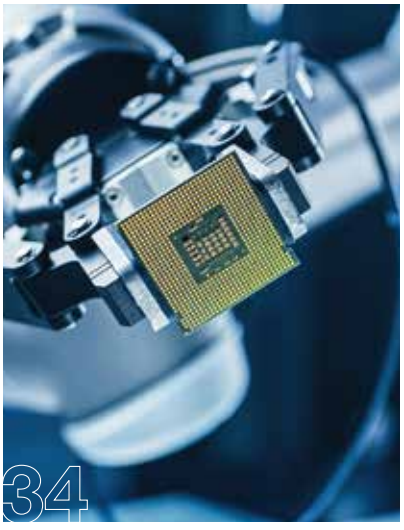

FH
University of
Applied Sciences
TECHNIKUM
WIEN
ANNUAL REPORT
2021/22



Contents

Gabriele Költringer and Florian Eckkrammer

FOREWORD

The outbreak of the war in Ukraine was the most significant international event of the previous year, hugely affecting many areas of everyday life even for us in Austria. The economic impact, such as increasing energy prices and high inflation, is likely to be felt by us at UAS Technikum Wien for a while to come. However, when it comes to another international crisis at least—the pandemic—the situation continued to ease during the 2021/22 academic year, and our studying and working activities were able to largely return to normal. All lectures and events took place in person once again and restored our university to what it was before coronavirus came along: a lively educational institution.

Even travel and international exchanges were easier last year, and you can read about them in many articles in this Annual Report. Internationalization is one of our main objectives for the coming years, and you can read much more on that on the following pages. Topics covered in our year in review in a magazine format include how modern teaching with the times works at a technology- and digitalization-oriented university of applied sciences, and numerous activities and our commitment in the area of gender and diversity.

And of course, we take a look into the faculties and other units at our university and draw on highlights and selected specialist articles to again provide an overview of the wide variety of events at UAS Technikum Wien during the past academic year.

We wish you happy reading!

Vienna, December 2022

Gabriele Költringer
Managing Director

Florian Eckkrammer
Managing Director

Introducing the University

FACTS. For more than a quarter of a century, UAS Technikum Wien has been educating the top technical executives for industry and has been an expert research partner to companies and organizations.

UAS Technikum Wien is Austria's university for technology and digitalization. Since it was founded in 1994, the university has produced over 15,000 graduates. We currently offer 28 Bachelor's and Master's degree courses that prepare our graduates for top jobs in business and industry.

TEACHING

We do everything in our power to remove any obstacles. To ensure our students keep pace with the demands of their studies, we provide them with the opportunity to brush up their knowledge before their courses start. We offer warm-up courses in subjects such as mathematics, physics, and engineering to ensure they can hit the ground running when they start their programs. And we also continue to provide the best possible support throughout their studies. Following graduation, the broad portfolio of continuing education options at Technikum Wien Academy ranges from one-day seminars to four-semester Master's courses.

RESEARCH

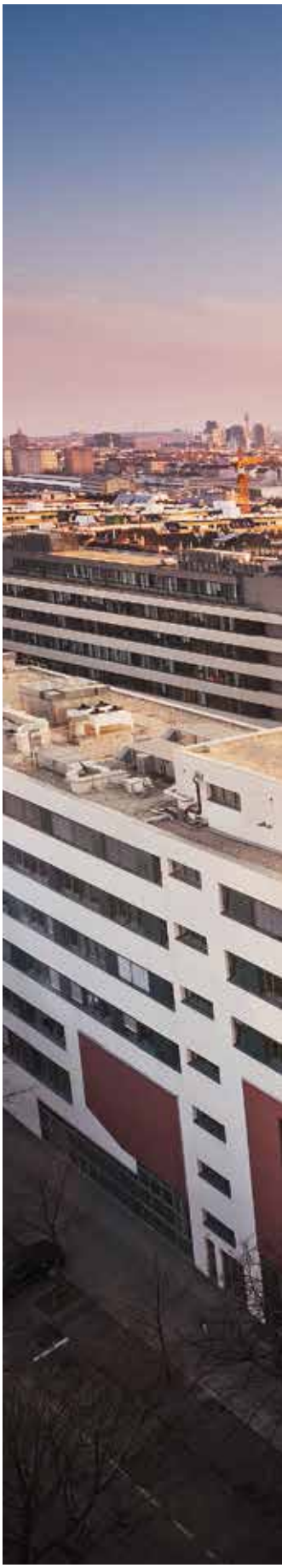
Our university provides research expertise to a range of partner companies, organizations, and institutions. These activities range from innovation checks for small- and medium-sized enterprises to transnational EU projects. UAS Technikum Wien has bundled its research capabilities into five key areas:

- Embedded Systems & Cyber-Physical Systems
- Renewable Urban Energy Systems
- Data-Driven, Smart & Secure Systems
- Tissue Engineering & Molecular Life Science Technologies
- Automation & Robotics

FUTURE

Technology currently dominates our daily lives—from smartphones, social media, and self-driving cars to electromobility and digitalization in industry. These developments are why many young people are interested in studying technology-related subjects. In the meantime, industry is crying out for graduates from a variety of technological fields. After all, the biggest problems of our age—from climate change to pandemics—heavily depend on technological solutions. ▮

Our main location on Höchstädtplatz, 1200 Vienna



The Year in Time Lapse

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BEST OF 2021/22.

Events, awards, and new networks have been prominent features of the past academic year at UAS Technikum Wien.

SEPTEMBER 16

The International Fair takes place in person once more.

SEPTEMBER

For the first time, over 1,000 female students enroll at UAS Technikum Wien and Technikum Wien Academy—1,127 to be precise.

SEPTEMBER

SEPTEMBER 1

Two enhanced Master's courses start: AI Engineering and IoT and Smart Systems.

SEPTEMBER 1

Changes to organizational structure: the Applied Mathematics and Physics Department has merged with the Faculty of Computer Science, and the Entrepreneurship & Communications Department has been assigned to the Faculty of Electronic Engineering.

SEPTEMBER 1

Start of the first term of office for the newly elected Rectorate consisting of Sylvia Geyer and Vice-Rector Stefan Sauermann.

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OCTOBER

SEPTEMBER 23

Corinna Engelhardt-Nowitzki, Horst Orsolits, Johannes Nikolaus Rauer, and Cecilia Perroni from the Faculty of Industrial Engineering receive the Ars Docendi State Prize from the BMBWF. Wolfgang Berger, Thomas Mandl, Dario Bachinger, and Georg Richter from the Computer Science Department receive a recognition award.

OCTOBER 12–13

Virtual company fair: 67 businesses attend and have 1,000 discussions with 500 students over two days.

OCTOBER 19

New design for the university: thanks to its new façade covering, the main building gleams in the full expression of “Change our tomorrow.”

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DECEMBER

OCTOBER 30

Fully airborne: UAS Technikum Wien lecturer Lars Mehnen takes part in an ESA zero G flight.

© UASTW/GRABNER

DECEMBER 1

UAS Technikum Wien joins the Alliance of Sustainable Universities.

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MARCH

MARCH 18

The first real in-person open day since the start of the pandemic takes place—even Minister for Education Martin Polaschek attends.

FEBRUARY 10

The WeCanTech awards are presented to ten successful students for the first time.

FEBRUARY

MARCH 30

UAS Technikum Wien is ranked 22nd among Austria's Best Employers 2022 according to business magazine *trend*.

MARCH 30

University rankings 2022: the Faculty of Computer Science takes second place in the industry magazine rankings.

MAY

MAY 16–18

The International Week is once again held in person.

JUNE 3

The university is awarded the equalitA quality seal for promoting women internally, professional equality, and gender equality.

JUNE

20

22

JUNE 26

The Bachelor's in Mechatronics/ Robotics holds a Robotics Day.

MAY 31

The Queer Engineers network is set up at UAS Technikum Wien to celebrate Pride Month 2022.

JULY

JULY

For the first time, UAS Technikum Wien makes it possible for five students to spend one month at the San José State University as part of the Silicon Valley Summer School.

AUGUST

AUGUST 16–19

The first Quantum Summer School takes place with 50 students.

JULY 3–9

The tenth MedTec Summer Academy is held in Horn.

MAY 20

The Long Night of Research takes place in Austria, with nine research teams presenting their work at UAS Technikum Wien.

JULY 4–12

17 students from ten countries participate in the summer school on the subject of assistive technology.

JULY 6

The new university website goes live.

TEACHING AND LEARNING WITH THE TIMES

STUDYING. From the online teaching management system to AR apps and web accessibility: new digital concepts are supporting students and lecturers in numerous areas.

Digitalization has long played an important role in the teaching at UAS Technikum Wien and was a core component of the study program even before the pandemic. Since the 2020/21 winter semester, all Bachelor's courses at the university have been extensively digitalized. What are known as blended learning formats allow for the optimum combination of in-person and online study modules. There are also custom digital applications in several units that facilitate learning and teaching at UAS Technikum Wien—this helps the latest content to be conveyed in a practical, didactic, and technological way that keeps up with the times.

HELPFUL TOOLS FOR LECTURERS AND STUDENTS

In addition to a supporting IT infrastructure, the basis of the digitalization of teaching is also formed by the study and information platform Moodle, which acts as a standardized learning management system. "The Teaching & Learning Center team provides

Modern tools for modern teaching: augmented reality technology is used in the robotics unit for the three-dimensional communication and practical testing of course content.

© UASTW/HANS LEITNER

comprehensive support options, continuing education courses, and services in and based on Moodle, which both lecturers and students alike can benefit from. The latter are given an extensive blended learning offering (Bachelor's) in the form of a wide range of teaching and study options such as videos, learning pathways, self-testing, and exercises so they can constantly learn, whatever the time, wherever they are," says Sylvia Lingo, Head of the Teaching & Learning Center. On the other hand, Moodle allows lecturers to plan the semester in a goal-oriented and collaborative, but also personalized content-based and didactic way. The learning platform also comprises interfaces for the organization of lectures and carrying out teaching, and provides tools for creating tests and exams.

An example of Moodle's wide-ranging areas of application is the CodeRunner plug-in, which doesn't just allow for the creation of programming tasks. Using this tool, it's also possible to randomize values for statistical questions or circuit diagrams and thereby create as many different potential questions as you like. By doing this, lecturers save a lot of effort in setting exam questions and homework, and corrections can be automated. Quizzes and exams are checked objectively and quickly, which is greatly appreciated by students. Because students receive an individually assigned question, the proper procedure is always followed. Additionally, CodeRunner provides options for exercises: "Using what are known as sandboxes, existing programs can be experimentally compiled and modified in order to test the effects of specific changes to the code," reports Lars Mehnen from the Artificial Intelligence and Data Analytics Competence Center, who has been using this tool in his teaching for several years.

APPS AS TEACHING AIDS

The Applied Mathematics & Physics Department collaborated with the TLC to develop a helpful app for a different area of application: the award-winning app Vector AR3 helps students to better understand the complex subject of vectors and linear algebra. It is offered at the university for independent study and used during in-person units for the collaborative solving of example questions.

