratory building for the Faculty of Chemistry of Lodz University of Technology. As part of the second stage of the task, three laboratory and teaching buildings will be built with a usable area of 10,455.30 square meters, which will house modern chemical and scientific laboratories. The investment will be made from a tar-

geted grant from the Ministry of Education and Science and the Lodz University of Technology's own funds.

Other investments in 2022 included:

- Reconstruction and comprehensive energy retrofitting of buildings in TUL for the use of a kindergarten and nursery for the children of students and employees of the university (A14) and for the educational and scientific needs of the university's students and faculty of the Centre of Excellence for Universal Design (A7);
- Deep thermal modernization of the B17 building;
- The reconstruction of the sailing base in Roganty;
- Reconstruction of the Second Student Hall of Residence, a major overhaul of the building was carried out, involving an increase in the area of the rooms, allowing the construction of independent sanitary facilities in each of them. The building has been adapted for people with special needs. Elevators have been installed to accommodate people with mobility, vision and hearing impairments;
- lighting upgrades at Campus A. A fibre optic network was constructed, light poles were replaced, cameras, light fixtures, a server were installed, and the system was implemented with all components;
- Installation of gabions on campus A. As part of the ongoing works, fencing of solid waste collection areas (3 pieces) was made of prefabricated elements (gabion baskets) of steel, galvanized backfilled with split granite. The work done is aimed at improving the aesthetics of these places;
- Elimination of architectural barriers as part of the Accessible TUL project in buildings B10, A33, C3, B6, among others.

## Refurbishment costs (thousands PLN)



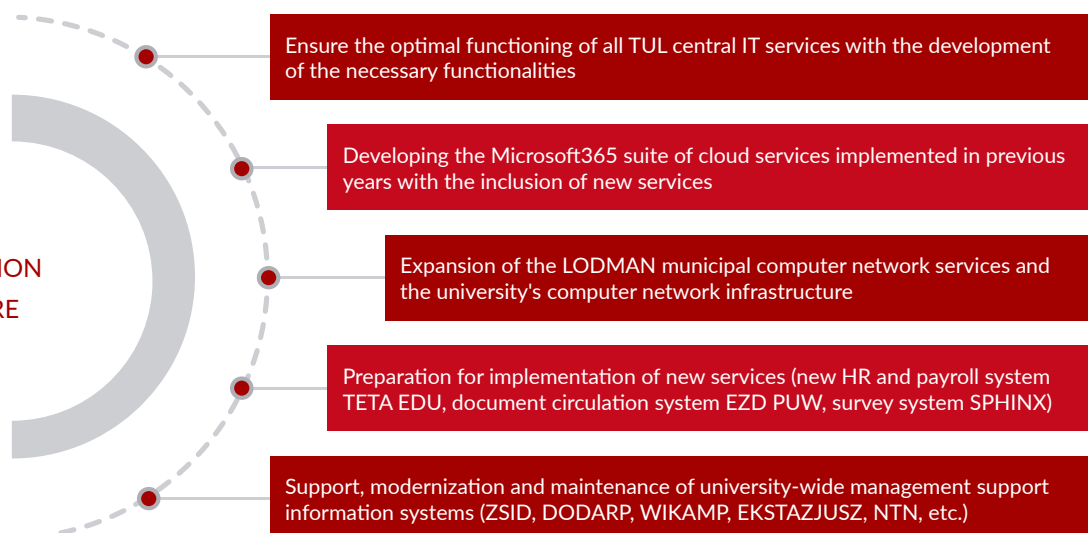
| 2021      | 2022     |
|-----------|----------|
| 14 493.82 | 8 836.29 |

In 2022, a number of renovations were carried out at TUL, including:

- Renovation of rooms in the building A25 - Tower,
- Renovation of the facade of the B3 Rector's Office (J. Richter villa),
- Repair of vertical insulation of foundations in building A13 - Admissions Office,
- Reconstruction of a room with a bathroom in the building of holiday resort "Cis" in Szklarska Poręba - adaptation of rooms to the needs of the disabled,
- Renovation of sidewalks around the square in the vicinity of the A6 building - to increase the safety of people walking on the TUL grounds and to improve the aesthetic value of the surroundings,
- Replacement of electricity meters part 2 on campuses B, C,
- Roof repair in buildings B13 (Faculty of Mechanical Engineering), A6 and B10 (Faculty of Process and Environmental Engineering),
- Repair of the roofing of building C4 (Sports Centre).

## IT

### COMPUTING AND INFORMATION SERVICES CENTRE AT TUL:





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

#### remote working mechanisms

- maintained and developed in 2022, modern mechanisms for communication, remote teaching and group work have made it possible to handle significantly increased demand for IT services;

#### safety and reliability

- the expansion of the optical network of the University Computer Network (USK) continued. As part of the expanded network, the connection of the Al-chemium building was optimized and this phase of the project was prepared for further expansion;

#### 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,
- a thorough review of the solutions in place from the standpoint of remote learning and remote work was carried out, and work continued on integrating the systems of various nodes toward a central IT security system,
- 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.
- the transfer of selected services of lesser importance to the server room in the CTI building continued. Due to the significant expansion of services, design work has been undertaken to equip this server room with long-term emergency power (an external generator) and ultimately transform the CTI server room into a backup server room for priority services;
- modified and optimized IT infrastructure resources allowed to handle significantly increased stationary traffic in 2022, associated with the return of students and employees after the pandemic to the walls of the University.

#### data storage

- storage services have been 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

Realised tasks  
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Centre

functioning of the mechanisms of the TUL announcements, the Rector's Announcement, 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 third, modernized version of ZTN was implemented in 2022;

#### technical support

- as part of the introduction of new organizational structures, the WIKAMP platform's BOK (customer service) services were rebuilt, handling all requests for central IT services,
- expanded with new functionalities and modernized the HelpDesk central intake system, perfected by the E-Learning Center for several years;

#### expansion of information technology infrastructure of science

- work continued in the PRACE-LAB project, which aims to expand science IT infrastructure and launch specialized innovative HPC and Cloud Computing services on it,
- in 2022, 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,
- a completely new, central system of websites for all TUL units was implemented. 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,
- 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 fiber optic network, continued.



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