

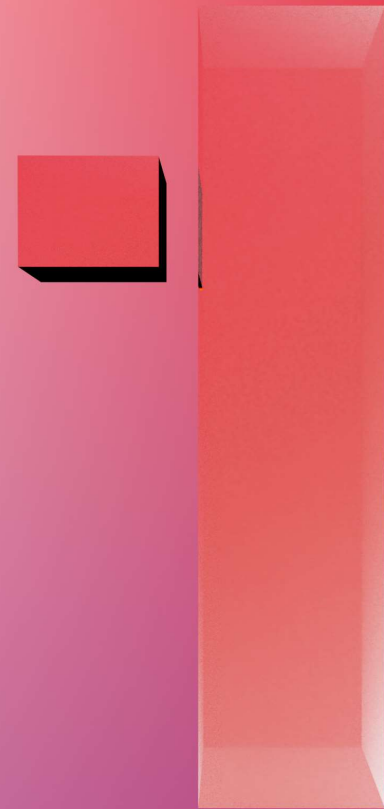


TOMORROW IS NOW

KAUNAS UNIVERSITY OF TECHNOLOGY

HUMAN SIDE OF TECHNOLOGY

HERE FOR THE WORLD



HERE FOR THE WORLD | KTU

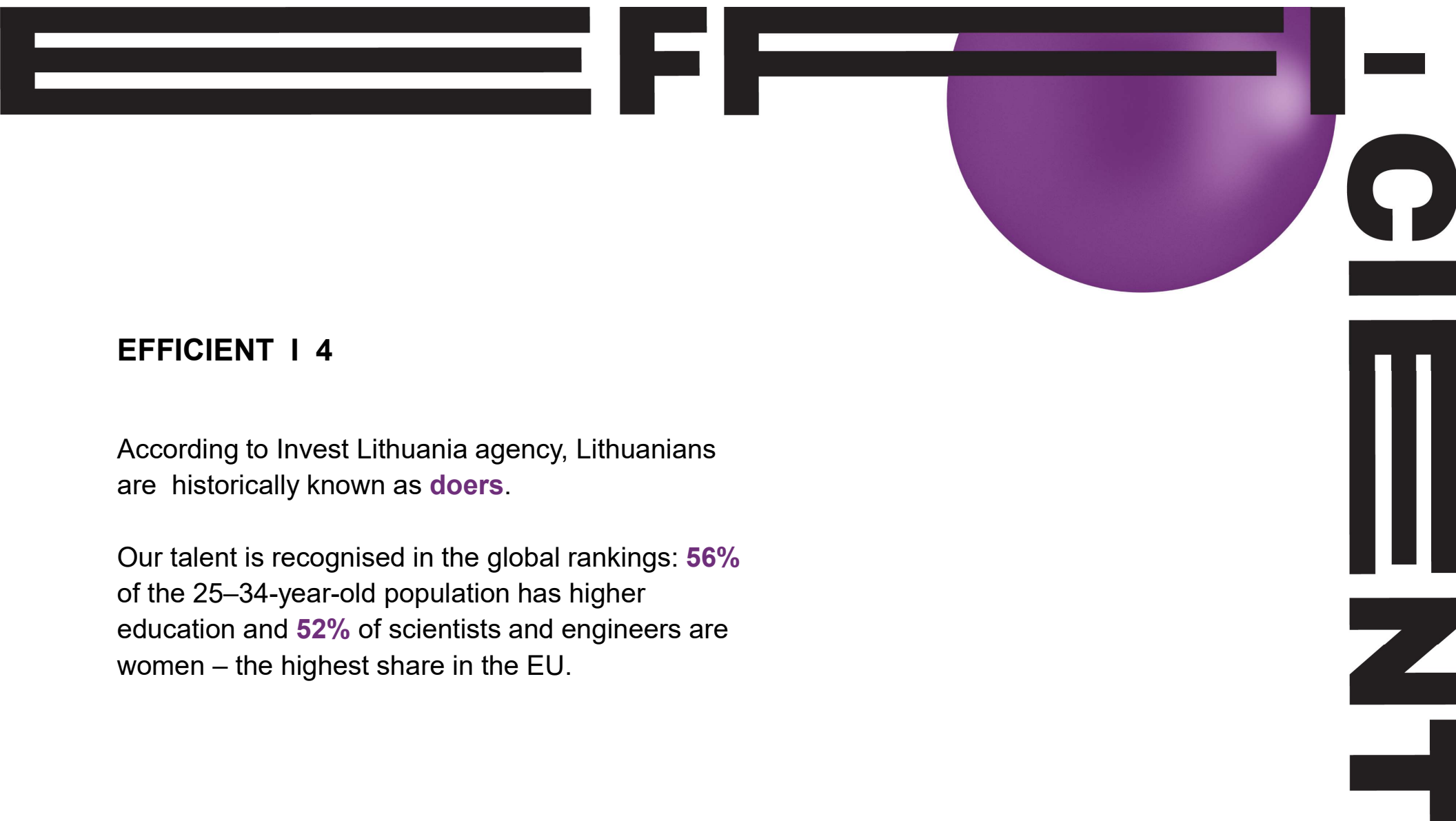
FLEXIBLE

FLEXIBLE | 3

Situated right at the crossroad between East and West, North and South, we possess a global mindset. English proficiency among young professionals in **Lithuania is 85%**.

HUMAN SIDE OF TECHNOLOGY





EFFICIENT | 4

According to Invest Lithuania agency, Lithuanians are historically known as **doers**.

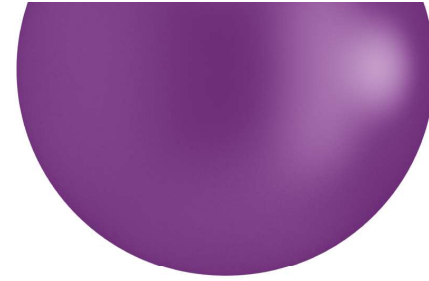
Our talent is recognised in the global rankings: **56%** of the 25–34-year-old population has higher education and **52%** of scientists and engineers are women – the highest share in the EU.



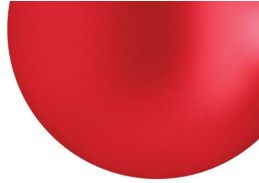
VERSATILE

TILE

VERSATILE | 5



Kaunas University of Technology,
one of the largest technological universities in
the Baltic region, delivers studies, scientific research
and provides R&D services in all fields of science.



INNOVATIVE | 6

KTU is the founder of two integrated sciences, studies and business centres-valleys – Santaka and Nemunas. The first academic start-up community in Lithuania was also born at KTU.