In the field of robotics, meanwhile, augmented reality technology is being used for the three-dimensional dissemination and practical testing of course content. This means students can use an AR app to project the digital shadow of an industrial robot onto their desk, change settings virtually, and manage axes. This offers the opportunity to playfully engage with the topic and expand learning content. In the Virtual Technologies & Sensor Systems Competence Center, the app has been upgraded over the past few months to create a learning app with quiz questions, which will be used for teaching from the 2023 summer semester onward. "For us, the networking of robotics is the main priority here. We use these kinds of tools to help us explain three-dimensional problems such as axis ambiguities. The AR technology helps students to reduce the cognitive load of switching between 2D illustrations on slides or lecture notes and 3D depictions, and thereby facilitate the transfer of information," says Head of Competence Center Horst Orsolits.

FOCUS TOPIC: DIGITAL ACCESSIBILITY

In order to give as many students as possible access to digital technologies, UAS Technikum Wien is also involved in numerous projects on the topic of digital accessibility. For this purpose, a research group developed an online knowledge hub for accessible technologies. Students at hackathons like the eAccessibility Challenge 2022 also dealt with the topic of how digital barriers can be broken down and developed innovative solutions. Ultimately, all people should be equal in how they're able to benefit from technological advancements, whether they are teaching or learning. ▮

“It’s a Matter of Social Change”

INTERVIEW. Managing Director Gabriele Költringer and Equality Manager Nicole Sagmeister talk about the new WeCanTech initiative, hoisting the rainbow flag, and explain why digitalization also improves equal opportunity.

In the past academic year, UAS Technikum Wien’s WeCanTech initiative started a major movement in the area of promoting women. What is the idea behind it?
Gabriele Költringer: The idea is to draw women out from behind the curtain in the technical field and make sure they are seen. We want to offer equal opportunities and show to the outside world that women are fully capable of working and forging a career in the technical arena, and that they will be actively supported when working for us.

WeCanTech comprises a full range of measures. What do these measures include?
Nicole Sagmeister: We want to offer all female target groups something in-house. For applicants there is the WeCanTech tour at the open days, for students there’s the Successful as a Female Executive award and optional subject, and for prospective Master’s graduates there’s the mentoring program. Furthermore, there is a high-potential program for our employees. All of that means we cover a large number of options.

Költringer: We have combined all of our activities that relate to girls and women under the WeCanTech umbrella. By doing so, we have developed a consistent brand that we can use to communicate these measures externally.

Sagmeister: It's actually about empowering women. It's often called supporting women, but I don't think that's the best wording. "Supporting" sounds as though you're looking after a small child, but that's obviously not the case. We have incredibly capable women applying and already working for us—they're the ones we want to empower and use as role models.

A really basic question: why should young women study technology?
Sagmeister: You could equally ask: why should men study technology? Because it's interesting, has a promising future, and offers creative job opportunities. Because you're in demand, there are many exciting developments, and that's really motivating. Plus, there are crisis-proof and well-paid jobs. That's another way to counter the gender pay gap.

Költringer: I can only agree with that. Technology is where innovation happens. Interesting existing and newly formed companies have technical facets to them. Women can benefit from the same chances of being successful here. We also need to attract more women to the technical field to ensure we can train enough engineers. Men alone can't cover the demand. I think it's also important that women study technology because developing technical applications or products that better meet the needs of a diverse range of users is only possible if women are involved. It's no secret that mixed teams achieve better results than single-gender groups.

A milestone was reached at the beginning of the last academic year: for the first time, over 1,000 female students enrolled at our university. What would it take for this number to increase further?
Sagmeister: An example of something concrete we can do is the FIT study info days for high school students who are interested in technology. FIT stands for "Frauen in Technik" (Women in Technology). We are the hosts of the event, and the first morning takes place at UAS Technikum Wien for all students. In general, more family-friendly conditions are needed in the working environment. But that's not specific to technology and more to do with having women in management positions.

UAS Technikum Wien Managing Director Gabriele Költringer (left) talking to Equality Manager Nicole Sagmeister.

© UASTW/FELIX BÜCHELE

> **For girls, this male dominance in technology is often still off-putting.**
>
> **GABRIELE KÖLTRINGER**
> MANAGING DIRECTOR

› **Költringer:** There is still an impression among many young people that technology is boring, that there's a lot of hands-on work and you might have to get dirty. However, this myth of technology being manual and associated with men is now obsolete. For girls, on the other hand, this male dominance that is sadly still partly linked with technology is often off-putting. Thanks to digitalization, a lot has now changed. In addition, girls often steer clear of a technical program of study because of subjects like math and science. The school system is encouraged to take fear of these subjects into account and to convey their importance. I keep hearing from parents: but no one needs that kind of thing. However, if it weren't for these disciplines, our level of technological advancement would not be what it is today. That needs to be more strongly communicated to society.

Sagmeister: In society, there is still an old-fashioned stereotype of what a technical profession entails. When a woman says that they want to study something technical, their grandma might say: Are you sure? Don't you want to go and study economics? To a guy, she would say: Oh great, become an engineer. That needs to change—and for this purpose, it's important to show female role models.

The topic of equality covers more than just the proportion of women in technology. Which other aspects does the university deal with?

Sagmeister: An important group that we still support are students who have a child and take on the role of caregiver. If we want women to study here, there can be no obstacles in their way if they have a child. Another group is students with disabilities, and therefore the topic of accessibility. In this area, we provide targeted support. We also have several projects underway related to digital accessibility.

A further group is the LGBTIQ+ community. We launched the Queer Engineers network at the university on the occasion of the Pride Parade, and it's still going now. For us, up until that point, it went without saying that everyone is welcome at the university—but we didn't show it or talk about it enough. It is only by hoisting the rainbow flag and raising awareness within the university that a different atmosphere has emerged among the LGBTIQ+ community. Now our applicants also know that this is somewhere they can feel safe.

Költringer: The culture we want here is one of openness, acceptance, and tolerance, in every regard. That's really important to me. Every visible measure is welcome. But there's definitely still work to be done to ensure that this topic permeates throughout the university. The topic of inclusion as a whole is also a great concern for me in terms of both students and employees. We need to catch up in this respect and continue to embody the spirit of equal opportunity that we always talk about. Quite simply, now is the time. Digitalization in particular makes it easier for people with disabilities to do the same job as someone without. So with the right tools, even blind people can work on texts, for example.

Nicole, you've been responsible for the area of equality at UAS Technikum Wien for over ten years. How has the work and awareness of the topic changed in that time?

Sagmeister: When I started, it was still called "supporting women." My first job was to turn that into "gender mainstreaming." It's a matter of social change. At the time, 13 percent of our students were women, now that figure is 22 percent. At the time, there were 400 female students, now there are over 1,000—it's an amazing figure. When I first started my work, the big challenge was to create sentiment around the topic. There was the Gender Management think tank, then the University and family audit. That was met with great acceptance because it was seen as a social topic that wasn't just targeted at women. Over the past few years, it's been important to me to firmly anchor these things at the university. That's been achieved through the WeCanTech program, but also by defining something of an equality plan, which is now regulated as part of our charter.

Költringer: So much has happened in that time. I remember that back then, it was mostly men in management and teaching positions, with women generally only taking on assistant roles.

Sagmeister: I was the only woman at a lot of meetings. I then complained to the staff and said that as long as our board is so obviously dominated by men, the gender representative has to be present. That was accepted. I was then asked to take the minutes. But I said, no, I'm not doing that. (laughs)

Költringer: Nicole applied great persistence and gentle pressure in complaining to many departments, but always had a feeling for what would work and what wouldn't. It has to be added here that our former Rector Fritz Schmöllebeck was really supportive.

Sagmeister: On the subject of wanting to attract more female students, at some point in the past there was the remark: "We're not stopping them, they should just come!" No one's said anything like that for a number of years. The sentiment has changed, the language is extremely different, and so is the level of acceptance.

Költringer: We receive feedback saying how impressive all of our work is. That's also continually evolved over the past ten years. What's important is that you tackle things in a long-lasting way and that you know when it's the right time to do something. That's how we want to continue: steadily, taking small steps, until it's as ingrained as so many other things. ▮

> **If we want women to study here, there can be no obstacles in their way if they have a child.**
>
> **NICOLE SAGMEISTER**
> EQUALITY MANAGER

© UASTW/FELIX BÜCHELE

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INTENSIVE INTERNATIONALIZATION

FOCUS. Intercultural skills and experience abroad are becoming more and more important for people's careers. Establishing these key qualifications is therefore one of the main goals for the university over the coming years.

International experience, knowledge of foreign languages, and intercultural expertise are essential qualifications for a job in an international environment, and also more in demand than ever before in the Austrian market. "Digitalization and the global technological shift require experts who can think and act in an international context, especially in the technical field. It's part of our responsibility as a university to prepare our students for these requirements as best we can," says Managing Director Florian Eckkrammer.

The university has therefore set itself the goal of pushing forward intensively with internationalization over the coming years. This is intended to enhance the expertise of the students and further improve the competitiveness of graduates on the international labor market. In future, the topic will take a central role in the study programs at UAS Technikum Wien, and has been a fixed component of every curriculum since the 2022 winter semester.

In summer 2022, a group of students were the first to spend a month at the San José State University in the US as part of a summer school.

Digitalization and the global technological shift require experts who can think and act in an international context, especially in the technical field.

FLORIAN ECKKRAMMER
UAS TECHNIKUM WIEN
MANAGING DIRECTOR

STUDENTS BENEFIT IN MANY WAYS

"Our students are able to benefit from this anchoring in the studies in many regards: during overseas trips and with improved foreign language skills, important additional qualifications can be achieved. Intercultural and international collaboration also broadens horizons, helps you to look past the end of your nose, and contributes to also being able to judge certain processes and correlations in a global context," says Managing Director Eckkrammer.

NUMEROUS OPPORTUNITIES TO GROW BEYOND BORDERS

In order to be able to gain international experiences, there is a wide range of courses on offer at the university. From a whole package of options, students can choose the ones that suit their life situation and set their own focus. That starts with a multiday excursion and ranges all the way up to a semester abroad or signing up to a double or joint program at a partner university. There is the opportunity to be an "international buddy" for incoming students or to get involved in an international students' network. And anyone that writes their thesis in English will not only gain experience but also ECTS credits. The skills required for this can be acquired during an internship abroad, for example, but also via a foreign language certificate or during summer or winter schools.

The university supports students in this with some attractive options: last summer, a group of students were the first to complete a month-long trip to the San José State University in the US and get to know the famous spirit of Silicon Valley. Throughout all of the activities, the team from the International Office at UAS Technikum Wien was on hand with plenty of experience and focus on service.

With the Internationalization at Home concept, the university also makes it possible for international content to be incorporated into study plans and lectures. In this way, even students who can't go on an overseas trip for personal reasons still have the opportunity to take part in international teaching activities.

MORE TEACHING IN ENGLISH

As part of the focus area, more lectures at the university will be conducted in English in future. With the introduction of the International Teaching Certificate, the range of subjects on offer for incoming students will also be expanded. At the same time, employees will receive more training in this area. Furthermore, faculties will develop their partner networks and the study programs will develop their international collaborations with businesses. Last but not least, the continued education of employees in the faculties through participation in international PhD programs will be supported.

