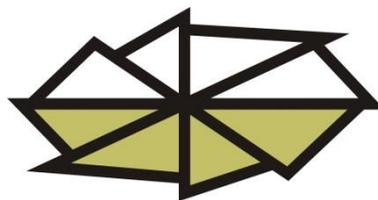


R-2694/2022

Annual Report
on the activities of the Technical University in Zvolen
in 2021



Zvolen, May 2022

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I. BASIC INFORMATION ABOUT THE UNIVERSITY

Name of university: Technical University in Zvolen

Incorporation of a university: research university

Type of university: public university

The mission of the college:

The Technical University in Zvolen is a modern higher education institution that develops creative scientific research and on its basis provides education at all three levels of higher education in the European education and research area. It has a unique profile in the system of universities in Slovakia, focusing on the forest - timber - ecology - environment complex, with appropriate extension into other technical, natural science, safety and security, economic and artistic areas.

In the field of research, it fulfils its mission by carrying out national and international research projects and programmes in seven research areas: agricultural and forestry sciences, engineering and technology, environmental science and ecology, mechanical engineering, economics and management, safety and security services, arts; as well as in other related and application areas.

In education, it fulfils its mission in eight groups of fields of study: safety and security sciences, wood sciences and technology, ecological and environmental sciences, economics and management, geodesy and cartography, forestry, mechanical engineering and arts; with an emphasis on second and third level study programmes and the accreditation and providing of programmes in foreign languages. In the academic year 2021/2022, the University offered 47 first level programmes, 38 second level programmes and 40 third level programmes, both full-time and part-time. In addition, the University offers further education courses and studies within the framework of the University of the Third Age.

In line with its profiling, it also fulfils its mission of a "green university", which arises from the traditions of the Banská Štiavnica Mining Academy as one of the oldest technical and forestry universities in Europe and in the world. The concept of the "green university" is currently being fulfilled by TUZVO by providing the most modern scientific knowledge for consistent adherence to the principles of sustainable living.

Management of the Technical University in Zvolen

Rector:

Dr. h. c. prof. Ing. Rudolf Kropil, PhD.

3rd term of office: 18.02.2020 - 17.02.2024

Date of appointment as Rector: 18.02.2020

Vice-Rectors:

Vice-Rector for Education:

RNDr. Andrej Jankech, PhD.

3rd term of office: 01.07.2020 - 30.06.2024

Date of appointment as Vice-Rector: 01.07.2020

Vice-Rector for Development:

doc. Ing. Josef Drábek, CSc.

1st term of office: from 01.06.2017 to 24.08.2020

Date of appointment as Vice-Rector: 01.06.2017

prof. RNDr. Danica Kačíková, MSc., PhD.

1st term of office: from 01.01.2021 to 31.12.2024

Date of appointment as Vice-Rector: 01.01.2021

Vice-Rector for Science and Research:

prof. Dr. Ing. Jaroslav Šálka

3rd term of office: 01.07.2020 - 30.06.2024

Date of appointment as Vice-Rector: 01.07.2020

Vice-Rector for International Relationships:

doc. Ing. Branislav Olah, PhD.

3rd term of office: 01.07.2020 - 30.06.2024

Date of appointment as Vice-Rector: 01.07.2020

Bursar:

doc. Ing. Josef Drábek, CSc. - from 25.08.2020

Academic Senate of the Technical University in Zvolen

The four-year term of office runs from 13. 03. 2019 to 12. 03. 2023

Presidium of AS TU in Zvolen:

Chairman of the AS TU in Zvolen:

prof. Ing. Ján Tuček, CSc. - LF, staff part,

I. term of office, member since 13. 03. 2019; Chairman since 13. 03. 2019

The Vice-Chairman:

prof. Ing. Mariana Sedliačiková, PhD. - DF, staff part,

II. term of office, member since 13. 03. 2015, Vice-Chairman since 13. 03. 2019

Secretary:

Ing. Veronika Veľková, PhD. - DF, staff part,

I. term of office, member since 13. 03. 2019; Secretary since 13. 03. 2019

The Chairman of the Legislative Commission:

prof. Ing. Dušan Gömöry, DrSc. - LF, staff part,

IX. term of office, member since 1990, Chairman of the Commission since 13. 03. 2019

The Chairman of the Economic Commission:

PhDr. Ing. Erik Selecký, PhD. et PhD. - OOS, staff part,

III. term of office, member since 13. 03. 2011, Chairman of the Commission since 13. 03. 2019

Student Representative:

Bc. Miroslav Bača - LF, student part,

II. term of office, member since 17.10.2018, member of the Presidium from 13.03.2019 to 31.10.2021

Lucia Babjaková - LF, student part,

I. term of office, member of the Presidium from 23.11.2021

Staff section:

- 1. prof. Ing. Dušan Gömöry, DrSc. - LF, IX. term, member since 1990*
- 2. prof. Ing. Iveta Hajdúchová, PhD. - LF, II. term, member since 10. 05. 2016*
- 3. Ing. Pavol Hlaváč, PhD. - LF, III. term of office, member since 13. 03. 2011*
- 4. doc. Ing. Katarína Střelcová, PhD. - LF, III. term of office, member since 13. 03. 2011*
- 5. prof. Ing. Ján Tuček, CSc. - LF, I. term, member since 13. 03. 2019*
- 6. prof. Ing. Ivan Klement, CSc. - DF, IV. term of office, member since 07. 02. 2008*
- 7. doc. Ing. Richard Kminiak, PhD. - DF, I. term, member since 13. 03. 2019*
- 8. doc. Ing. Hubert Paluš, PhD. - DF, I. term, member since 13. 03. 2019*
- 9. prof. Ing. Mariana Sedliačiková, PhD. - DF, II. term of office, member since 13. 03. 2015*

10. Ing. Veronika Veľková, PhD. - DF, I. term, member since 13. 03. 2019
11. prof. Ing. Vladimír Kunca, PhD. - FEE, V. term of office, member since 2003
12. Ing. Juraj Modranský, PhD. - FEE, I. term, member since 13. 03. 2019
13. Mgr. Attila Rácz, PhD. - FEE, II. term of office, member since 13. 03. 2015
14. doc. Ing. Michal Wiezik, PhD. - FEE, I. term of office, member from 13. 03. 2019 to 30. 09. 2019
Ing. Zuzana Perháčová, PhD. - FEE, I. term, member since 05. 11. 2019
15. Ing. Miroslav Vanek, PhD. - FEE, I. term, member since 13. 03. 2019
16. doc. Ing. Helena Čierna, PhD. - FT, I. term of office, member from 13. 03. 2019 to 30.09.2021
doc. Ing. Miroslava Ťavodová, PhD. - FT, I. term of office, member since 18. 02. 2022
17. doc. Ing. Richard Hnilica, PhD. - FT, II. term of office, member since 13. 03. 2015
18. prof. Ing. Jozef Krilek, PhD. - FT, II. term of office, member since 13. 03. 2015
19. prof. Mgr. Elena Pivarčiová, PhD. - FT, II. term, member since 13. 03. 2015
20. Ing. Ján Turis, PhD. - FT, II. term of office, member since 13. 03.2015
21. Ing. Ľubomír Ivan, PhD. - OOS, II. term of office, member since 13. 03. 2015
22. PhDr. Ing. Erik Selecký, PhD. et PhD. - OOS, IV. term of office, member since 23. 11. 2010

Student section:

23. Bc. Miroslav Bača - LF, II. term of office, member from 17. 10. 2018 to 31. 10. 2021
Lucia Babjaková - LF, I. term of office, member since 5. 11. 2021
24. Bc. Martin Danilák - LF, II. term of office, member from 17.10.2018 to 31.10.2021
Ing. Marek Štefanec - LF, I. term of office, member since 5. 11. 2021
25. Bc. Daniel Králik - LF, II. term of office, member since 17. 10. 2018
26. Ing. Ladislav Babinský - DF, II. term of office, member from 17. 10. 2018 to 30. 06. 2020
Serhii Marko - DF, I. term of office, member from 01. 04. 2021
27. Ing. Katarína Bajzová - DF, II. term of office, member from 17. 10. 2018 to 30. 06. 2020
Marcel Majerský - DF, I. term of office, member from 01. 04. 2021 to 31. 09. 2021
Bc. Ivan Strmý - DF, I. term of office, member since 05. 11. 2021
28. Ing. Michal Bélik - DF, II. term of office, member from 17. 10. 2018 to 30. 06. 2020
Ing. Róbert Uhrín - DF, I. term of office, member from 01. 04. 2021 to 30. 06. 2021
and from 18. 02. 2022
29. Bc. Anna Darabošová - FEE, II. term of office, member since 06. 03. 2018
30. Bc. Andrej Neuschl - FEE, II. term of office, member from 17. 10. 2018 to 30. 06. 2020
Andrea Bátková - FEE, I. term of office, member since 01. 04. 2021
31. Bc. Matúš Šoltis - FEE, II. term of office, member from 06 .03. 2018 to 30. 06. 2020
Ing. Diana Žingorová - FEE, I. term of office, member from 01. 04. 2021 to 30. 06. 2021
Sarah Saloňová - FEE, I. term of office, member since 05. 11. 2021
32. Ing. Silvia Kopčanová - FT, II. term of office, member from 17. 10. 2018 to 31. 08. 2020
Ing. Áron Hortobagyi - FT, I. term of office, member from 01. 04. 2021
33. Bc. Marek Lipnický - FT, II. term of office, member from 17.10.2018 to 30.06.2020
Bc. Michal Chudý - FT, I. term of office, member from 01. 04. 2021
34. Bc. Marek Priscak - FT, II. term of office, member from 17.10.2018 to 31.12.2021
Adam Fabian - FT, I. term of office, member from 18. 02. 2022
35. Bc. Zuzana Kmet'ová - UŠP, II. term of office, member since 17. 10. 2018