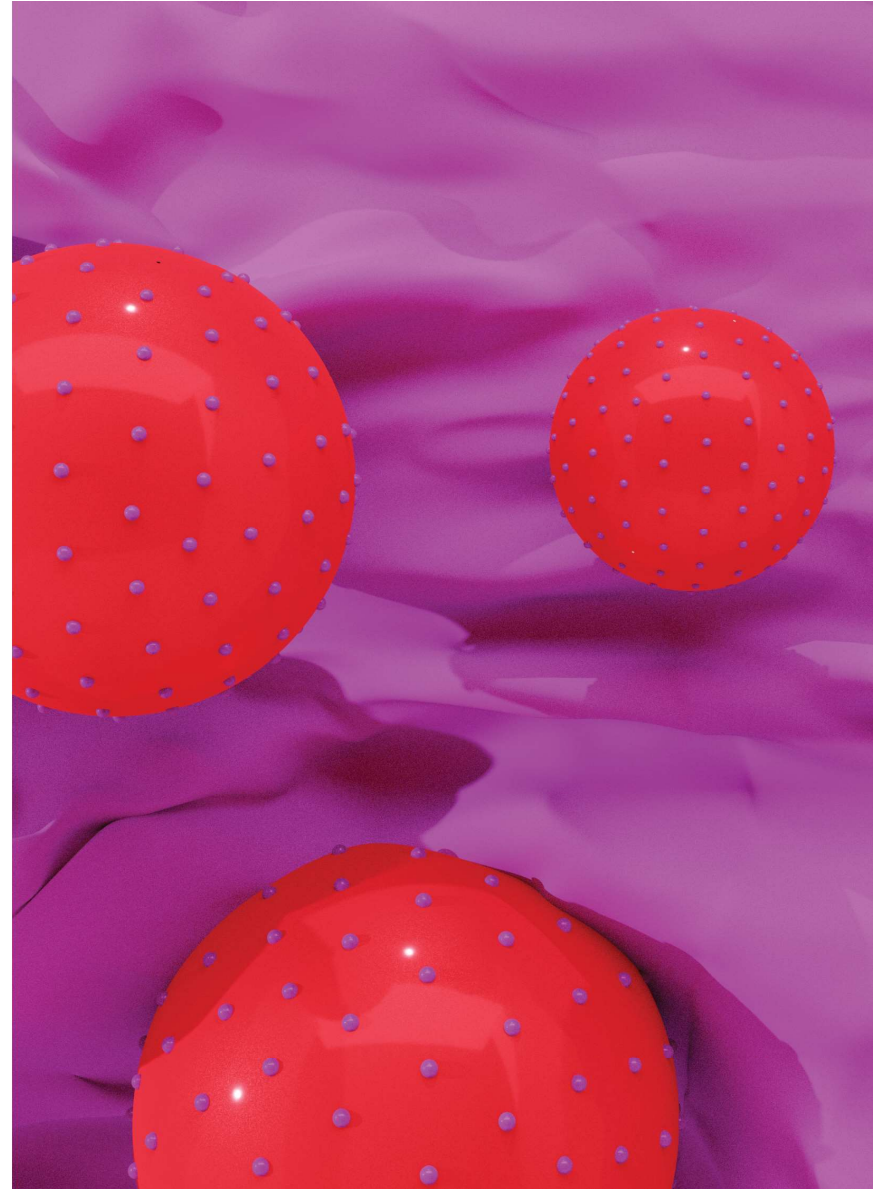
HUMAN SIDE OF TECHNOLOGY

INNOVATIVE

EQUAL

EQUAL | 7

Speaking the universal language of science, KTU welcomes people from all cultures and backgrounds. 45% of our faculty are women, and **53% of KTU female students** study in natural, engineering and technology sciences.



AVANT-GARDE

AVANT-GARDE I 8

KTU is the first university in Lithuania to win ERA Chairs competition for attracting top academics. The ERA Chair project IN4ACT conceived by the researchers of the KTU School of Economics and Business focuses on the broad impact of the Fourth Industrial Revolution on the society.

HUMAN SIDE OF TECHNOLOGY

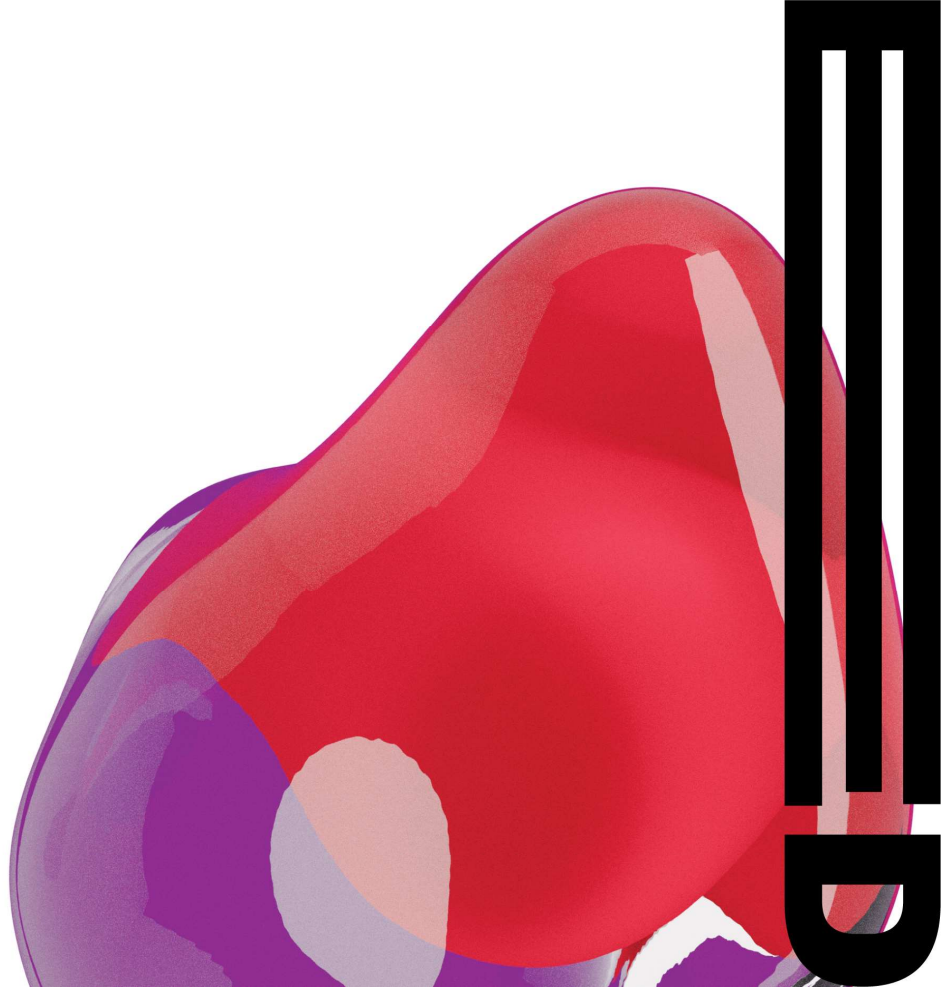


CONNECT



CONNECTED | 9

KTU is a member of **ECIU University**,
the first European university where learners
and researchers cooperate with cities and
businesses to solve real-life challenges.



CONNECT

CONNECT

1922

Founded in 1922, Kaunas University of Technology celebrates its centenary in 2022.

100 University of
Lithuania 100
1922–2022

~9 000

Around nine thousand students are studying at KTU; 46% of study programmes are taught in English.

82

According to data from the recent years, 82% of alumni are in employment within 12 months.

8 research institutes

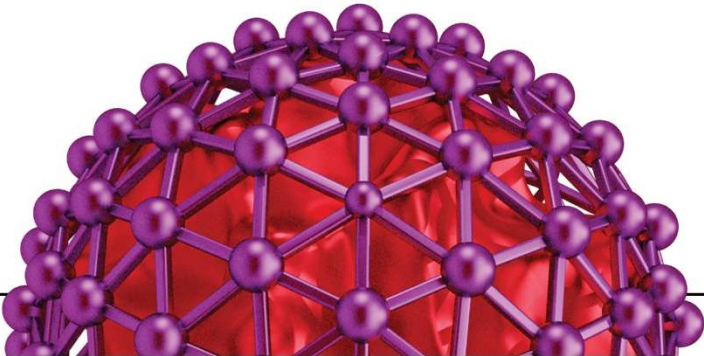
Frontier and applied research born at KTU laboratories is changing the lives of global society.

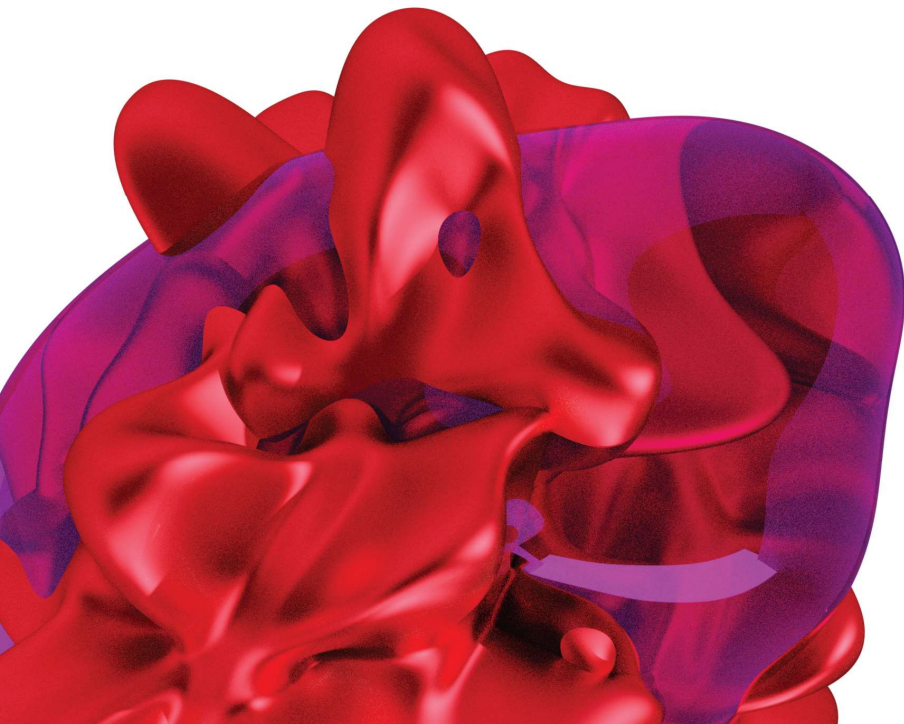
~100 start-ups

Around 100 successful start-up companies have been founded at KTU Startup Space since 2012.