Sustainable Mobility for Everyone

TRAVEL. The start of a new generation of Erasmus+ students: the options for international exchanges have become even more sustainable, inclusive, and international.

The Faculty of Industrial Engineering's study trip this time took them to Mexico.

Even though the pandemic isn't over, many in-person events were held once again at the university during the last academic year. That meant the International Office could use its traditional International Fair in September 2021 and the ErasmusDays in mid-October to provide information about the many updates to the international mobility program face to face. With the start of the new program generation for 2021–2027, Erasmus+ has evolved considerably and become more sustainable, more inclusive, and even more international, and adapted to the digital age.

It now has individual funding, for example for environmentally friendly travel: students and employees who use low-carbon travel options for more than 50 percent of their inbound and outbound journeys will receive increased financial assistance and be able to claim more travel days.

With the new program period, people with specific requirements, socially disadvantaged groups, and people who don't have the option to take a long trip will also receive greater assistance. The newly introduced part-time mobility options (5 to 30 days) will now allow even working

FURTHER HIGHLIGHTS

At the start of November, Rector Sylvia Geyer and Vice-Rector Stefan Sauermann were joined by representatives from the Faculties of Life Science Engineering and Industrial Engineering and the International Office when they attended the first official delegation since taking office. Their journey took them to the Universidade de Tras-os-Montes in Vila Real in Portugal, with which UAS Technikum Wien has a long-standing partnership.

Since 2013, the Faculty of Industrial Engineering has organized a study trip overseas during the semester break. This year, 23 students from the International Industrial Engineering and Innovation and Technology Management Master's courses took part and traveled to Mexico to visit branches of Austrian companies, as well as local and global organizations.

After a two-year hiatus, a one-week language course for employees was held in Dublin in July. Eleven staff from the Faculties, the Teaching & Learning Center, and the Info Center made their way to Ireland to spend a week working on their English grammar, pronunciation, and presentation skills at the Centre of English Studies.

Further international highlights can be found on pages 6 to 9.

students the opportunity to complete a virtual exchange in combination with a short physical trip overseas.

The existing mobility activities were also expanded beyond the program countries to include the EU plus Liechtenstein, Norway, Iceland, North Macedonia, Serbia, and Turkey. Against this backdrop, Technikum Wien is continuing to focus on cooperation with projects in the UK and Switzerland, as well as with its partners outside Europe.

With its new program generation, Erasmus+ has also strengthened its capabilities in the virtual world. All physical forms of mobility can now also be carried out using the blended learning format. The new Blended Intensive Programs (BIPs) also offer the option of combining a virtual course with a short physical trip.

FIRST BLENDED INTENSIVE PROGRAM

The first BIP was run at UAS Technikum Wien in the 2022 summer semester. As well as a team from the Computer Science and Mechatronics/Robotics Bachelor's courses, students from Lapland UAS in Finland and Fontys UAS in the Netherlands also took part in the cross-border project. The kick-off week took place in February in Rovaniemi, Finland, and for the closing event in May, a total of 21 international students came back to Vienna to spend a week together. In the course of the program, participants worked on developing robot systems to be used in the industrial or agricultural sector. The focus was on expanding innovative learning and teaching methods and online cooperation, and on interdisciplinary and intercultural collaboration.

INTERNATIONAL WEEK 2022

International Week was also able to take place in person again in May 2022. The theme of the week was Education@Home – Opportunities and Challenges in Teaching and Research, and at the core was the evolution of universities during coronavirus. Representatives from partner institutions around the world came to UAS Technikum Wien to discuss the opportunities and challenges of this topic, exchange examples of best practice, and forge and strengthen relationships. ▮

The first new Blended International Program was run during the summer semester with Lapland UAS and Fontys UAS.

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UAS Technikum Wien has been a member of the Alliance of Sustainable Universities since December 2021.

RESOLUTELY SUSTAINABLE

COMMITMENT. Be it student projects or employee mobility—sustainability plays a key role in many areas at UAS Technikum Wien.

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69 percent of students and a third of employees responded to the survey.

MOBILITY SURVEY

In order to gain an overview of the mobility behavior of staff, external lecturers, and students, a survey was carried out in October 2021—at the time, still subject to strict COVID-19 restrictions. The survey also gathered suggestions for improvements to mobility and UAS Technikum Wien's carbon footprint. With 783 responses to the survey, almost 69 percent of students and a third of all employees were involved. Providing more parking spaces for bikes, charging stations for electric bikes, and more responsible handling of business travel were among the topics brought up. Furthermore, following the lifting of COVID-19 restrictions, a follow-up project is intended to provide even better data. One result of the survey was the introduction of the Climate and Wiener Linien Tickets for all staff last year.

SUSTAINABLY LINKED

UAS Technikum Wien joined the Alliance of Sustainable Universities at the start of December 2021. The goal of the initiative is to deal with the topic of sustainability in a holistic way and move forward in the areas of teaching, research, university management, and collaboration while taking account of the UN Sustainable Development Goals. In June 2021, the Alliance took second place at the Sustainability Awards in the category Regional Collaboration, which is awarded by the Austrian Federal Ministries for Climate Action, Environment, Energy, Mobility, Innovation, and Technology, and for Education, Science, and Research. The Alliance of Sustainable Universities can be traced back to an initiative from the FH Campus Wien and, with 13 ordinary members, constitutes more than half of all Austrian universities of applied sciences.

END OF SEMESTER AS ENVIRONMENTAL SYMPOSIUM

The presentation of student projects and keynote speakers from the fields of industry and research transformed the graduation event of the Ecotoxicology and Environmental Management Master's course into a fascinating environmental symposium. The first group of student projects focused on topics relating to environmental management. The second group centered around ecotoxicology. During the keynotes, graduate Lisa Wiesinger from the company PET Recycling presented insights into the recycling life cycle of PET bottles and Ricarda Kriechbaum presented her work as a PhD student at TU Wien, where she is investigating how waste from the food industry can be used to cultivate microalgae. Winfried Neuhaus, Principal Scientist at AIT and lecturer at UAS Technikum Wien, reported on the research into what are known as biological barriers, while Thorsten Hüffer from the University of Vienna spoke about how additives in plastics and microplastics are linked.

Martina Ortbauer, Program Director of Ecotoxicology and Environmental Management, at the graduation event.

CLIMATE TICKET FOR EVERYONE

In times of climate change and increasing energy prices, UAS Technikum Wien sent a strong message in summer 2022 on the subject of climate protection and sustainability: in future, the university will bear the cost of a Climate Ticket that's valid on public transport across Austria or an annual Wiener Linien Ticket for all employees. By doing this, the management team aims to contribute to reducing CO_2, sending a message for sustainable mobility, and providing an incentive to leave your car at home and make use of the wide range of public transport available.

UAS Technikum Wien is bearing the cost of a Climate Ticket or annual Wiener Linien Ticket for all staff.

COLLECTING WASTE, BUT THE RIGHT WAY

To optimize the waste management concept at UAS Technikum Wien, students on the Ecotoxicology and Environmental Management Master's course carried out a survey on waste awareness. The goal: to raise awareness of the topic, gather information, and derive measures to implement. Based on the 779 responses, concrete suggestions for improvements were drawn up. The plan is to evaluate the actual number of trash containers required. In future, there will also be standard receptacles with clear labeling and a description of the waste groups. Plus, containers will no longer be situated in classrooms, only in hallways.

Posters display information about how to separate waste properly at UAS Technikum Wien.

ANIMAL FRIENDLY

On the initiative of facilities management, a total of nine bird boxes were hung in the trees on the UAS Technikum Wien site in the area between the buildings in spring 2022. In winter, they provide birds, small mammals, and insects with a protective shelter, and in spring, they are used by nesting birds.

Nine bird boxes were hung in the trees around the university.

EXCEPTIONAL WORK

TAKE A BOW. A number of students received prizes for projects and theses last year.

SEPTEMBER 16

The "Kissenschalter" project by Berenice Muzquiz from the Smart Homes & Assistive Technologies Bachelor's course received the UNIKATE award from the Austrian Disability Council as one of six projects.

OCTOBER 9

In mid-October, Biomedical Engineering graduate Daniela Loisinger won the Holeczke-Young Investigator Award from the Austrian Society for Radiation Protection in Medicine for her Bachelor's thesis.

NOVEMBER 15

Valerie Högerle, Stefan Kastner, Andreas Schütz, and Dominik Ratka, students on the Healthcare and Rehabilitation Technology Master's course, took part in the EIT Health Innovation Day and were awarded first place for their concept by the jury.

NOVEMBER 23

Graduates Markus Riechl (Master's in Healthcare and Rehabilitation Technology) and Marcel Schweitzer (Master's in Renewable Energies) received the Award for Outstanding Achievements from the Federal Ministry of Education, Science, and Research.

2022

MARCH 14

Sports Technology students Maximilian Escher, Jonathan Mayer, Paul Müller, Tobias Salm, and Christopher Zainzinger took first place in the A4See project's Innovation Marketplace.

DECEMBER 20

Nikolas Fußenegger received the Vienna Funding Award for science in the area of climate protection for his Renewable Energies Master's thesis.

MAY 20

Christoph Oswald received the HL7 Student Award for his Medical Engineering & eHealth Master's thesis.

MARCH 17

Elias Kai Wallnöfer (Master's in Sports Technology) combined knowledge from IT, AI, and measuring technology for a project on the subject of ballet and won the ISEA student competition.

ALUMNI PROFILES

PERSPECTIVES.
After graduation, all doors on the job market are open to our highly qualified graduates. We regularly present selected alumni in video profiles. A few of them are shown here.

ALWAYS INNOVATIVE

Barbara Hotwagner completed two study programs at Technikum Wien: first a Bachelor's in Electrical Information Services (now called Computer Science), then a Master's in IT Security. Today, she is Managing Director Technology at Zühlke Österreich. The company describes itself as an innovation service provider and supports clients in implementing software and hardware development projects or those in the field of consultancy. "The combination of learning the theory and then being able to put it into practice right aways was the right path for me," she says about her time at UAS Technikum Wien.

TECHNOLOGY FOR OUTER SPACE

Nicolas Haas studied electronics at UAS Technikum Wien and now works at technology company TTTech. Following a job in the automotive department, he is now a project manager and technical lead in the space department and therefore responsible for coordinating with clients and internal departments such as software and hardware development, procurement, and sales. Haas: "I learn something new every day, that's what makes the job so interesting."

BENEFICIAL ADVICE

Karl Spitzer completed a Bachelor's in Electronic Engineering and Business, and today runs his own company. The consultancy company, Karl Spitzer Consulting, specializes in the sale of companies and succession planning, as well as acquisition processes in the electronics industry, automation technology, and the lighting sector. Spitzer: "I find electronics fascinating because it's constantly evolving, it never stands still, and can be applied almost everywhere."

ON THE WAY UP

Karin Fleury is a Technikum Wien Academy graduate and now works at Siemens AG Österreich in Vienna for the digital industries division. As commercial head, she is responsible for the industry logistics department, which plans and installs fully automated high-bay storage across the globe. Fleury: "My remit is very varied, so there's no such thing as a typical day at work. My job involves contract negotiations, submitting offers, construction site visits around the world, international project controlling, coordinating international teams, and, of course, personnel management."