Scientific Board of the Technical University in Zvolen

The four-year term of office of the Scientific Board runs from 01.07.2020 to 30.06.2024

Chairman: *Dr. h. c. prof. Ing. Rudolf Kropil, PhD.*

Members of the Scientific Board from TU in Zvolen:

1. *doc. akad. soch. René Baďura, DF TUZVO*
2. *prof. Ing. Štefan Barčík, CSc., FT TUZVO*
3. *doc. Ing. Pavel Beňo, PhD., Dean of FT TUZVO*
4. *doc. Ing. Helena Čierna, PhD., FT TUZVO*
5. *doc. Ing. Miroslav Dado, PhD., FT TUZVO*
6. *doc. Ing. Josef Drábek, CSc., Bursar of TUZVO*
7. *prof. Ing. Ladislav Dzurenda, PhD., DF TUZVO*
8. *prof. Ing. Marek Fabrika, PhD., Dean of LF TUZVO*
9. *prof. RNDr. Ján Gáper, CSc., FEE TUZVO*
10. *prof. Ing. Dušan Gömöry, DrSc., LF TUZVO*
11. *RNDr. Andrej Jankech, PhD., Vice-Rector of TUZVO*
12. *prof. RNDr. Danica Kačíková, PhD., MSc., Vice-Rector of TUZVO*
13. *prof. Ing. Jozef Krilek, PhD., FT TUZVO*
14. *Dr. h. c. prof. Ing. Rudolf Kropil, PhD., Rector of TUZVO, Chairman of the Scientific Board of TUZVO*
15. *prof. Ing. Vladimír Kunca, PhD., FEE TUZVO*
16. *doc. Ing. Peter Lešo, PhD., LF TUZVO*
17. *prof. Ing. Valéria Messingerová, CSc., LF TUZVO*
18. *doc. Ing. Branislav Olah, PhD., Vice-Rector of TUZVO*
19. *doc. Ing. Hubert Paluš, PhD., DF TUZVO*
20. *prof. Ing. Dagmar Samešová, PhD., FEE TUZVO*
21. *prof. Ing. Ján Sedliačik, PhD., Dean of DF TUZVO*
22. *prof. Ing. Marián Schwarz, CSc., Dean of FEE TUZVO*
23. *prof. Ing. Slavomír Stašiov, PhD., FEE TUZVO*
24. *prof. Dr. Ing. Jaroslav Šálka, Vice-Rector of TUZVO*
25. *prof. Ing. Jaroslav Škvarenina, CSc., LF TUZVO*

Other members of the Scientific Board:

26. *doc. Ing. Klaudia Halászová, PhD., Rector of SPU in Nitra*
27. *doc. Ing. Vladimír Hladlovský, PhD., Rector of UMB in Banská Bystrica*
28. *Dr.h.c. prof. h.c. prof. Ing. Stanislav Kmet', CSc., Rector of the Technical University in Košice*
29. *prof. MVDr. Juraj Koppel, DrSc., Vice-President of the Slovak Academy of Sciences Bratislava*
30. *Ing. Tibor Lebocký, PhD., President of the Slovak Hunting Association*
31. *prof. MVDr. Jana Mojžišová, PhD., Rector of UVLF in Košice*
32. *prof. Ing. Danuše Nerudová, Ph. D., Rector of Mendel University in Brno, Czech Republic*
33. *Ing. Igor Patráš, Association of Wood Processors of the Slovak Republic*
34. *Dr. Ing. František Šimančík, Institute of Materials and Machine Mechanics of the Slovak Academy of Sciences in Bratislava*
35. *prof. Ing. Petr Sklenička, CSc., Rector of ČZU in Prague, Czech Republic*
36. *prof. RNDr. Libor Vozár, CSc., Rector of UKF in Nitra*

Disciplinary Committee of the Technical University in Zvolen for Students

Chairman: *RNDr. Andrej Jankech, PhD., Vice-Rector for Education*

Members:

1. *Mgr. Jarmila Šarinová - Pedagogical Department*
2. *Sára Kertiová - student of UŠP*
3. *Filip Dianiška - student of UŠP*

Parts of the Technical University in Zvolen

Faculties:

Faculty of Forestry

Dean: prof. Ing. Marek Fabrika, PhD.