9 faculties

KTU faculties deliver study programmes in all fields of science – from mechanical engineering to chemistry, economics and linguistics.





Here, at Kaunas University of Technology we never feel overwhelmed by questions. We embrace challenges, allowing them to shape the direction of our activities.

We believe in human side of technology. Our public, industry, international partners together with our own community are actively involved in creating new knowledge for the world of tomorrow. Join us in this endeavour.

Professor Eugenijus Valatka,
The Rector of Kaunas University of Technology

CLEAN ENERGY NOW



CLEAN ENERGY NOW | KTU

FUTURE OF SOLAR ENERGY

FUTURE OF SOLAR ENERGY | 14

A group of researchers of KTU Faculty of Chemical Technology synthesised the material, which self-assembles to form a molecular-thick electrode layer. The material was used to produce record-breaking solar elements in different photovoltaic technologies. The invention is protected by several patents and commercialised by different companies globally.

CLEAN CAMPUS



CLEAN CAMPUS | 15

The roof of the KTU Faculty of Electrical and Electronics Engineering is covered by solar panels. In total, 1,520 units are planned for this area. This 380kW capacity photovoltaic power station is connected to a geothermal energy system with underground energy storage.

Once fully functioning, the hybrid system would allow KTU to significantly lower greenhouse emissions and save up to €150 thousand per year.





90

In the last five years, 43 national and 47 international patents were protecting the intellectual rights of KTU researchers' inventions.



5

Five start-ups working in the field of clean energy have been conceived at KTU Startup Space.



4

In the last five years, 4 new inventions have been developed by KTU researchers in the field of clean energy.

Perovskite solar cells are the future of solar energy: firstly, as combined elements, they are potentially much more efficient; secondly, they are cheaper; and thirdly, much more versatile.

We need to think about novel methods of employing natural energy sources, and I am happy that our young scientists are in the avant-garde of clean energy science.

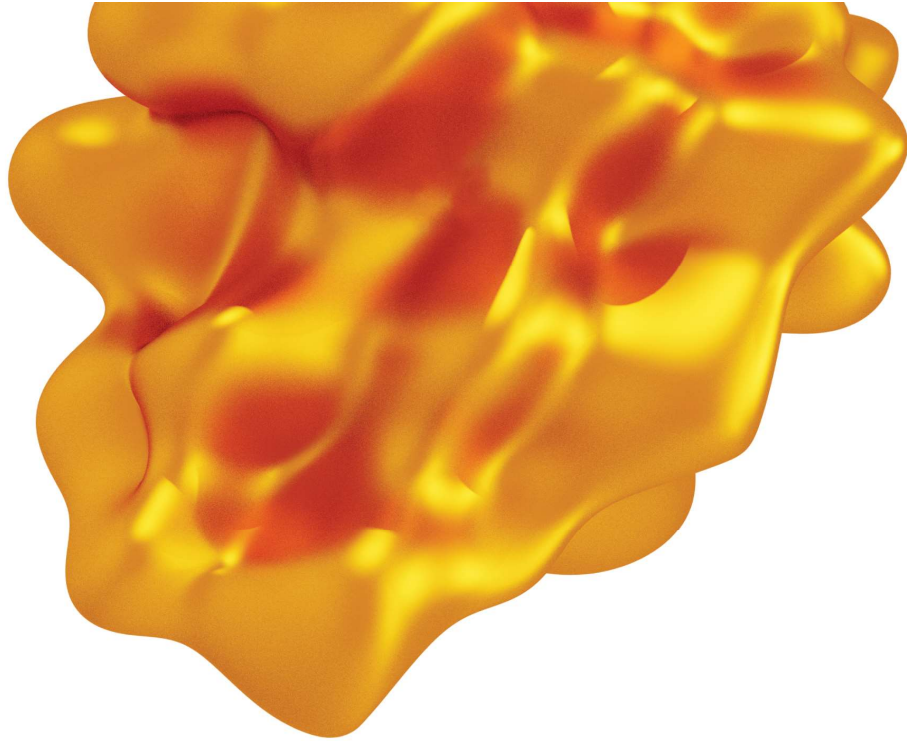
Professor Vytautas Getautis,
Chief researcher at KTU Faculty of Chemical
Technology



SUSTAIN- ABLE CITIES NOW



SUSTAINABLE CITIES NOW | KTU



SAFE CITIES | 19

A group of researchers at Kaunas University of Technology Faculty of Civil Engineering and Architecture are developing an **artificial intelligence-based** software that can predict where crime is more likely to happen.

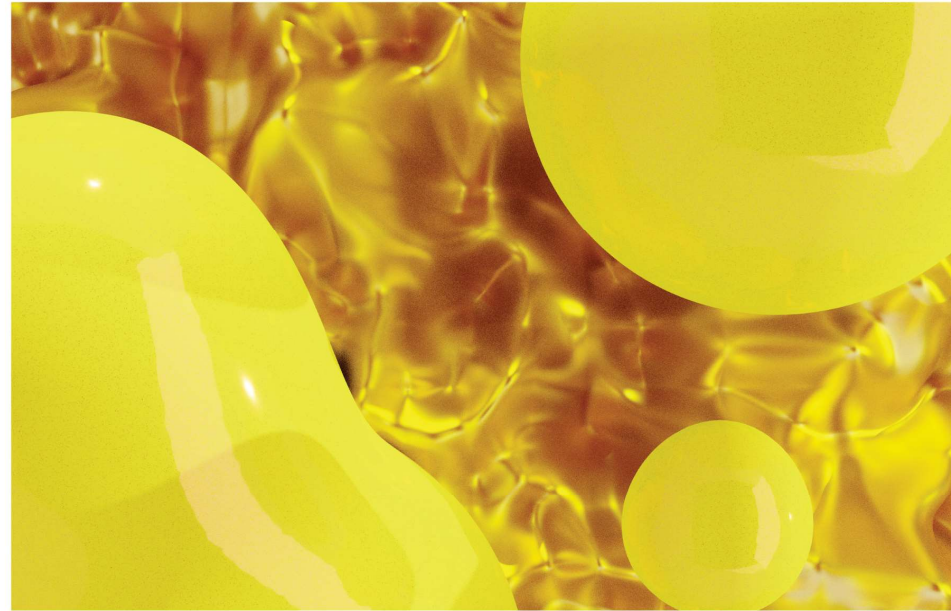
SAFE CITIES

SUSTAINABLE

SUSTAINABLE CONSTRUCTION | 20

The global cement industry is responsible for 7% of yearly carbon dioxide emissions released into the atmosphere.

Aiming to tackle this issue, researchers of KTU Faculty of Civil Engineering and Architecture are developing methods for producing **concrete without cement** using industrial waste – fly ash.



CONSTRUCTION

CAMPUS LANDMARKS

CAMPUS LANDMARKS | 21

To be opened by the end of 2022, a model of sustainable architecture, **M-Lab** Prototyping Centre M-Lab will house **9 interdisciplinary** research theme-focused experimental laboratories and **3 prototyping labs**.

The 4 million-worth **Campus Library** opened in March 2022 instantly became a new meeting point for students and citizens alike.





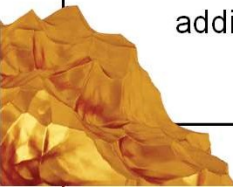
65

In 2020, KTU offered 67 study programmes in English on all study levels. International students comprise ~10% of all the KTU student community.