All episodes can be found on the UAS Technikum Wien YouTube channel.

CONTINUING EDUCATION WITH SUBSTANCE

TECHNIKUM WIEN ACADEMY

PORTFOLIO. Technikum Wien Academy is the continuing education and digitalization academy of UAS Technikum Wien. It offers seminars, certificates, academic study programs, postgraduate Master's courses, pre-college programs for international students, and bespoke in-house training for businesses.

In June, Technikum Wien Academy hosted an open house.

A MAJOR INFO EVENT

Due to the COVID-19 pandemic, there was a long break from in-person events. On June 2, 2022, Technikum Wien Academy hosted its first major info event and opened its doors to all interested parties, graduates, and students. A great number of visitors took the opportunity to get advice from the Degree Course Directors and trainers in a relaxed setting. With chilled drinks, snacks, and summer temperatures, the guests enjoyed a convivial evening.

View the highlights video here.

During the new UX Psychology practical seminar, basic knowledge from associated areas of psychology was communicated.

START OF THE UX PSYCHOLOGY SEMINAR

Technical systems are a central component of our professional and personal lives. And there's no doubt that people as the users are a critical factor in the successful application of a system. Time and again, human behavior is described as hard to predict, irrational, and even unexpected. During the new UX Psychology practical seminar, basic knowledge from associated areas of psychology is communicated, enabling a better understanding of human behavior. In this way, it's possible to ensure that important aspects from psychology are taken into account in the development of systems.

SUCCESSFUL DEBUT FOR WAFF COLLABORATION

Waff (Vienna Employment Promotion Fund) has been partnering with Technikum Wien Academy since the 2020/21 academic year on the new junior software developer education model. The first graduates from the educational program celebrated in April 2022. 81 percent of participants completed the course successfully, and 90 percent of the graduates have already been taken on by companies. Based on this huge success, the study program was offered again in fall 2022 with double the number of participants compared to the previous year.

Info video about the new education model.

NEW HEALTH TECH MANAGEMENT MBA

The reality is that there's no shortage of ideas for innovative medical products, it's the knowledge to bring them to fruition according to legal requirements that's in short supply. The new Health Tech Management Master's course conveys the fundamentals for anyone who wants to develop successful medical products among global competition using innovative and legally compliant strategies. "For future health tech managers, the combination of academic and user-specific content is critical to success—it's this added value that arises as a result of the unique collaboration between the leading technical university and consultancy firm en.co.tec, which specializes in the development, approval, and quality management of medical products and in-vitro diagnostics," explains Matthias Scherer, Degree Course Director of the Health Tech Management MBA course.

Matthias Scherer runs the new Health Tech Management MBA course.

FIRST PLACE FOR IT SEMINAR OPTIONS

Technikum Wien Academy leads the rankings for the best training offering in the IT field. In an industry study carried out on behalf of the industry magazine, 300 HR decision-makers and 300 people enrolled in training courses were questioned about their experience of the quality of content, speakers, and knowledge transfer. Technikum Wien Academy achieved the best image of all institutes questioned in the overall rankings with a score of 1.77.

The first graduates completed the new educational program in April 2022.

Intersection Between University and Practice

DEVELOPMENT. The Entrepreneurship Initiative brings together expertise from the university's departments with practical know-how from the network of companies, and uses it to drive forward innovation in terms of content at the university.

Left to right: Gabriele Költringer (UASTW), Christian Fleckl (Drei, Alumni), Rafael Rasinger (UASTW), Marion Vöhr (msgPlaut, advisor), Angelika Kapeller (A1, advisor), Katrin Riemann (OttoBock, advisor), Florian Eckkrammer (UASTW).

The Entrepreneurship in Technology program brings together many activities at the intersection between start-up culture, entrepreneurship, and innovation at UAS Technikum Wien. The concept behind it is to blend the expertise gained from teaching and research with new ideas from business practice, thereby expanding the network and at the same time driving forward the development of content at our university.

As part of the Entrepreneurship Initiative, Technikum Wien therefore works closely with partner companies and start-ups and supports students, graduates, and company founders near the university with spaces, mentoring, events, and contact with investor networks and funding agencies. "We don't just collaborate with existing companies. If, for example, someone is looking for feedback on a business idea or wants to start their own company, we and our mentors are available to provide advice," says Rafael Rasinger, Head of the Scale-ups, Innovation, and Networks team.

THT BIOMATERIALS: NEW START-UP PARTNER

The company THT Biomaterials was welcomed to the corporate partner program as the most recent newcomer in April by Rasinger and the Life Science Engineering and Electronic Engineering Departments. Founder Johannes Hackethal and his team work on developing new biomaterials. The idea for this arose because problems are

often encountered in cell research when using animal-based biomaterials. These problems might be solved by the use of products derived from human placenta. UAS Technikum Wien is supporting the project by providing spaces for the automated processing and bottling of the developed products. Students from UAS Technikum Wien are also helping with the automation and in other areas of the start-up as part of their theses.

Elsewhere, another corporate partner has taken the next step on the development ladder: Biome Diagnostics, which has developed gut microbiome test kits, was based at UAS Technikum Wien from 2019 and has now taken the next step to scale up. In mid-2022, the company had experienced such growth that it moved into new premises in the Rivergate offices.

In collaboration with the faculties, the entrepreneurship team holds Start Me Up Mondays.

EVENTS RAISE AWARENESS

The activities of the Innovation and Entrepreneurship team were made clear for external parties to see during a whole series of specialist events over the past year. It kicked off with the "bahnbrechend" (groundbreaking) event at the end of September 2021, during which a top-level panel consisting solely of women discussed digital innovations in the mobility industry. Rector Sylvia Geyer, Patricia Neumann (Managing Director of IBM), Alexandra Reinagl (Managing Director of Wiener Linien), and Sandra Gott-Karlbauer (Managing Director of ÖBB Train Tech) used this platform to expand on topics such as big data, predictive maintenance, and artificial intelligence.

At the "bahnbrechend" (groundbreaking) event, Rector Sylvia Geyer talked with Managing Directors Alexandra Reinagl (Wiener Linien), Patricia Neumann (IBM), and Sandra Gott-Karlbauer (ÖBB Train Tech).

In collaboration with the faculties at the university, Start Me Up Mondays have also been launched, at which experts from UAS Technikum Wien and representatives from major companies and start-ups give talks on various current key subjects. Topics from the past academic year included quantum technology, the metaverse, IT and transaction security, Health Tech Start-ups—Between Innovation and Regulations, and Reshoring Electronics to Europe.

STAYING CONNECTED: ALUMNI CROWD

To involve students in the activities at the university even after they've graduated, UAS Technikum Wien runs the Alumni Crowd network. Graduates on the alumni advisory board work on new initiatives, formats, and platforms for the Alumni Crowd, UAS Technikum Wien, and Technikum Wien Academy. Current members of the advisory board include Marion Vöhr (msgPlaut), Angelika Kapeller (A1), Daniel Horak (Conda), Manuel Geyer (ÖBB), Hanno Lipitsch (eversports), Christian Fuchs (Wüstenrot Technology), and Katrin Riemann (OttoBock). The advisory board regularly discusses topics for the future with the university management team. ▮

FROM RENEWABLE ENERGIES TO ROBOTICS

HIGHLIGHTS. The Faculty of Industrial Engineering encompasses a wide range of subject areas related to automation and robotics, sustainable renewable energy technologies, and mechanical engineering and materials technology. We've presented a selection of projects and events here.

© UMWELTPREIS; ZOOM VP

As part of PEQ21, Austria's first plus energy neighborhood is emerging in the Florisdorf district of Vienna.

Alexander Erber and Stefan Savic laid the foundations for the project with their Bachelor's theses.

A PARKING LOT AS A SOLAR POWER PLANT

In Teesdorf in Lower Austria, April 2022 saw the country's first solar parking lot go into operation. 780 photovoltaic panels for generating electricity have been laid in the 95 m² parking lot. The system is expected to reach an output of around 16.6 kWp, and in doing so will generate enough electricity to supply three households for a year. The starting point for the project was the theses by students Alexander Erber and Stefan Savic on the Renewable Energies Bachelor's course, who discussed the technical and economic feasibility of this kind of concept in Austria. The installation of the solar parking lot was funded by a grant from the Climate and Energy Fund as part of the Trial and Flagship Projects—Photovoltaics program.

ÖGUT ENVIRONMENTAL AWARD

The Austrian Society for Environment and Technology (ÖGUT) presents its Environmental Award to technical and social innovations that reduce energy and resource consumption and contribute to social sustainability. The award was given for the 35th time during their annual reception in March 2022. A jury of independent experts chose the winners in six categories out of almost 90 entries. The PEQ21 project was recognized in the Innovation and City category with the project consortium Zukunftsquartier 2.0, which the university's Climate Fit Technologies Competence Center is also part of. Within the scope of the PEQ21 project, Austria's first plus energy neighborhood is emerging. It is being built at Pilzgasse 33 in Vienna's 21st district.

GETTING STARTED IN MOBILE ROBOTICS

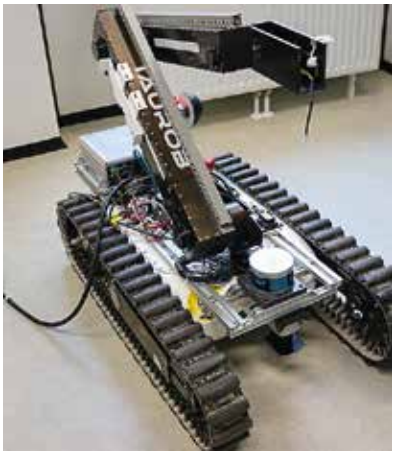
Mobile robotics systems are appearing more and more frequently in modern production plants. For small- and medium-sized enterprises (SMEs) in particular, they offer interesting possible applications. A team from UAS Technikum Wien drafted a white paper with TÜV AUSTRIA that is intended to make it easier to get an initial understanding of the subject. The guidelines provide an overview of the current standards and legal requirements, and explain the critical steps for the safe deployment of mobile robots in production processes: from design to embedding them in existing operations. The white paper came out of the Smart Manufacturing, Automation & Robotics Competence Center at the university as part of the Safety in Intelligent Production Environments (SIP 4.0) research project, which was funded by Vienna's Municipal Department 23.

The guidelines provide assistance with the safe implementation of mobile robots in the production process.

Launch of the ProLight project: 16 international partner institutions are involved.

FEARLESS ROBOTIC AIDS

As part of the UGV-ABC project, the Industrial Engineering and Electronic Engineering Departments are addressing the use of sensors in various spectra and of robots in order to explore potentially hazardous areas. The research team is developing a mobile manipulator that is intended to sweep unknown surroundings and collect samples of hazardous substances. The project is run by company Taurob on behalf of the Austrian Armed Forces.



Mobile robots for the exploration of potentially hazardous areas.