I. term of office: 16.03.2020 - 15.03.2024

Date of appointment as Dean: 16. 03. 2020

Faculty of Wood Sciences and Technology

Dean: prof. Ing. Ján Sedliačik, PhD.

I. term of office: 01. 05. 2017 - 30. 04. 2021

II. term of office: 01. 05. 2021 - 30. 04. 2025

Date of appointment as Dean: 01. 05. 2017

Faculty of Ecology and Environmental Sciences

Dean: prof. Ing. Marián Schwarz, CSc.

I. term of office: 01.05. 2017 - 30. 04. 2021

II. term of office: 01. 05. 2021 - 30. 04. 2025

Date of appointment as Dean: 01. 05. 2017

Faculty of Technology

Dean: doc. Ing. Pavel Beňo, PhD.

I. term of office: 15. 01. 2019 – 14. 01. 2023

Date of appointment as Dean: 15. 01. 2019

Other Organizational Parts of TU in Zvolen:

Institute of Foreign Languages – Head: *Dr. phil. Mgr. Marek Ľupták*

Institute of Physical Education and Sport – Head: *PaedDr. Stanislav Azor, PhD.*

Borova Hora Arboretum – Director: *doc. Ing. Ivan Lukáčik, CSc.*

Centre for Continuing Education – Head: *PhDr. Ing. Erik Selecký, PhD. et PhD.*

Centre of Information Technologies – Director: *Ing. Tibor Weis*

Slovak Forestry and Wood Sciences Library – Director: *Ing. Alena Poláčiková*

Student Dormitories and Canteen – Director: *Ing. Stanislav Jalakša*

Publishing House of the Technical University – Head: *PhDr. Eva Fekiačová*

University Forestry Enterprise – Director: *Ing. Ľubomír Ivan, PhD.*

Developmental Workshops and Laboratories – Director: *Ing. Jaroslav Ohanka, CSc.*

Administrative Board of the Technical University in Zvolen

Members appointed on the proposal of the Minister of Education, Science, Research and Sport of the Slovak Republic:

1. *Ing. Richard Heriban, PhD. – Institute for Forecasting CSPV, SAV, Bratislava; date of appointment: 21. 05. 2019; I. term of office*
2. *Mgr. Jozef Jurkovič – Higher Education Section of the MŠVVaŠ SR, Bratislava; date of appointment: 12. 04. 2018; I. term of office; member to 20. 08. 2021*
3. *Ing. Marian Kurčík – Železiarne Podbrezová, a. s.; date of appointment: 21. 05. 2019; II. term of office*
4. *Ing. Dušan Mráz – Doprastav, a. s., Bratislava; date of appointment: 27. 04. 2015; III. term of office; member to 26. 04. 2021*
Ing. Dušan Mráz – Doprastav, a. s., Bratislava; date of appointment: 17. 05. 2021; IV. term of office
5. *Ing. Igor Patráš – twd SK, s. r. o., Banská Bystrica; date of appointment: 22. 05. 2017; I. term of office*
6. *Ing. Jozef Spevár – SPEVÁR, s. r. o., Prievidza; date of appointment: 22. 05. 2017; I. term of office*

Members appointed on the proposal of the Rector of TU in Zvolen:

7. *Ing. Jozef Jendruch, PhD. – PRO POPULO Poprad, s. r. o., Spišská Teplica; date of appointment: 17. 04. 2019; III. term of office*
8. *Ing. Miroslav Kusein – Entrepreneur, Zvolen; date of appointment: 03. 05. 2018; **Chairman of the Administrative Board**; III. term of office*
9. *Ing. Daniel Kvocera - Vodohospodárska výstavba, š. p., Bratislava date of appointment: 03. 05. 2018; II. term of office*
10. *Ing. Ľuboš Németh – Zvoimpex, a. s., Bratislava date of appointment: 27. 04. 2015; II. term of office; member to 26. 04. 2021*
prof. Ing. Ferdinand Daňo, PhD. – University of Economics in Bratislava; date of appointment: 11. 05. 2021; I. term of office
11. *Dr. h. c. prof. Ing. Rudolf Sivák, PhD. – University of Economics in Bratislava; date of appointment: 27. 04. 2015; I. term of office; member to 26. 04. 2021*
Dr. h. c. prof. Ing. Rudolf Sivák, PhD. – University of Economics in Bratislava; date of appointment: 11. 05. 2021; II. term of office
12. *prof. RNDr. Libor Vozár, CSc. – Constantine the Philosopher University in Nitra; date of appointment: 03. 05. 2018; II. term of office*