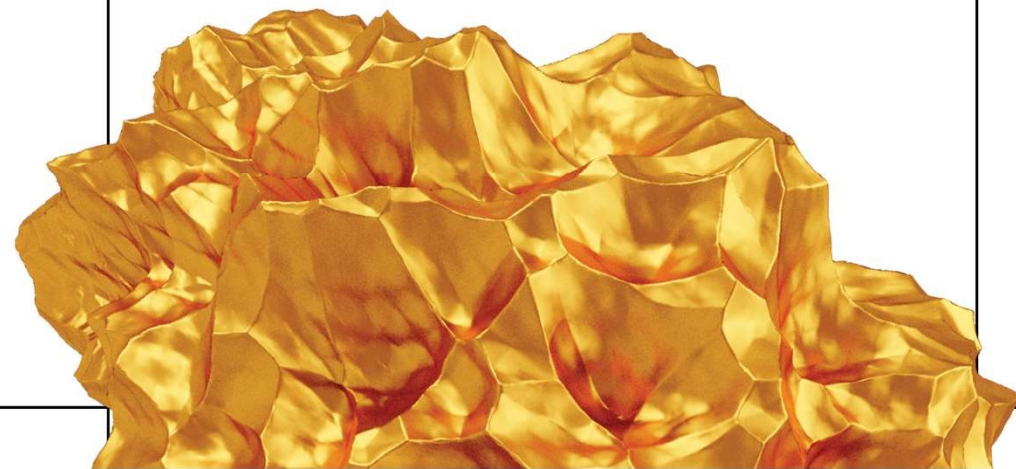
225

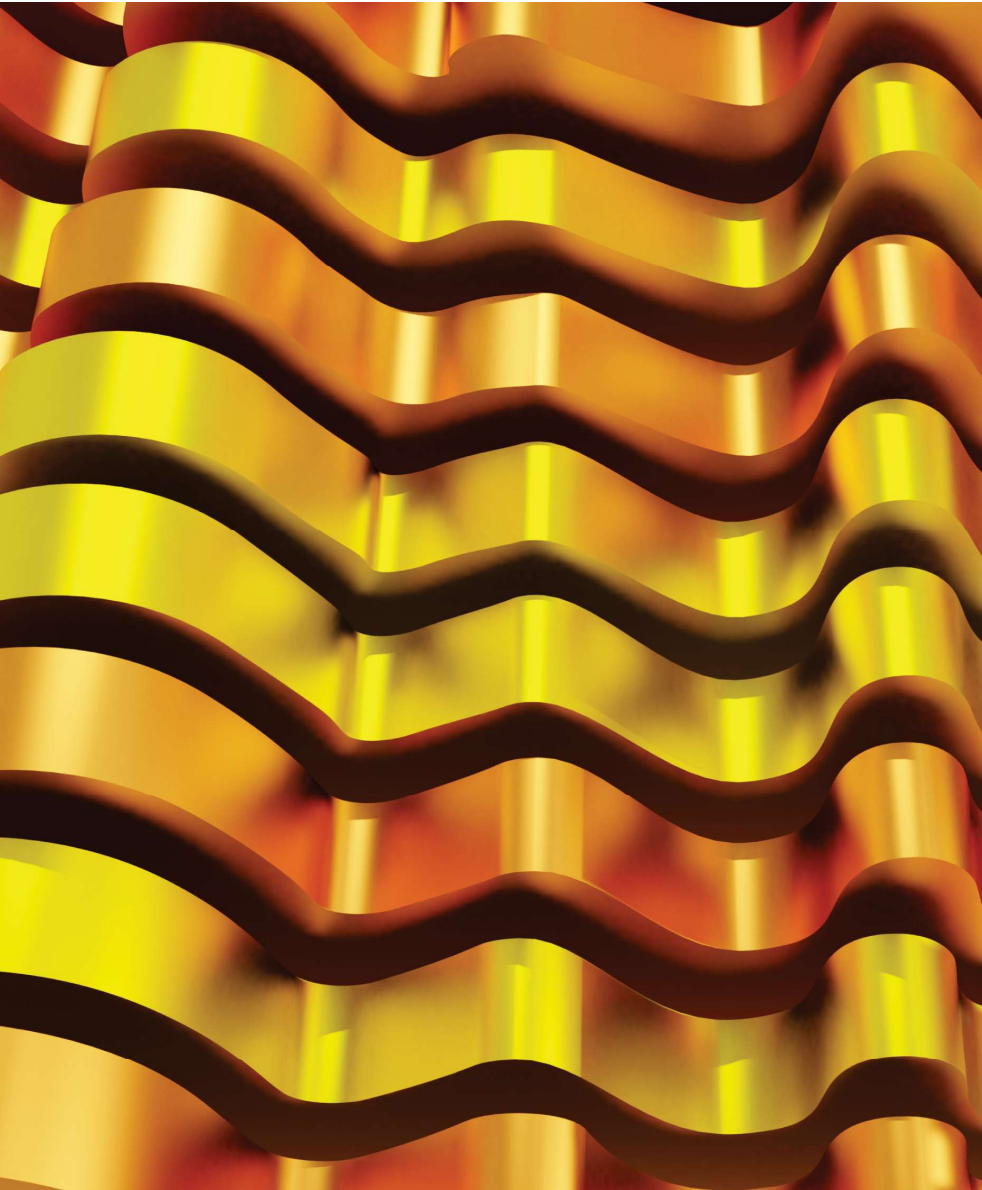
225 KTU students are studying in study programmes which mainly focus on sustainability. Among them: Environmental Engineering and Technology, Renewable Energy, Sustainable Management and Production.

64



In 2021/2022 KTU offered 64 study programmes, which included an interdisciplinary study opportunity. Unique to KTU MA+ and BA+ study paths allow the students to choose additional skills alongside their majors.





In our course at KTU, we are chemical engineers, mechanical engineers, environmental engineers – almost everyone has a different background.

However, it doesn't matter what kind of engineer you are, you always have to attempt to implement sustainable solutions. We have a lot of freedom in choosing our study projects, as far as we are focusing on the sustainability aspect.

Alexandra Alonso,
M.Sc. student of Sustainable Management
and Production at the Faculty of Mechanical
Engineering and Design

HEALTHY COMMUNITY NOW



HEALTHY COMMUNITY NOW | KTU

MONITORING FOR SENIORS

A team of researchers at KTU Centre of Real-Time Computer Systems are developing technology for monitoring elderly people in their homes.

The technology consists of sensors mounted indoors, which accurately monitor the person's position, and a small wearable control device. If something unusual, such as falling happens, the system **automatically calls for help**.

WEARABLE

WEARABLE TECH TO PREVENT STROKE | 26

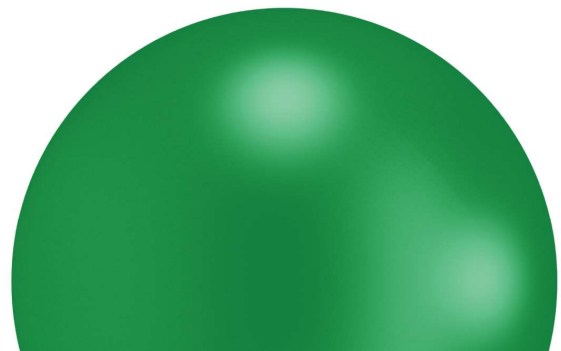
Researchers at KTU Institute of Biomedical Engineering are developing a smart wrist-worn device for monitoring of atrial fibrillation. Known as arrhythmia, it is a condition, which if left untreated can lead to serious health complications and even death.

Despite complicated technology and sophisticated algorithms, the smart **wrist-worn device** is easy to use.

PREVENT STROKE



**NONINVASIVE
BRAIN PRESSURE
MEASUREMENT**



HUMAN SIDE OF TECHNOLOGY

NONINVASIVE BRAIN PRESSURE MEASUREMENT | 28

Elevated brain pressure, the result of head traumas and brain tumours, is a potentially deadly condition. To diagnose it invasive surgery is needed.

Or, it was, until a group of researchers at KTU Health Telematics Science Institute came up with a novel method: the **ultrasound** scanners provide **precise and instant pressure** measurements via a probe applied to the patient's **eye**. The method can also be applied to detect stroke, glaucoma, and brain tumours.