CLIMATE-FIT BUILDING

The ProLight research project analyzes the potential of renewable energy sources in existing buildings and energy communities in six European districts. The four-year project is run by the Climate Fit Building Technologies Competence Center and has a budget of €2.88 million (of which €2.6 million comes from funding). 16 international partner institutions are involved.

SMART FACTORY

Setting up a manufacturing plant is demanding and can sometimes become a problem when it comes to the interaction between people and robots, where a high degree of flexibility is required. Because in practice, it is often not possible to implement every single change to a process in accordance with standards. During the SAMY project, a new approach is being developed whereby machines and sensors are described according to their "skills." These skills will be useful for a smart factory when the device is activated. The advantage for users is that production will no longer be programmed—instead, you'll describe what needs to be made and use the skills of the system to carry it out. In that way, the production plant can create production processes independently, integrate sensors, and control machines.

A Quantum Leap into the Future

TECHNOLOGY. How can we shape the training of future specialists in the field of quantum technology? Numerous activities at UAS Technikum Wien in the past academic year have been focused on this issue.

The Nobel Prize in Physics 2022 was awarded for groundbreaking experiments with the entanglement and teleportation of quantum states. Quantum cryptography and quantum computing are based on these principles. These quantum technologies are now making a decisive leap forward: from fundamental research to market readiness.

Quantum information is one of the key technologies of the 21st century, meaning the application-based training of engineers is facing new challenges. Already, the expected demand in this area far exceeds training capacity. UAS Technikum Wien is therefore already focusing closely on developing skills for this technology segment and initiated numerous specialized activities in the past academic year.

PANEL DISCUSSIONS, INTERVIEWS, AND THE FIRST SUMMER SCHOOL

It all kicked off with the Start Me Up Breakfast at the end of September 2021. A panel discussion with high-level representatives from science and industry addressed the latest developments in the area of quantum technology and discussed the issue of how the training of future specialists in this sector can be shaped.

In spring, the Technikum Podcast provided further insights into the topic during a short series of interviews with experts from the Faculty of Computer Science & Applied Mathematics. A faculty team was also involved in the context of the International Day of Light on the Photonics Austria platform and at CARLA Camp in Graz, with talks and live experiments.

In August 2022, the first Quantum Technology Summer School finally took place. Over the course of a week, more than 50 students worked with experts from research and industry to address various aspects of quantum technologies and were able to get involved in hands-on technical projects.

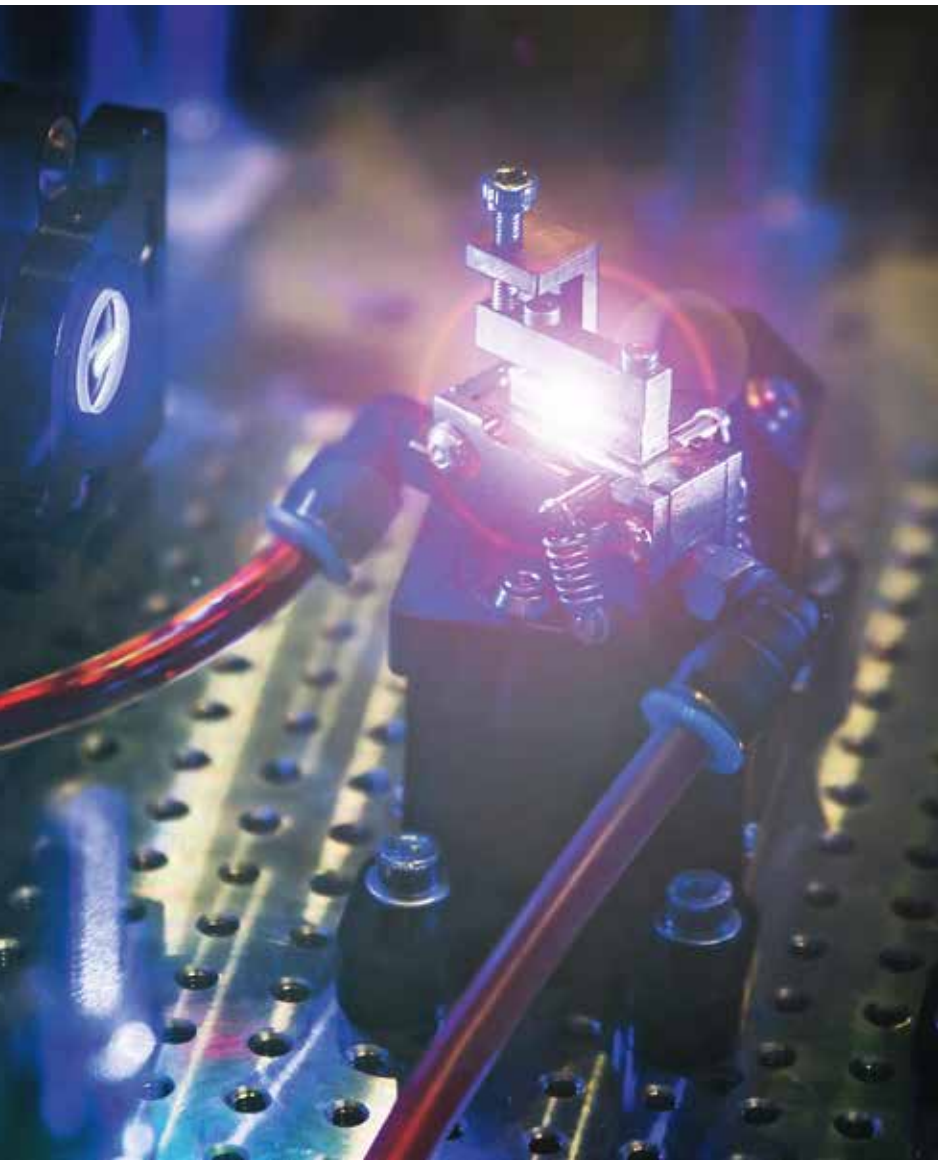
QUANTUM COMPUTING BECOMES PART OF THE COMPUTER SCIENCE COURSE

This subject is far from being fully explored. The Computer Science Bachelor's course has had a separate lecture focusing

FIND OUT MORE ON THE TOPIC (IN GERMAN): TECHNIKUM-WIEN.AT/QUANTEN

As part of his Master's project, Lukas Bildstein programmed a web-based game in which players simulate the exchange or interception of quantum keys.

The QR code will take you straight to the game.



Quantum technologies are making a huge leap from fundamental research to market readiness.

on quantum computing since the 2022/23 academic year. Because of this, students will be able to get an insight into the information theory basics of quantum computing and quantum communication as part of a teaching module for the first time. Starting in the summer semester, this greater depth will give students on the Computer Science Bachelor's course the option to specialize in quantum information. The topic of quantum computing has also been picked up in the Software Engineering Master's course in the form of a lecture, which has been a successful option for several years.

CONSISTENTLY DOCUMENTED

The Linked Care FFG-funded research project has developed a digital documentation system for mobile care and support. The plan is to populate the portal with all of the relevant information about support and care processes and to make it available to all people involved. The project is run from the FH Campus Wien, and the job of UAS Technikum Wien is to supervise and create documentation based on the HL7 CDA standard for the intersectoral exchange of information. The research team has also held five interoperability workshops so far. What's more, it has also developed a proposal for an IT-supported intersectoral work process for the procurement of medications after a patient has been released from a care organization, which is now being implemented by a software company.

VIRTUAL REALITY OPERATIONS

During the FFG-funded CAD2VR project, a team from the Software Engineering & DevOps and Medical Engineering & Integrated Healthcare Competence Centers developed an automatism for the GSM company in order to create a virtual reality application from CAD files that can be experienced. Among other things, this will make it possible in expert medical planning to create a VR depiction of a room and the devices available in it in just a few seconds—for example of an operating room in a hospital, including medical devices. This will allow the rooms to be adapted more easily before they're actually built and tested by specialist staff in a cost-effective way.

The VR depiction facilitates the planning of spaces such as this operating room.

MatureTissue is the first PhD program from UAS Technikum Wien and TU Wien in the field of tissue engineering.

STUDYING AND RESEARCHING AT PHD LEVEL

COLLABORATION. As part of the FWF-funded MatureTissue PhD program, research teams from UAS Technikum Wien and TU Wien are developing new therapeutic approaches to musculoskeletal disorders.

The first UAS Technikum Wien and TU Wien cooperative PhD program has been running since June 2022 in the field of tissue engineering. As part of the MatureTissue project, research teams from the two universities want to explore the causes of musculoskeletal disorders in more depth and develop new therapeutic approaches. This has been made possible by the Austrian Science Fund (FWF), which has supported five similar programs in Austria with around €1 million each via the doc.funds.connect funding measure.

"The fact that we have received this excellence funding from FWF is a special honor for our own research activities and important to the entire tissue engineering field in Austria," says Andreas Teuschl-Woller. He coordinates the PhD program and runs the Master's in Tissue Engineering and Regenerative Medicine at the university, as well as the tissue engineering and molecular life science technologies research focus.

COLLABORATION WITH TU WIEN AND INTERNATIONAL ORGANIZATIONS

The five doctoral students were selected from a pool of international applicants. Experts from Technikum Wien and TU Wien, plus external scientists, mentor participants, who can also make trips to partner universities overseas in the course of the program. The project was developed by Andreas Teuschl-Woller alongside co-coordinator Martina Marchetti-Deschmann from the Institute of Chemical Technologies and Analytics and Philipp J. Thurner from the Institute for Lightweight Design and Structural Biomechanics at TU Wien. The TU Wien Institutes of Applied Synthetic Chemistry and of Materials Science and Technology are also involved. Furthermore, the Austrian Cluster for Tissue Regeneration and the international tissue engineering organization TERMIS support the project and are involved in how it's run.

UAS Technikum Wien has regularly collaborated with TU Wien in the field of tissue engineering. This PhD program now sees the partnership strengthening further. It also allows the university to structurally anchor research and teaching in this segment at PhD level. ▮

For his Master's project, Dominik Schneeberger developed a body-driven prosthesis for dogs.

HIGH-TECH PAWS FOR DOGS

The Healthcare and Rehabilitation Technology Master's course focuses predominantly on people. However, in his Master's project, student Dominik Schneeberger pursued a very practical application for an animal: in partnership with the University of Veterinary Medicine and orthopedics company Kerkoc, he applied a complex process to develop a prototype for a body-driven prosthesis for dogs. The high-tech paw should enable animals that still have an intact elbow joint to achieve natural movement and posture.

For the second time, the practical sports measurement week took place in collaboration with the Center of Sports Activities (CESA) in Brno.