Member appointed on the proposal of the staff part of the Academic Senate of TU in Zvolen:

13. *doc. Ing. Josef Drábek, CSc. - Technical University in Zvolen; date of appointment: 27. 04. 2019; Vice-Chairman of the Administrative Board TUZVO; II. term of office*

Member appointed on the proposal of the student part of the Academic Senate of TU in Zvolen:

14. *Ing. Milan Lichý - Municipal Office Banská Bystrica; date of appointment: 23. 07. 2020; I. term of office*

Representation of the University in the Representation of Universities

1. *Dr. h. c. prof. Ing. Rudolf Kropil, PhD., Slovak Rectors' Conference, President, IV. term of office, date of appointment: 22. 08. 2021*
2. *doc. Mgr. Ing. Rastislav Šulek, PhD., Council of Universities, I. term 2019 - 2023, member of the Presidium, beginning of membership: 11. 06. 2019*
3. *Ing. Pavol Hlaváč, PhD., Council of Universities, I. term 2019 - 2023, beginning of membership: 11. 06. 2019*
4. *prof. Ing. Mariana Sedliačiková, PhD., Council of Universities, I. term of office 2019 - 2023, beginning of membership: 11. 06. 2019*
5. *doc. Ing. Helena Hybská, PhD., Council of Universities, I. term of office, beginning of membership: 04. 03. 2020*
6. *Ing. Peter Koleda, PhD., Council of Universities, I. term of office 2019 - 2023, beginning of membership: 11. 06. 2019*
7. *Ing. Daniel Tomčík, Student Council of Universities, II. term of office, beginning of membership: 17. 05. 2021, re-elected 12. 10. 2021 (new term of office 2021 - 2024)*
8. *Tamara Filová, Student Council of Universities, I. term of office, beginning of membership: 12. 10. 2021*

Membership of the University in a Consortium of universities:

Consortium of Slovak Universities, 22. 01. 2021

II. OVERVIEW OF THE MOST IMPORTANT FACTS AND ACTIVITIES OF THE UNIVERSITY

Despite the restrictive anti-pandemic measures that affected the activities of all institutions in 2021, the University as a whole, its faculties and other organisational parts fulfilled their main tasks in all areas. We consider the following to be the most important events at TUZVO:

On 22 January 2021, the Ministry of Education, Science, Research and Sport of the Slovak Republic registered a new Association of Ten Slovak Universities called the Consortium of Slovak Universities, abbreviated as U10+, in the register of universities. This completes the process of establishing the first consortium of universities in Slovakia, which started about two years ago.

On 11 February 2021, TUZVO commemorated the Day of Women in Science and introduced new Vice-Rector for Development, prof. RNDr. Danica Kačíková, MSc., PhD.

On April 22, 2021, the President of the Slovak Republic Zuzana Čaputová appointed 27 new professors at a ceremony in the Presidential Palace in Bratislava. Among the newly appointed professors was prof. Ing. R. Réh, CSc., from the Department of Wood Technology, Faculty of Wood Sciences and Technology, TUZVO, who was awarded by title professor in the field of Technology of Wood Processing.

On 29 April 2021, the President of the Slovak Republic Zuzana Čaputová appointed 26 new professors in the Presidential Palace in Bratislava. Among the newly appointed professors were prof. Ing. M. Sedliačiková, PhD., awarded title of professor in the field of Business Economics and Management and prof. Ing. M. Hitka, PhD., as awarded title of professor in Management. Both newly appointed professors are from the Department of Economics, Management and Business of the Faculty of Wood Sciences and Technology.

On 7 May 2021, the Minister of Agriculture and Rural Development of the Slovak Republic, Ján Mičovský, attended the awarding of the Prof. Štefan Korpel, which has been awarded since 2018 by the Faculty of Forestry of TUZVO. The winner of this year's prize was Pavol Dendys, a graduate of the Faculty of Forestry.

On 28-30 May 2021, the traditional event for the public "Rhododendron Days" took place in the Borová hora Arboretum.

The public favourite event "Days of Roses" organised by the staff of the Borová hora Arboretum was held on 18-20 June 2021.

The 10th anniversary edition of the International Sports Olympiad for students at the Universities of the Third Age took place on the premises of TUZVO from 17-19 September 2021. After the "pandemic year", despite the problems and measures adopted in several countries, TUZVO was visited by traditional guests from Ukraine and the Czech Republic. Home students were represented by UTV Bratislava, UTV Martin and the home UTV Zvolen.

On 5 - 7 October 2021, selected films were screened in the premises of TUZVO - Atrium Relax as a part of the International Film Festival Agrofilm 2021. Due to pandemic measures, the films were screened only for TUZVO staff and students.