~200 projects

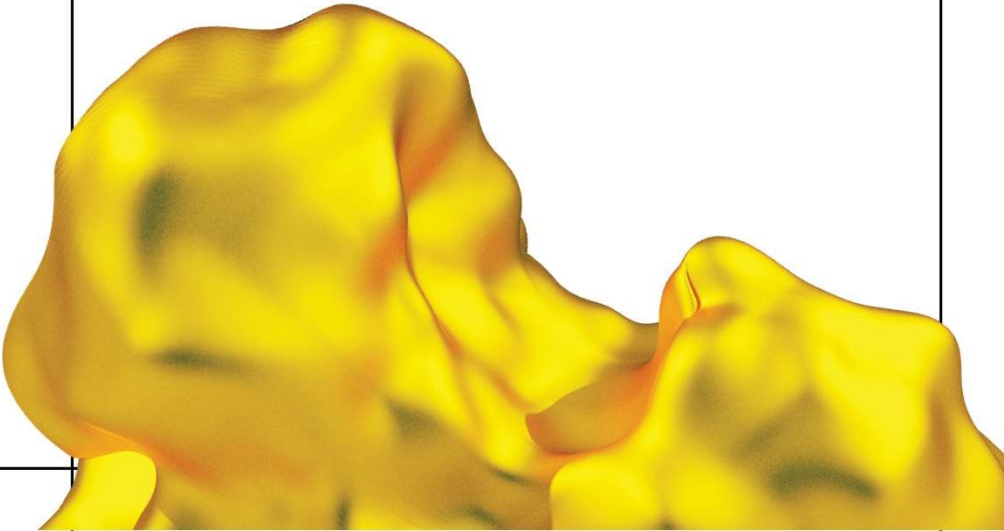
According to the data from recent years, KTU researchers take part in over 50 international and around 150 national research projects yearly.

9 start-ups

Nine start-ups developing the innovations in the health tech field have been established at KTU Startup Space.

19 inventions

In the field of health technologies, 19 new inventions have been registered by KTU researchers over the last five years.



When faced with health problems of our family elders, it is usually us who experience major stress. We want to feel at peace that our dear ones are safe and healthy. However, with the global society becoming older, it is essential to ensure that everyone can feel safe and comfortable at home – that's why smart environments are becoming increasingly important.

Professor Egidijus Kazanavičius,
Director at Real-Time
Computer Systems Centre



INDUSTRY INNOVATION NOW



AIRPL_____ANES

CAN BE

MORE

ENVI_____

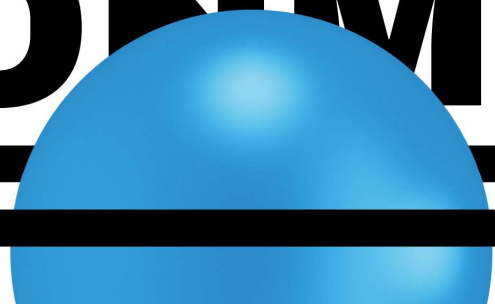
RONNMENTALLY

F_____

AIRPLANES CAN BE MORE ENVIRONMENTALLY FRIENDLY | 32

The group of researchers of KTU Ultrasound Research Institute is testing the materials the planes are made of **without taking the airplane apart**. The aim of the study is to improve the quality of the adhesive bonds in such a way as to reduce the weight of the airplane. Such a solution would be both more environmentally friendly and cheaper.

FRIENDLY

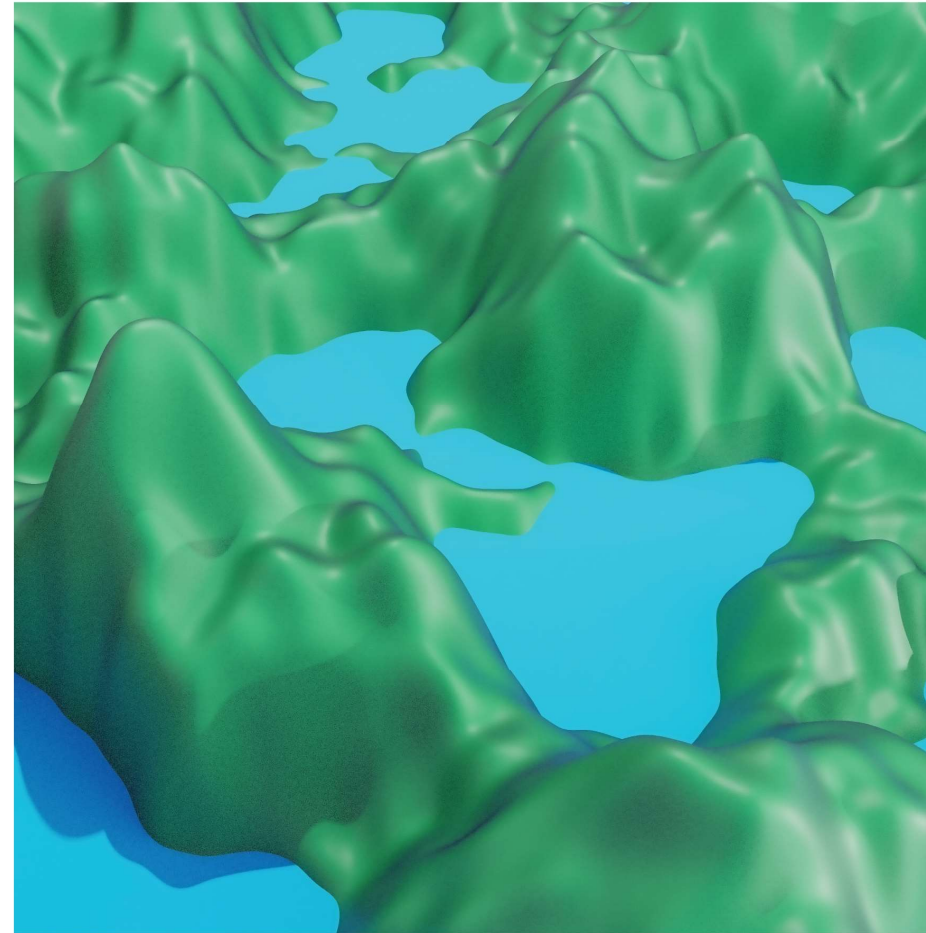


PRECISION

PRECISION TOOLS | 33

A team of researchers at the KTU Institute of Mechatronics at the Faculty of Mechanical Engineering and Design are developing an innovative technology for shaping the extremely strong and yet easily breakable material, such as tungsten carbide into a desirable form. This invention is of extreme importance for all industries that use precision optics such as defense, mapping, security or medicine.

TOOLS



NEW MATERIALS



NEW MATERIALS FOR SPACE | 34

Researchers of KTU Materials Science Institute are creating new technologies for antireflective coatings used in space instrument applications. The new technologies would diminish the unwanted reflections in the sensitive optical systems, such as lasers, telescope lens and other spectroscopic equipment.

FOR SPACE



~1 200

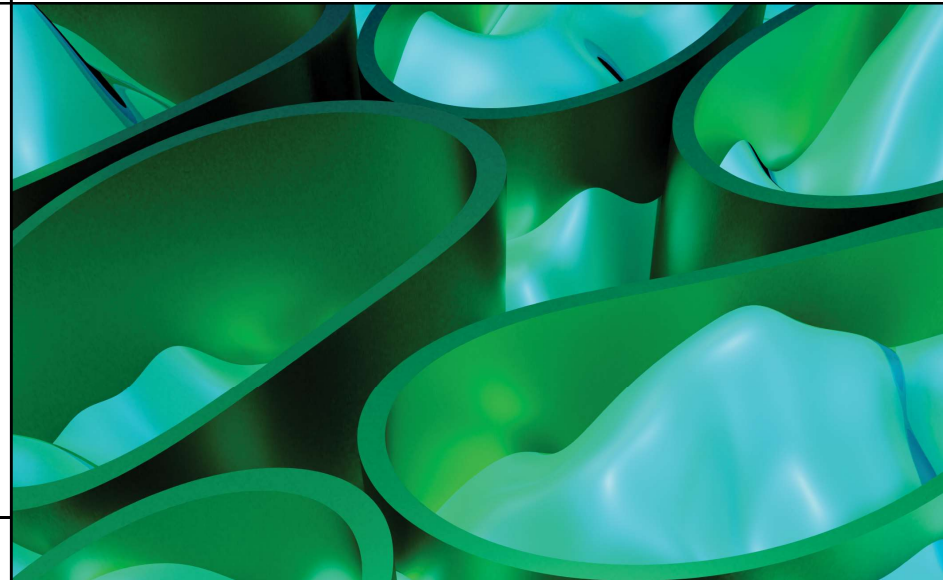
More than 1 200 services provided by KTU research groups are available for business and industry customers bookable on apcis.ktu.edu.