SPORTS TECHNOLOGY AT THE MEASUREMENT WEEK IN BRNO

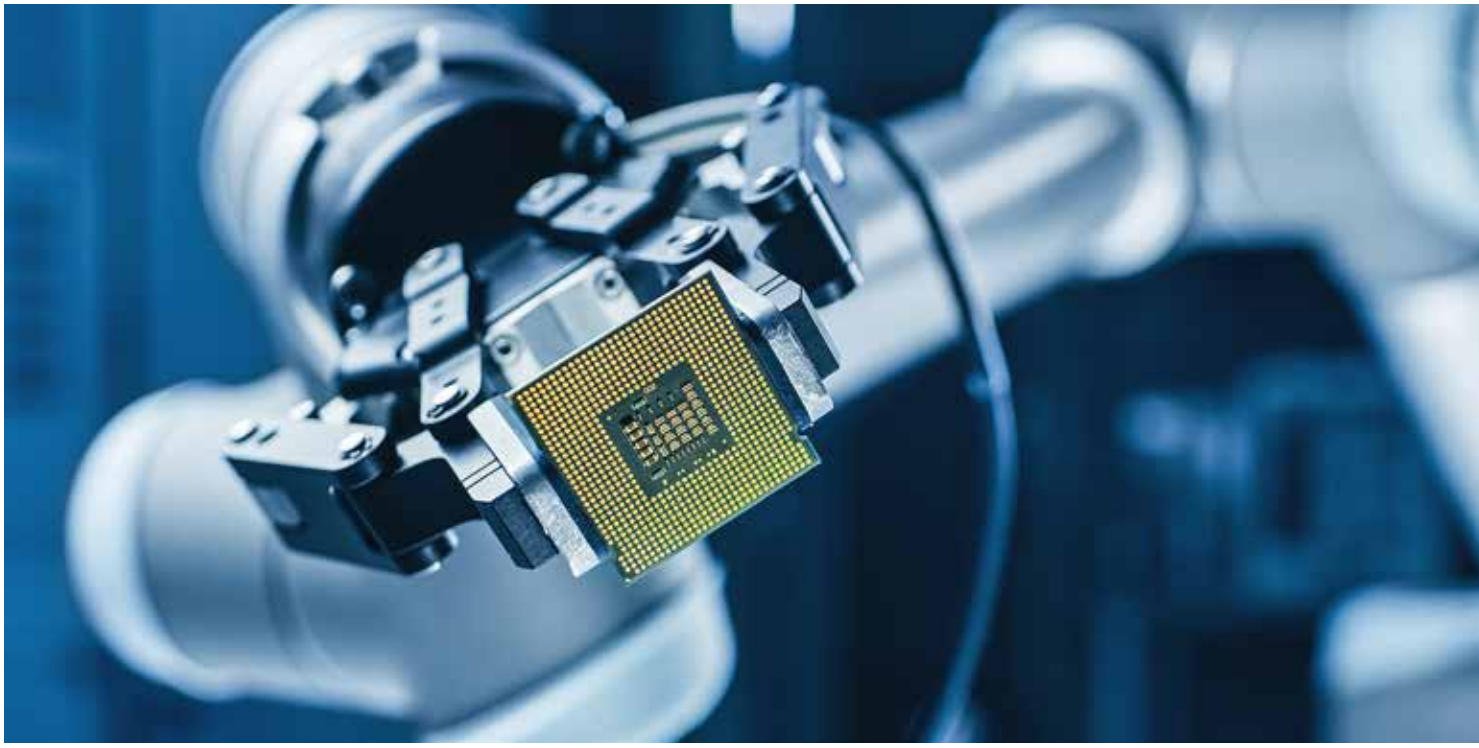
Great value is always placed on practical relevance in the student projects and theses for the Human Factors & Sports Engineering Bachelor's course and the Sports Technology Master's course— and for the practical sports measurement week at the end of June 2022. For the students in the second semester of the Sports Technology Master's course, extensive testing was the order of the day. The measurement week took place for the second time in collaboration with the Center of Sports Activities (CESA) at the Brno University of Technology. Over the course of a week, the students from UAS Technikum Wien made use of the grounds of the Czech university as an outdoor laboratory for their measurements.

Head of Competence Center Mathias Forjan was a sought-after ORF interviewee on topics including mandatory masks.

THE FACULTY MAKES SEVERAL TV APPEARANCES

The Faculty of Life Science Engineering was able to enjoy regular appearances on public TV over the past academic year. During the ORF TV programs *Mayrs Magazin* and *konkret*, there were features on the topic of mandatory masks, about exoskeletons, the Health & Care Data Center, and the lung simulator in use at UAS Technikum Wien. Mathias Forjan and Matthias Scherer gave talks and responded to questions as experts in the field and gave interviews on their respective specialist subject areas.

SCARCITY OF MICROCHIPS



Extremely sensitive clean rooms are necessary for the manufacture of microchips, making production facilities hugely expensive and complicated.

ELECTRONICS. In many industries, there are long waiting times because of the lack of computer components. Is the pandemic the only thing to blame? Peter Rössler from the Electronic Engineering Department explains the reasons behind it.

Anyone that is currently looking to purchase a car, a household appliance, or consumer electronics will need a lot of patience. Numerous industries worldwide have been affected by a lack of microchips for some time. Consumers are experiencing the problem in the form of unusually long delivery times. The background to this is multifaceted and not just associated with the increased demand for computer components during the COVID-19 pandemic.

"In the automotive industry, electronics have been driving innovation for decades, not mechanical engineering," explains Peter Rössler, Director of the Electronics and Business Bachelor's course, about why this sector in particular is so heavily dependent on the availability of microchips. "And you have to remember that chips are all around us these days." Be it a computer or a smartphone, an aircraft or an electric bike charging device, a TV, a games console, or a washing machine—many areas of industry and everyday products wouldn't function without electronic components.

In addition to booming chip demand in the consumer goods sector, the expansion of the 5G cell phone network also requires additional chip capacity, explains Rössler, who also leads the Embedded Systems & Cyber-Physical Systems research focus. The growing trade rivalry between the US and China is also a factor here. "It is alleged that Chinese firms bought up huge stocks of chips at the start of the pandemic and filled their warehouses," says Rössler. "The drive for digitalization—stimulated by remote working and home schooling—triggered high demand for electronic devices like laptops and monitors." Yet while certain industries were booming, automotive manufacturers had to initially drastically slow down production and cancel chip orders. "But when they started up production again,

they suddenly found themselves at the back of the queue," says Rössler.

COMPLEX AND EXPENSIVE MANUFACTURING

The problem with high demand is that the production of microchips isn't that easy to wind up from one day to the next. Extremely sensitive clean rooms are necessary for the manufacture of microchips, making production facilities hugely expensive and complicated. Establishing a semiconductor plant, for instance, can cost several billion euros. According to media reports, Austrian manufacturer Infineon invested approximately €1.6 billion in its new plant in Villach.

On a global level, production facilities in the semiconductor industry have been relocated to Asia more and more frequently in recent decades. At the same time, the industry has narrowed its area of specialization: companies like Infineon manufacture predominantly for the automotive industry and the area of power electronics. Yet other processes are also necessary for use in laptops and smartphones, which in turn are often manufactured in Asia, expands Rössler.

WAIT LONGER?

Efforts are currently underway, with initiatives like the European Chips Act, to counteract this by creating additional production capacity, though for the reasons mentioned it's not that easy to action, at least in the short term. As a result of the weak economic situation (keyword Ukraine war), it is certainly clear that there has already been a decline in demand. And in the case of particular types of microchips, manufacturers have been able to stock up again over the last few months. In other sectors, such as the automotive industry, components are still scarce commodities. New adversities have certainly been making themselves known during the recent ramp up in the conflict between China and Taiwan. The island state of Taiwan is one of the world's biggest chip producers and any escalation threatens the global economy with another chip crisis, according to experts.

NEW IOT WEATHER STATION

Since the spring, UAS Technikum Wien has had an IoT weather station. The installation of the state-of-the-art measuring system was facilitated by a partnership with measurement technology provider OTT HydroMet. The new IoT weather station doesn't just capture current weather data itself, it is also linked with other weather stations in Austria. This means students have access to real-life data for the purpose of modeling and analysis.

The IoT weather station went into operation in May 2021.

EVENT SERIES ON THE INTERNET OF THINGS

On May 12, 2022, the starting pistol was fired for the new event series organized by the Faculty of Electronic Engineering & Entrepreneurship, Meet the Future of IoT, which will take place twice a year moving forward. To kick things off, Head of Faculty Michael Windisch, Electronic Engineering Head of Department Wilfried Kubinger, and MIoT Program Director Thomas Polzer defined the starting position, while Stefan Seifried from Schrack Seconet and Andreas Oyrer from CDE GmbH gave specialist presentations. The concluding panel discussion took a look ahead under the title "What will the future of IoT look like?".

The events in the Meet the Future of IoT series take place twice a year.

News Flash

Via a web-based, interactive training video, various treatment pathways can be practiced.

As part of the RE-OPEN project, technical solutions and teaching models for remote teaching in the field of renewable energies are being developed.

NEW SOLUTIONS FOR REMOTE LAB PRACTICALS

As part of the RE-OPEN (REmote labOratories Practical Experiments on renewable energies at EU universities) project, five EU universities are developing technical solutions and teaching models for remote teaching in the field of renewable energies. The Renewable Urban Energy Systems research focus is also involved. The aim of the project is to support the digital transformation at higher education institutions and enable students to easily access laboratories in the field of renewable energies by combining traditional teaching methods and online elements.

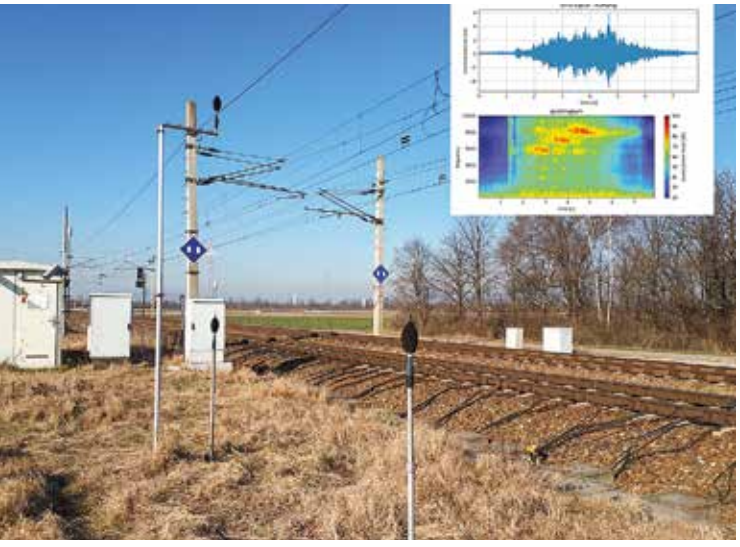
INNOVATION LABORATORY FOR SUSTAINABLE BUILDING RENOVATION

Existing buildings need to be sustainably renovated so that we can achieve our climate goals. To drive forward development in this area, a total of 17 Austrian institutions and organizations have joined forces to found the RENOWAVE.AT innovation laboratory. UAS Technikum Wien is one of the founding members of the network, which is organized as a cooperative. It acts as a central point of contact for the collaboration of all stakeholders in innovative renovation projects. The plan is to ensure systematic access to new, scalable renovation concepts and sustainable renovation technologies in the context of construction and development projects. The project is funded by the Federal Ministry for Climate Action and rolled out by FFG, AWS, and ÖGUT.

Sustainably renovating existing buildings is a crucial factor in achieving the climate goals.