The Rector of TUZVO, Professor Rudolf Kropil, welcomed the Ambassador of the Republic of Kazakhstan to Slovakia, Roman Vassilenko, at TUZVO on 21 September 2021.

The staff of the Arboretum Borová hora prepared in the days 8. -9. October 2021 event called Autumn in Borová hora Arboretum.

On 11 November 2021, a memorial plaque to Ján Kuciak and Martina Kušnírová was unveiled in the park in front of TUZVO.

On 17 November 2021, TUZVO commemorated two historic events - International Student Day and the Day of the Struggle for Freedom and Democracy, which is regularly associated with the awarding of the Rector's Prize to the best students of the University, as an expression of special recognition to students during their studies for outstanding academic achievements, for work in scientific research, artistic and professional activities, for exemplary civic attitude, for giving an exceptional sports

performance, or for other significant contribution to the University. In the current academic year 2021/2022 the Rector of TUZVO prof. Kropil awarded 17 students on this occasion.

The Faculty of Wood Sciences and Technology of TUZVO organized the 17th year of the international competition Award of prof. Jindřich Halabala 2021. Design students submitted 60 works from 6 universities in the Slovak Republic and the Czech Republic. They are output projects of works separately for furniture and interior. For the first time, there was also a 5th category: results of PhD students' works. The selected works were placed on the exhibition in the Slovak National Gallery in Zvolen Castle from 11 November 2021 to 3 December 2021. The Department of Furniture Design and Interior of the Faculty of Wood Sciences and Technology of the Technical University in Zvolen took over the professional guarantee. The students of TUZVO won awards in the category Final Thesis of the 1st and 2nd level Interior Design and in the Doctoral Thesis Category Furniture and Interior Design. Due to the pandemic, the official announcement of awards and honourable mentions in the competition for the best student projects in the field of furniture and interior design in the academic year 2020/21 was took only online as part of the conference "Creativity in Design - V."

The virtual online international scientific conference Financing 2021 Forests-Timber took place at the Technical University of Zvolen on 25 November 2021. Participants of the conference tried to answer the questions of production and use of timber raw material to achieve the maximum effect for the national economy. Nearly 100 participants were present at the conference, including more than 20 foreign participants.

As part of the implementation of the development project supported by the Ministry of Education, Science, Research and Sport of the Slovak Republic entitled "Preparation of a feasibility study on the integration of universities", an online workshop of the Consortium of Slovak U10+ Universities was held on 2 December 2021, where the results of the project to date were presented and the next steps towards the successful completion of the project and the start of its implementation were agreed.

III. INFORMATION ON THE HIGHER EDUCATION PROVIDED

The strategic goal resulting from the Long-Term Plan of TU in Zvolen and its faculties is to provide quality higher education in accordance with the profile of the university in all three levels of study within Slovakia and the European area. The results of the analyses of demographic development speak of a tendency of decreasing number of applicants to apply to higher education institutions. In the conditions of TU in Zvolen, it is necessary to take these trends into account and to provide access to higher education for both traditional and new target groups of applicants.

The material and technical provision of the educational process at the University and faculties is ensured and improved within the framework of projects submitted to calls for proposals from the Structural Funds of the European Union. The modernisation of development workshops and laboratories, the necessary technology, the publication of study and professional literature are also financed from ongoing projects and grants of individual departments. The overall organisation of studies from the level of admissions, timetables, students, teachers, the agenda of heads of departments and other senior staff, other staff, study departments, financing of studies, e-support of the teaching process, provision of study materials, testing, assessments, submission of final theses, registration for examinations and state examinations, evaluation of the teaching process by teachers, accommodation for students and provision of other services is handled comprehensively in the university information system, which simplifies many of these processes, makes them transparent and, most importantly, is always up-to-date and available to all students, teachers, university staff and, to a certain extent, the general public.

Study programmes

In the academic year 2020/2021, the educational process was carried out in 85 accredited study programmes in the 1st and 2nd level of higher education (as of 31.12. 2021) in the following 6 groups of fields of study (in brackets are fields of study): Agricultural and veterinary sciences (forestry); technical sciences (woodworking, mechanical engineering); natural sciences, mathematics and computer science (ecological and environmental sciences); social, economic and legal sciences (economics and management); arts (arts) and security sciences, defence and military (security services). The majority of study programmes were implemented in both full-time and part-time form.

In the first level of study, education was provided in 47 accredited study programmes in the following breakdown: the Faculty of Forestry (LF) 7 (full-time form (FT): 4/part-time form (PT): 3), the Faculty of Wood Sciences and Technology (DF) 19 (9FT/10PT), the Faculty of Ecology and Environmental Sciences (FEE) 11 (6FT/5PT), the Faculty of Technology (FT) 8 (4FT/4PT) and University Study Programmes (UŠP) 2 (1FT/1PT).