~2.9 million euros

KTU provides R&D services for almost 3 million euros yearly; almost 20% of all orders are completed for foreign business clients.

~1 500

Since the establishment of the KTU National Innovation and Entrepreneurship Centre in 2012, around 5 thousand customers have used the open access university laboratories.





At KTU, we have both bachelor's and master's study programmes in aeronautics and aviation engineering, and I am happy to see that more and more girls are choosing studies in this field. Later they become scientists – in the conferences I can see the increasing number of women – or continue their career as aeronautics engineers.

Professor Elena Jasiūnienė,
KTU Ultrasound Research Institute



**EDUCATION
THAT MAKES
A  DIFFER-
ENCE NOW**

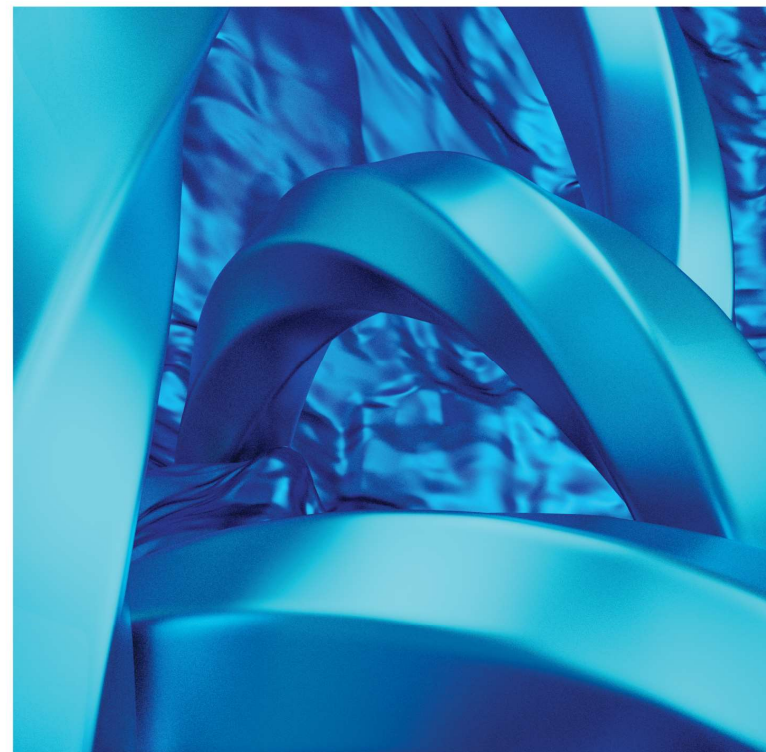


**EDUCATION THAT MAKES
A DIFFERENCE NOW | KTU**

INNOVATION FAIR

The Technorama Innovation Fair, founded in 2001, has served as a springboard for many young innovators and entrepreneurs.

For instance, the Technorama 2018 winner ViLim Ball, a device for alleviating the symptoms of shaky hands condition is already on the market.

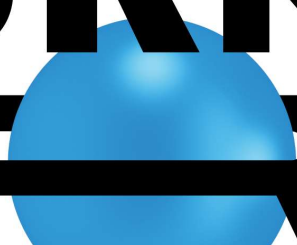


PERSONAL EXPERIENCES

PERSONAL EXPERIENCES TURNED INTO PRODUCTS | 39

BeltaMom, a belt for pregnant women designed by a team of KTU students monitors the condition of the foetus from the 2nd trimester. In 2019, it was labelled as the **best healthcare innovation** at the annual Silicon Valley Innovation Challenge. The idea came from personal experiences of the team's family members.

TURNED INTO PRODUCTS



CHAMPIONING

CHAMPIONING INTERDISCIPLINARITY | 40

KTU was the first university in Lithuania to conceive truly interdisciplinary study programmes combining two different fields of study and research. Among them is Music Technologies, which has been running at KTU since 2000; its graduates sound engineers were nominated for [Grammy](#) awards in 2019 and 2020.

INTERDISCIPLINARITY

~1 500

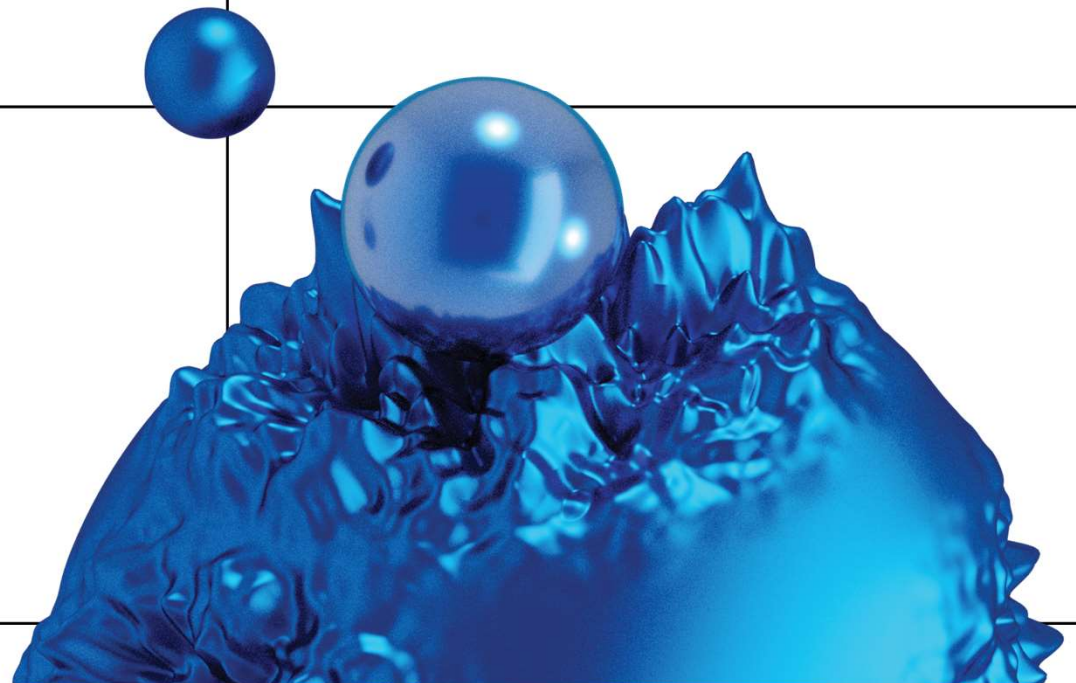
Around 1 500 people visit KTU Innovation Fair Technorama annually. Up to 80 prototypes are introduced during the Fair every year.

€ 900 000

In 2020, the KTU scholarship fund for bachelor's and master's students amounted to almost 900 thousand euros.

>20

In 2016, KTU established a teaching practitioner's position, and until now, more than 22 professionals have been employed in this role.



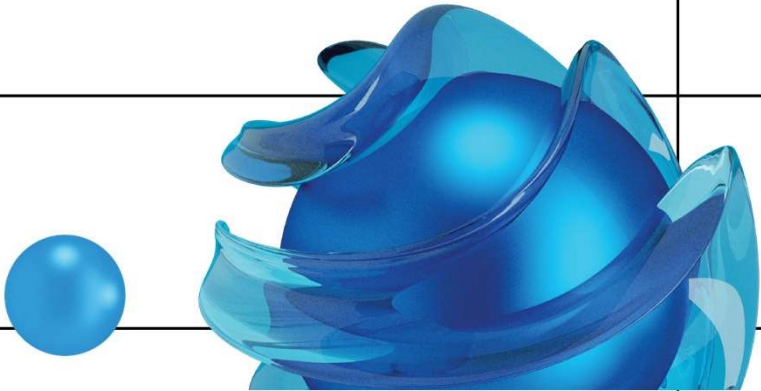


2 245 mentored students

KTU is the first university in Lithuania to introduce the comprehensive mentorship programme GUIDed. During the academic year 2019/2020, the mentoring services were provided to 2 245 students by 732 mentors.