NEW TRAINING CONCEPTS FOR MEDICAL PROFESSIONS

Well-trained staff play a central role in the health care system. As part of the PrepaCare (XR) project, funded by Erasmus+, a team from the Medical Engineering & Integrated Healthcare Competence Center is working with four international partner universities to develop new teaching and training concepts based on simulations. This involves applying the latest methods of knowledge transfer, whereby content is prepared in e-learning courses and complemented with examples of best practice. For the simulation of especially critical scenarios, interactive videos and VR technology are used, among other things.



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AI can automatically match the acoustic effects of the axles of a train when it passes through a measuring station.

LESS TRAIN NOISE THANKS TO AI

UAS Technikum Wien and company psiacoustic are developing a system that uses acoustic measurement signals to automatically identify wagons with high noise emissions as part of the FFG-funded ADSiM (Automatic Detection of Disturbances in Railway Noise Monitoring Using AI) research project. An artificial intelligence is also being developed that fully automatically assigns acoustic effects to specific train axles when they pass a measuring station. Noisy wagons can therefore be immediately identified and replaced. It also allows for the ongoing AI-based evaluation of measurement signals to enable predictive maintenance of the measuring stations themselves.

MAKING AI ACCESSIBLE FOR SMES

The goal of the Municipal Department 23 project Applying and Understanding AI (AIAV) is to make AI with a focus on production and industry accessible to SMEs and to facilitate access to the technology. A team of AI and robotics experts from the university has also developed an online platform to act as a knowledge hub on the topic. The website conveys clearly structured basic knowledge, provides answers to specific questions, has a database of methods, and draws on use cases to show concrete examples of how companies are already using AI.

The AIAV project is intended to make it easier for SMEs to use AI with a focus on production and industry.

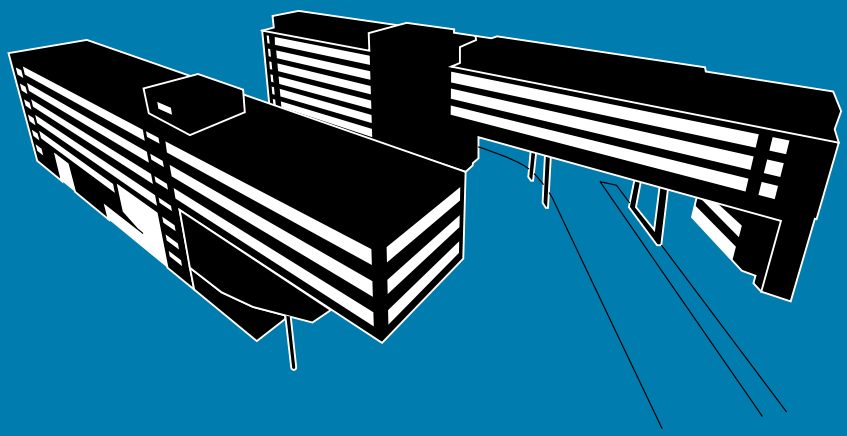
WIND POWER FROM 140 METERS UP

Since fall 2022, ASFINAG has been generating sustainable electricity using eight small wind turbines on the pillars of the Europa Bridge in Tyrol. The small wind turbines at 140 meters above the ground will ensure the toll station in Patsch is supplied with energy in future. The advantage of the concept is that no masts need to be built to install the wind turbines because they can be attached to existing infrastructure. UAS Technikum Wien was indirectly involved in the project and tested the small wind turbines at the energy research park in Lichtenegg in advance in terms of performance, noise emissions, and vibration.

UAS Technikum Wien tested the small wind turbines in advance at the energy research park in Lichtenegg.

The 2021/22 Academic Year in Figures

STATISTICS. How many people studied and worked at UAS Technikum Wien during the last year? Where did they come from? How many of them were women? On the following pages, we have presented facts and figures from various units to provide a quantitative overview of how the university is evolving.