In the second level of study, education was provided in 38 accredited study programmes. They were provided by LF - 10 (7FT/3PT), DF - 14 (8FT/6PT), FEE - 7 (3FT/4PT), FT - 5 (2FT/3PT) and UŠP - 2 (1d/1e).

In the academic year 2020/2021, the third level of higher education was provided in 40 accredited study programmes. According to the faculties: LF - 18 (9FT/9PT), DF - 12 (6FT/6PT), FEE - 6 (3FT/3PT) and FT - 2 (1FT/1PT) and UŠP - 2 (1FT/1PT).

A total of 125 study programmes are accredited at TU in Zvolen in all three levels of higher education / study (an overview of all accredited study programmes as of 31. 12. 2021) in the academic year 2021/2022 is given in Table 15 Annex 1. Most of the study programmes are provided in Slovak language, 6 study programmes are accredited in the English language.

An overview of accredited study programmes is presented in Tab. III.1.

Table III.1 Overview of the number of accredited study programmes data to 31.12.2021

	I. level of study	II. level of study	III. level of study	Total
Faculty of Forestry	7	10	18	35
Faculty of Wood Sciences and Technology	19	14	12	45
Faculty of Ecology and Environmental Sciences	11	7	6	24
Faculty of Technology	8	5	2	15
University study programmes	2	2	2	6
TUZVO	47	38	40	125

More detailed information on accredited study programmes, suspended and withdrawn rights to provide study programmes is provided in Tables 15, 16 of Annex 1.

Numbers of students

The number of students at TU in Zvolen in the academic year 2021/2022 as of 31.10.2021 was 2,037, which is a decrease of 134 students compared to the previous academic year. The development of the number of students at TUZVO is presented in Figure III.1.

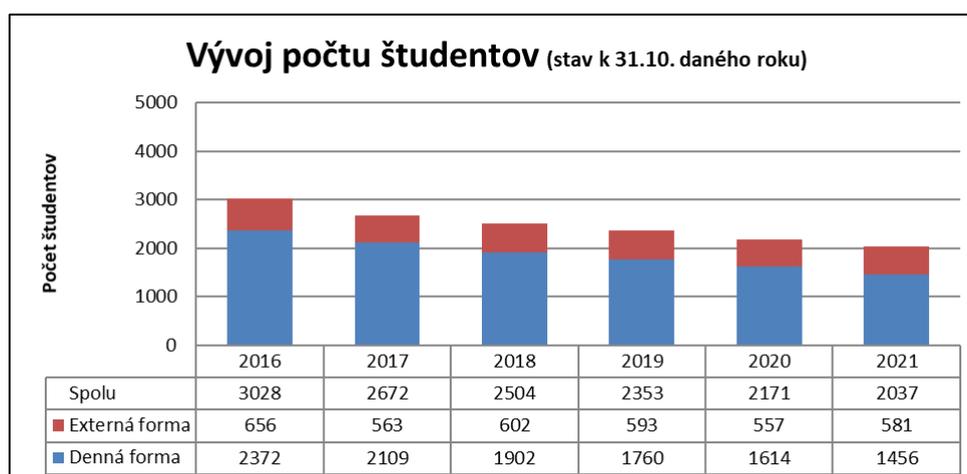


Fig. III.1 Development of the number of students at TU for the period 2016/2017 - 2021/2022

There were 1,319 students (64.8%) in the first level of study, 611 students (30.0%) in the second level and 107 students (5.2%) in the third level. An overview by individual faculties, levels and forms of study is given in Table 1 of Annex 1. In the assumed future development, the number of students at TUZVO is unlikely to increase (the decline indices in the academic years 20/21 and 21/22 are 0.92 and 0.94), on the contrary, due to unfavourable demographic trend and the charging and extension of the part-time form of study, there has been, and is expected to be, a slight decline in the number of students, especially in the external form of study. For this reason, it is important to regularly evaluate the interest in studying at individual faculties and to focus on increasing marketing activities to reach secondary high school students and attract them to study at the Technical University in Zvolen. In the academic year 2020/2021, the Technical University in Zvolen actively participated in exhibitions and education fairs, which were transferred to the online space in that period. The University was involved in the online broadcasting space Gaudeamus 2020, Roadshow Kam na vysokú 2020, where it had 5 broadcasting days in the period September 2020 - February 2021. The University also promoted its activities in the form of a Virtual Open Day, which took place in December 2020 and January 2021. The offer of studies was also promoted in the form of print media by advertising in the daily newspaper Sme in the supplement of the booklet Vysoké školy and also in the weekly newspaper MY in the

supplements Kam na vysokú. The cooperation with an agency providing studies for foreign students at Slovak universities, especially from Ukraine, is also active. The Technical University in Zvolen, its faculties and study programmes were promoted at exhibitions.