Once you find the most interesting field for you, science cannot be boring. After all – science is everywhere, be it related to nature, technologies, music or other areas. Science can answer all your questions. How does this device work? How do people behave and why? How are pictures and music born? When you are conducting research and talk to other scientists you can satisfy your curiosity.

Julija Kravčenko,
Technology Transfer Project Manager
KTU National Innovation and
Entrepreneurship Centre



KNOWL- EDGEABLE SOCIETY NOW

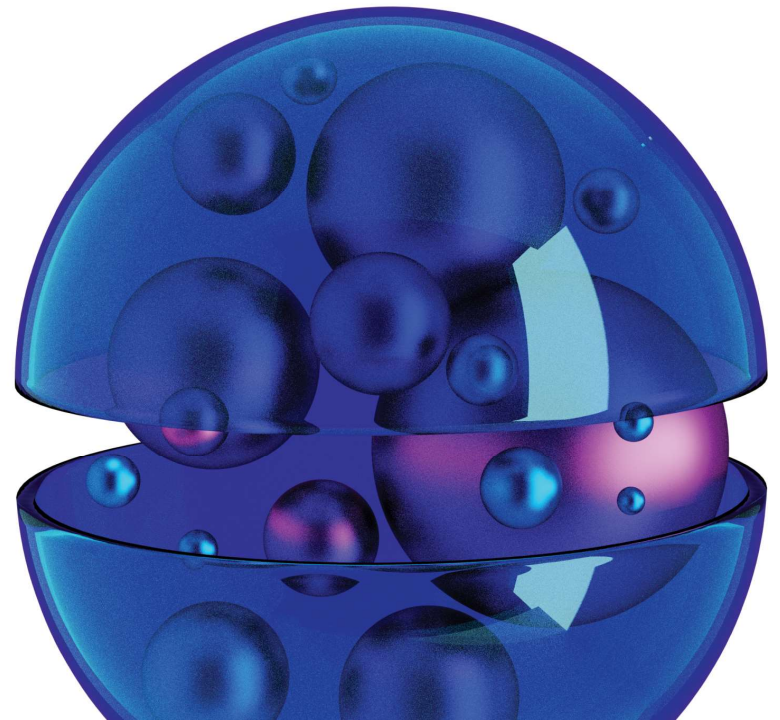


KNOWLEDGEABLE SOCIETY NOW | KTU

HERITAGE MADE PUBLIC

HERITAGE MADE PUBLIC | 44

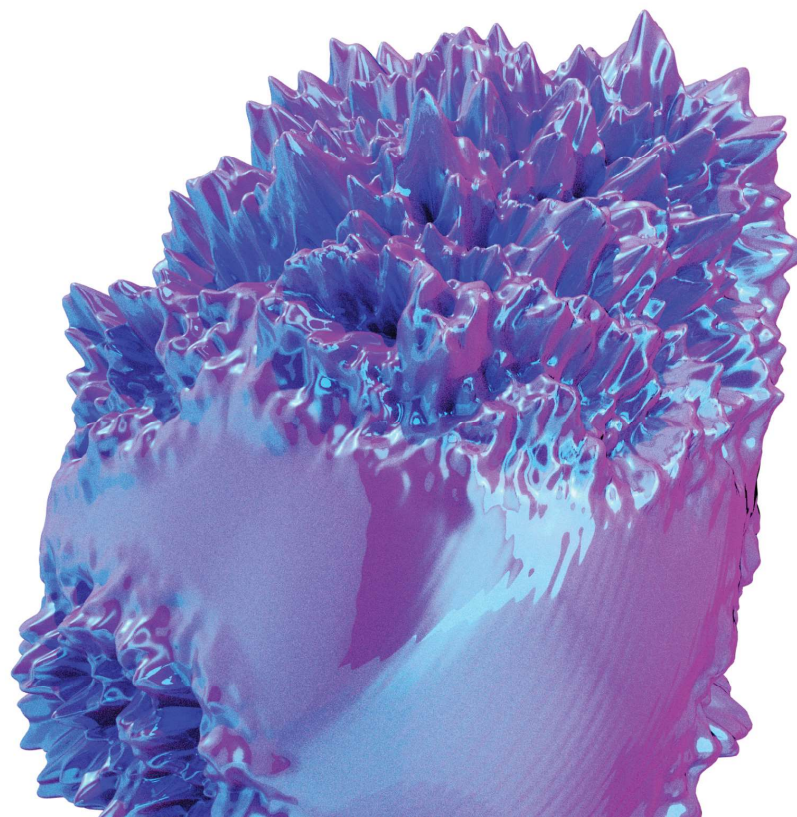
Built in 1935, the former Lithuanian Army Research Laboratory, currently KTU Faculty of Chemical Technology, is a perfect example of Kaunas interwar **modernism architecture**. In 2022 the renovated former military laboratory will be opened for public use providing knowledge to the local and global society on Lithuanian modernism.



NURTURING

NURTURING TALENTS | 45

To introduce future leaders to STEAM subjects as early as possible, the University established a **KTU Children's University** aimed at the pupils of 5-6 and 7-8 grades. Since its launch in autumn 2021, 80 young students have already attended practical and teamwork classes on **STEAM subjects**.

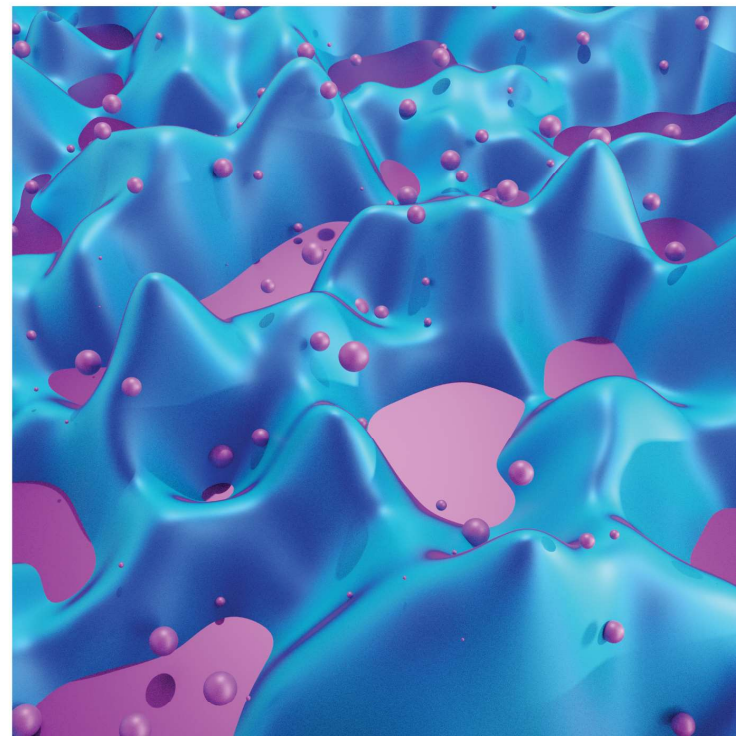


TALENTS

INFORMED

Understanding that informed society is strong society, KTU is sustaining the Lithuanian Data Archive for Humanities and Social Sciences (LiDA). Funded mainly by the University resources, the Archive offers open access to more than 600 data sets, reflecting Lithuanian society's stand and attitudes towards the complex global issues of today.

INFORMED SOCIETY | 46




SOCIETY



~50

Around 50 public events are being organised by and at the University annually – around 30 of them are organised by KTU Student Union. From Career Days to the major Lithuanian Science Festival, from student choir competition to digital society meetups, from fashion shows to film festivals, KTU is an active member of Kaunas cultural scene.