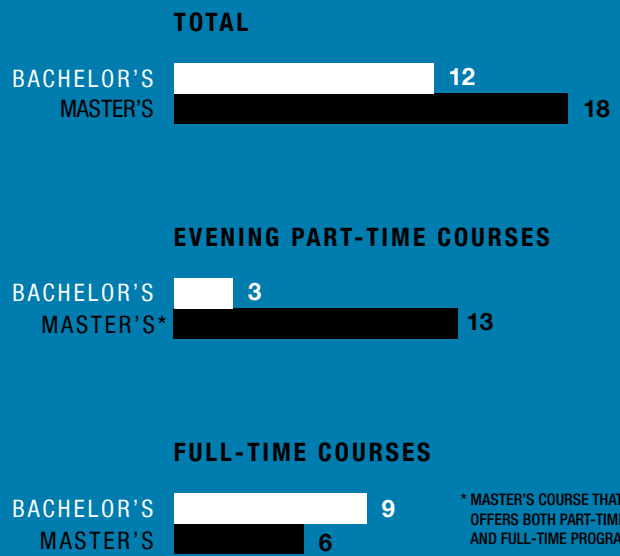


NUMBER OF APPLICANTS

2,104
NUMBER OF PLACES OFFERED

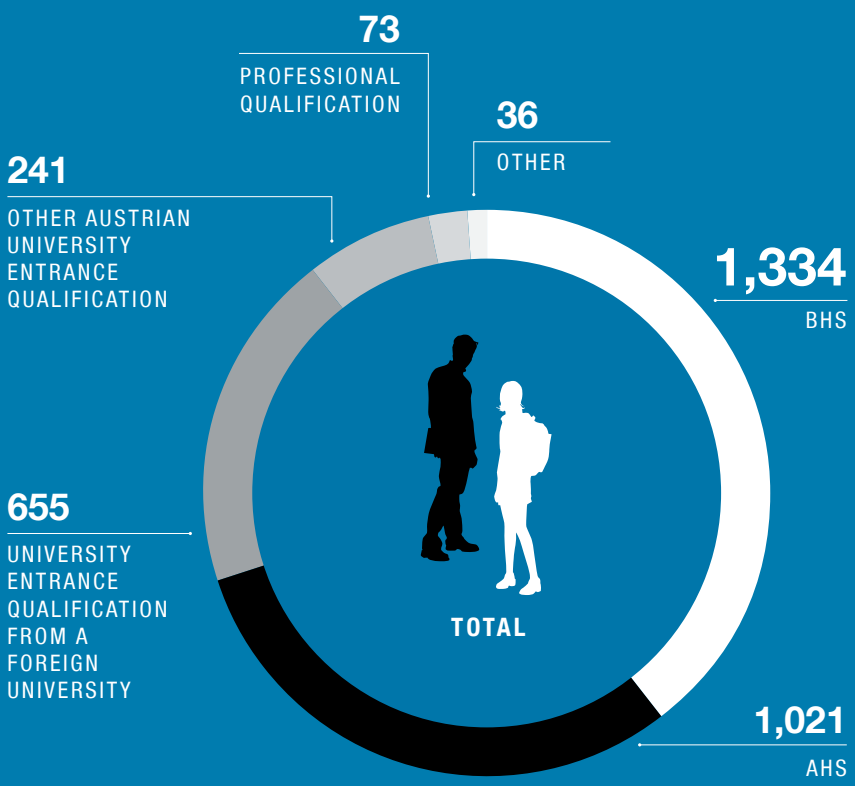
42%
APPLICANTS ACCEPTED

NUMBER OF COURSES

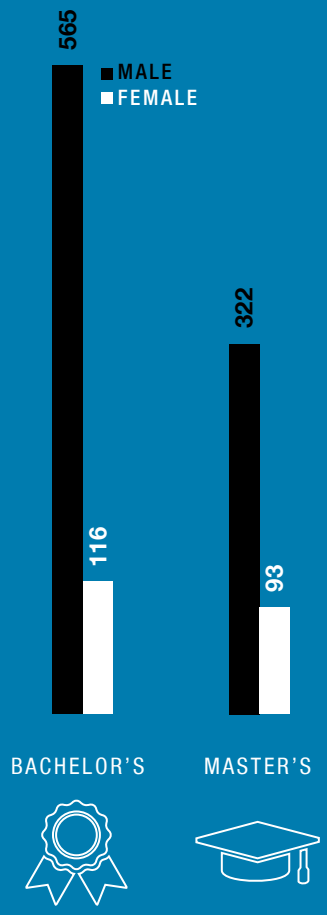


* MASTER'S COURSE THAT OFFERS BOTH PART-TIME AND FULL-TIME PROGRAMS

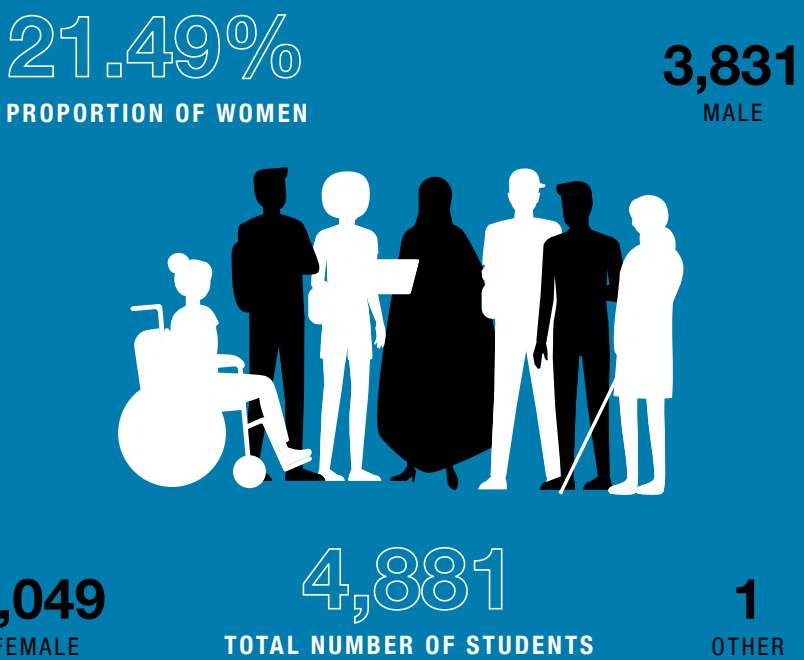
BACHELOR STUDENTS BY SCHOOL TYPE



NUMBER OF GRADUATES

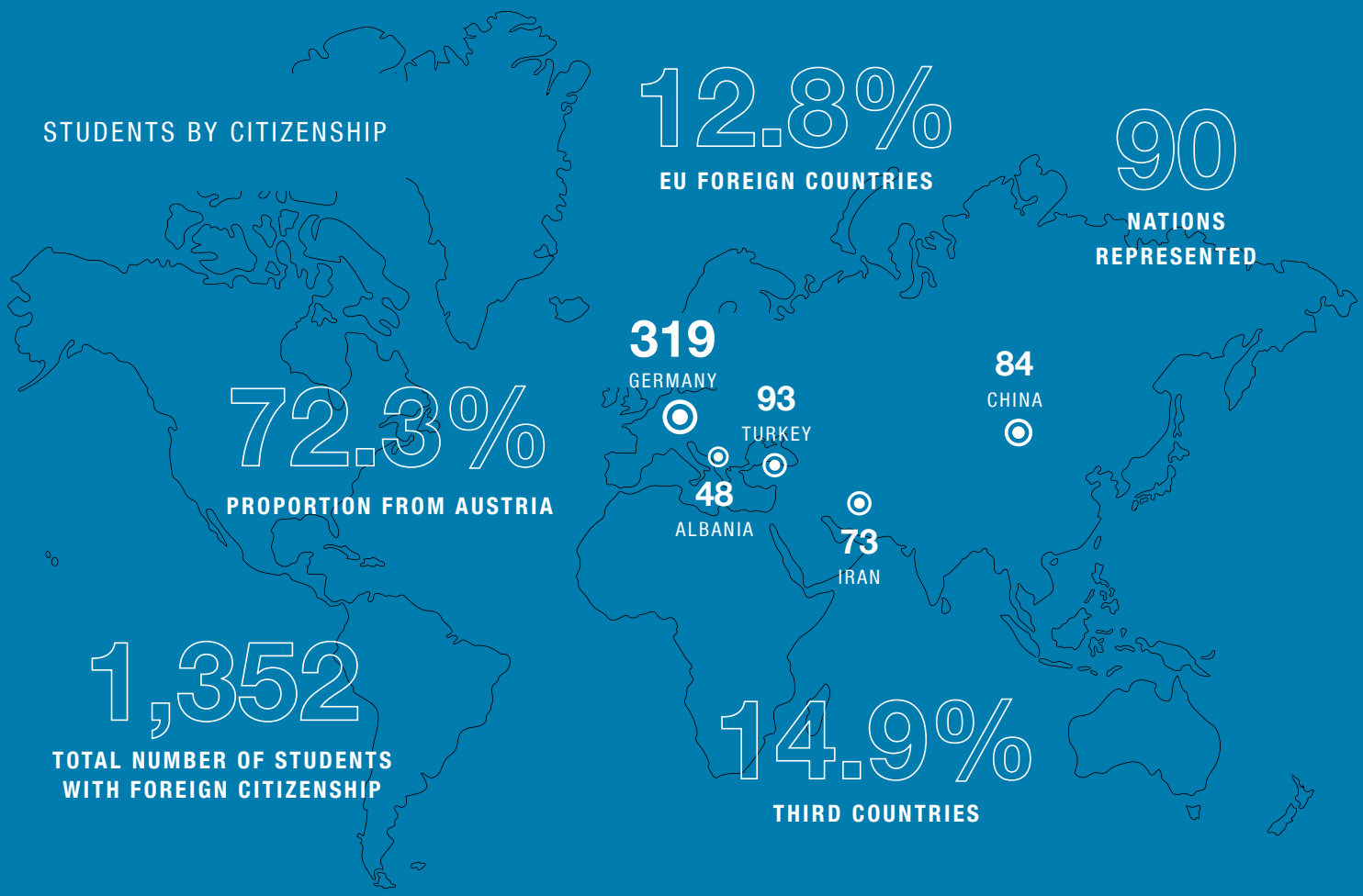


NUMBER OF STUDENTS



DEVELOPMENT IN TOTAL

STUDENTS BY CITIZENSHIP



80

PARTNER UNIVERSITIES

88,495

COURSE HOURS OFFERED

STUDENT MOBILITY

STAFF MEMBER MOBILITY

PERSONNEL

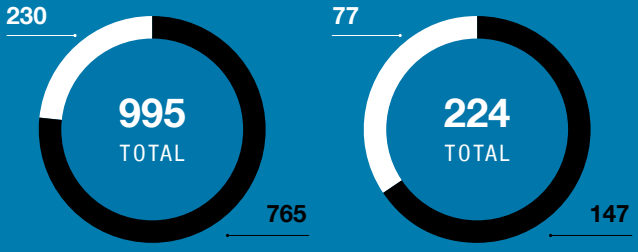
1,219
TOTAL EMPLOYEES

842
MALE

377
FEMALE

400
FULL-TIME EQUIVALENT
RELATED TO PERMANENT EMPLOYEES

■ MEN ■ WOMEN

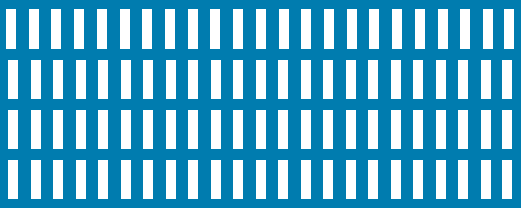


TEACHING AND RESEARCH*

ADMINISTRATION AND MANAGEMENT

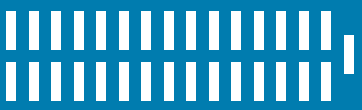
* INCLUDING 681 EXTERNAL LECTURERS

RESEARCH & DEVELOPMENT



92
ONGOING OR COMPLETED R&D PROJECTS

€5,108,130
FUNDED PROJECTS VOLUME
UAS TECHNIKUM WIEN SHARE

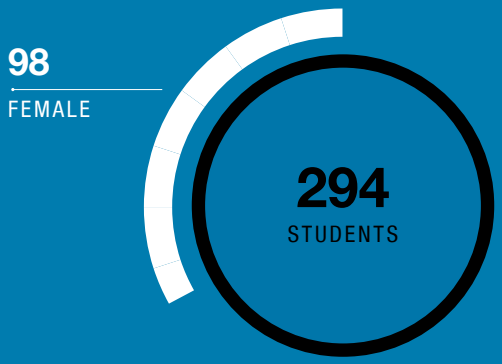


31
RESEARCH PROJECTS 21/22

€588,318.54
PROJECT VOLUME

CONTINUING EDUCATION—TECHNIKUM WIEN ACADEMY

7 MASTER'S COURSES, 3 SHORT COURSES



33.33%
PROPORTION OF WOMEN

SEMINARS AND CERTIFICATIONS

36.64%
PROPORTION OF WOMEN

COMPANY FAIR

67
PARTICIPATING COMPANIES

1,000
DISCUSSIONS WITH 500 STUDENTS OVER 2 DAYS

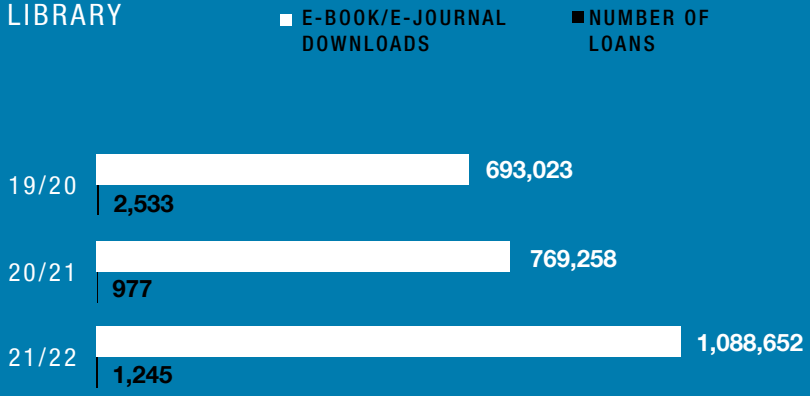
CORPORATE PARTNERS

AS AT END OF AUGUST 2022

CAREERS LOUNGE

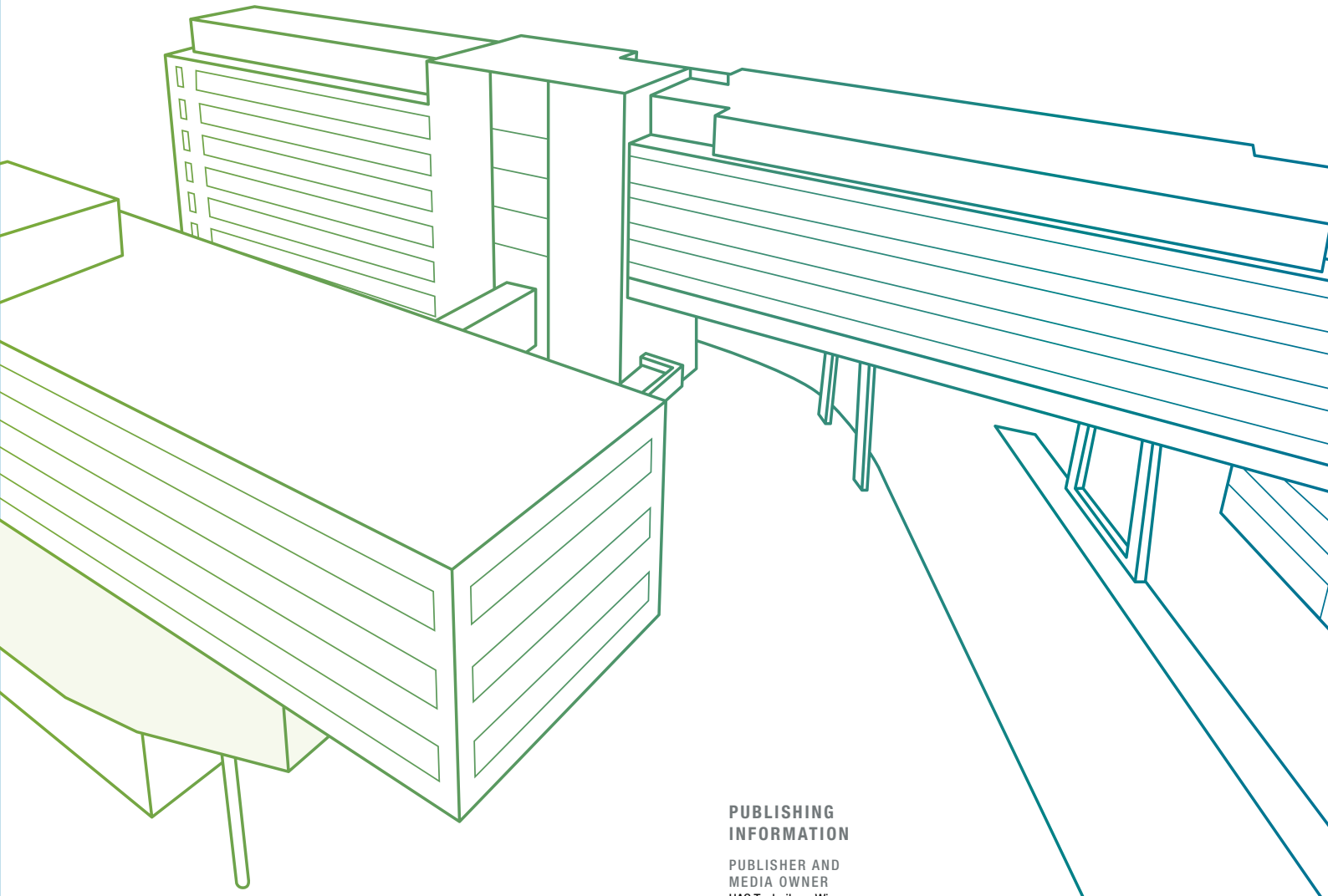
62
PARTICIPATING COMPANIES

LIBRARY



23,128
TOTAL PRINT MEDIA INVENTORY

~ 25,000
NUMBER OF LICENSED E-BOOKS



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GRAPHIC DESIGN
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PRINT
Samson Druck GmbH
Samson Druck Straße 171
5581 St. Margarethen