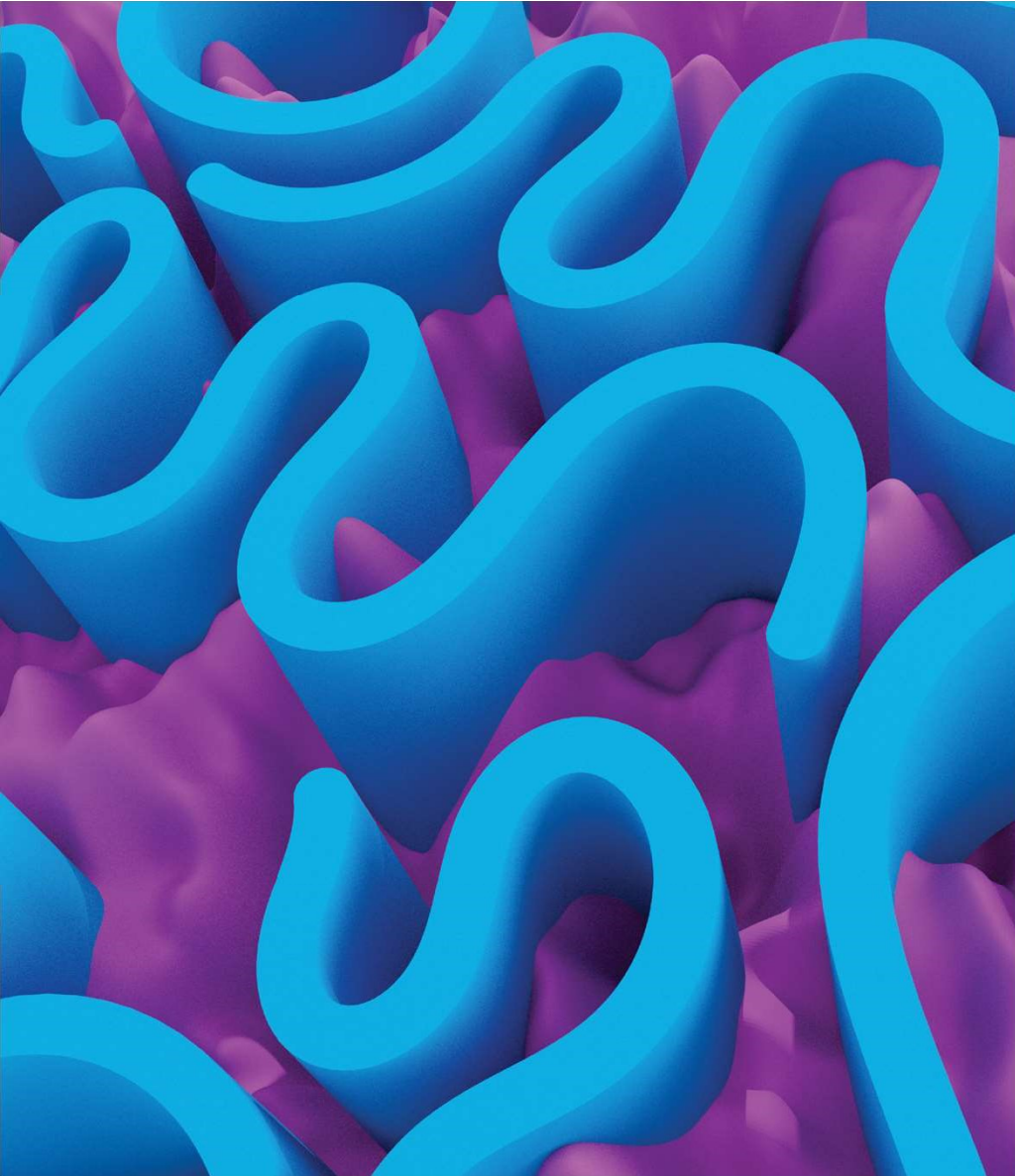


~47 000

KTU has been providing non-formal education since 2003. More than 47 thousand people have taken part in the upskilling and reskilling courses.

89

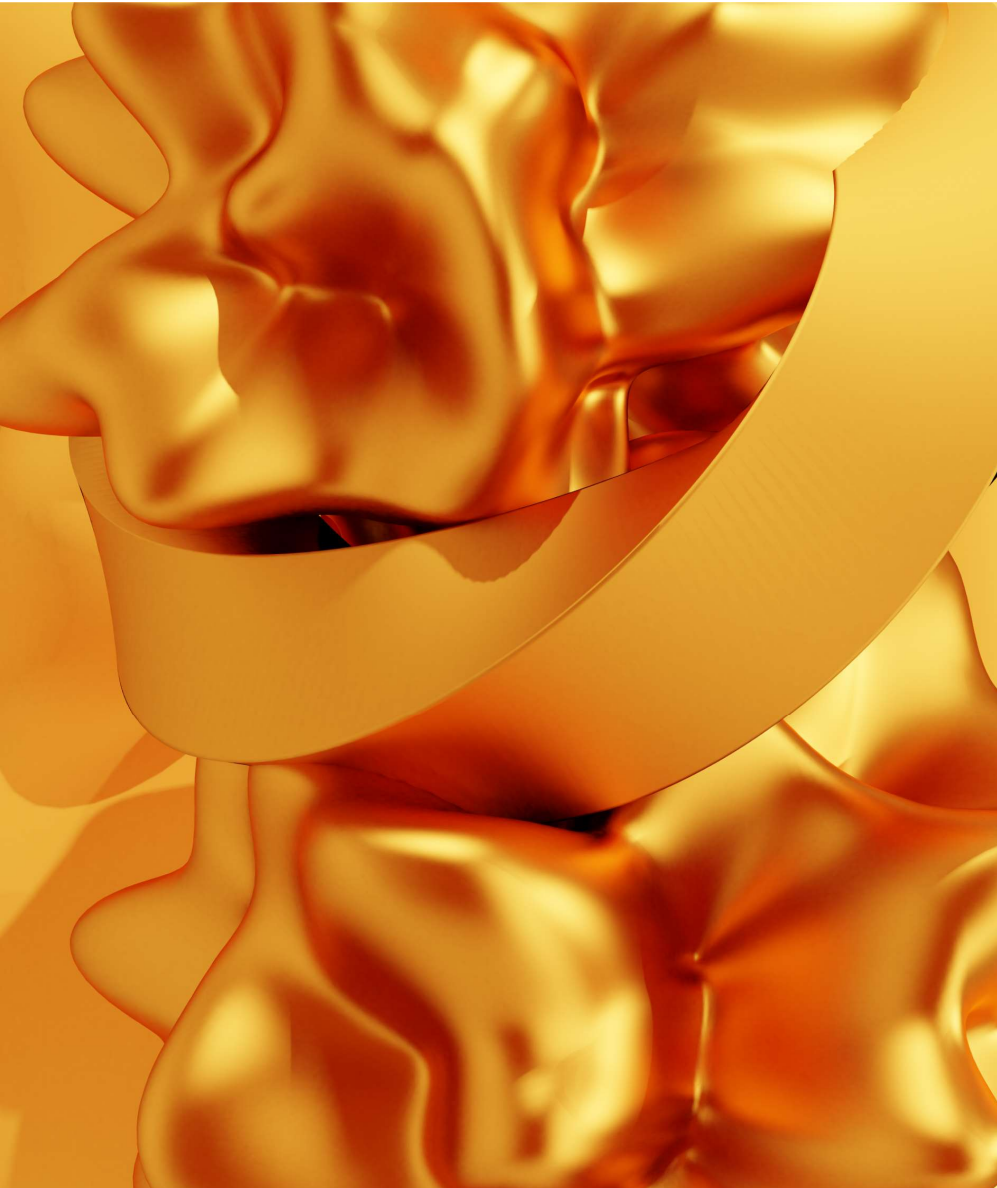
KTU GIFTed community, offering an advanced study path for talented students has already 89 members.



The ideas of sustainable development have been explored and promoted for almost 40 years. This includes creating information campaigns, legislations, lifestyle interventions, development of schools and universities study programmes. I am glad to see that all these activities have borne fruit. It is exciting to see Generation Z taking action instead of talking, believing instead of doubting.

Young people today are different from us. To be honest, this is why I feel calm about the future.

Professor Audronė Telešienė,
Head of the Centre for DataAnalysis and
Archiving, KTU Faculty of Social Sciences,
Arts and Humanities



Today's news will be history tomorrow.
The facts and stories of this presentation
are being constantly updated. At KTU, we
are not trying to encapsulate the future –
we are living it.

SEE YOU THERE

ktu.edu