In the longer term, there has been a decline in students in almost all faculties. Stability or a slight increase in the number of students is registered at FEE. The development of the number of students at the faculties of TUZVO or UŠP is shown in Figure III. 2.

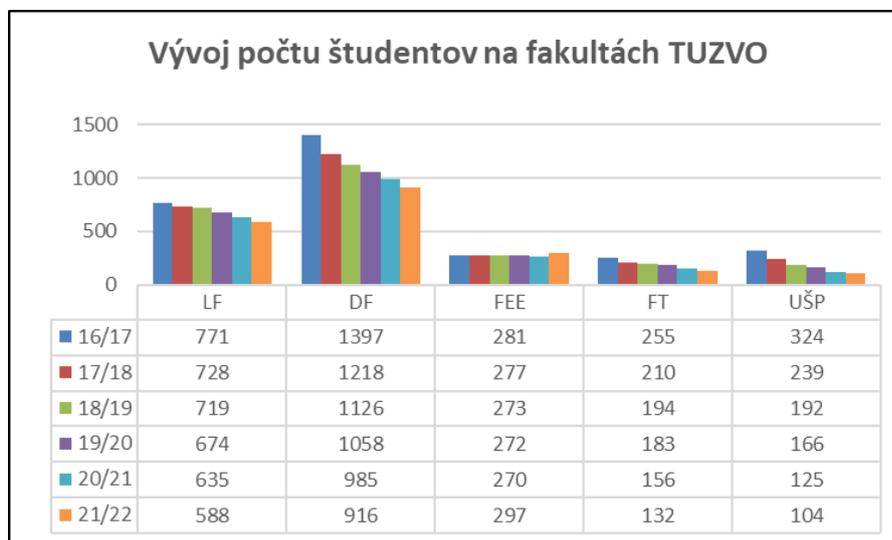


Fig. III. 2 Development of the number of students at the faculties of TUZVO and UŠP

In terms of forms of study, in the academic year 2020/2021, 1456 (71.5%) students studied full-time at TUZVO and 581 (28.5%) students studied part-time. The proportion of students in the part-time form of study has slightly increased in relation to the full-time form. In the evaluated period 107 foreign students studied at TUZVO, mostly at the detached workplace of the Faculty of Wood Sciences and Technology in Volyn, Czech Republic. In the period under review, we also noted an increase in the number of foreign students in the first and second level in full-time form from Ukraine.

Most of the graduates of the Bachelor's degree continue their studies at the second level and the best of them continue their studies at the third level. At TUZVO, funds have been earmarked for newly recruited doctoral candidates obtained for their performance under the research, development or artistic subsidy. The organisation of doctoral studies at the faculties is ensured in accordance with the Higher Education Act and the Rules of Procedure for Doctoral Studies. The standard length of study programmes in the third level of higher education is 3 and 4 years in the full-time form and 5 years in the part-time form. Doctoral students, with their achievements in scientific research activities, also significantly contribute to publication outputs, most often in co-authorship with a supervisor. Doctoral studies and outputs of doctoral students play one of the key roles in the evaluation of the University's activities in the framework of comprehensive accreditation.

Graduates at TUZVO

Table 2 of Annex 1 shows the number of graduates by faculties, levels and forms of study who successfully completed their studies in the academic year 2020/2021. The state examinations were conducted according to the conditions set by the results of the comprehensive accreditation of 2015 and other re-accreditations and accreditations of new study programmes, where students were evaluated separately for the state examination in the area of knowledge of the field of study and separately for the defence of the thesis. In the first level of study, out of a total of 313 students who took part in the final examinations and the defence of the Bachelor's thesis, 298 (95.2%) passed, 14 students (4.5%) passed with distinction and 15 (4.8%) students failed. At the second level of study, out of 275 students, 271 (98.6%) students passed, 35 (12.7%) students passed with distinction and 4

students (1.5%) failed. This situation documents slightly better academic results compared to the previous academic year. Initially, the number of students who failed the regular term state examinations was higher, but as the Faculty of Wood Sciences and Technology, the Faculty of Forestry and the university study programmes had remedial state examinations at the end of August 2021, the number of students who failed the state examinations remained at 19. If they enrol in the next academic year, they will be obliged to pay the tuition fees for exceeding the standard length of study. In the academic year 2020/2021, 24 (21 full-time and 3 part-time) third level students successfully completed their studies (24 in AR 19/20, 26 in AR 18/19, 32 in AR 17/18 and 32 in AR 16/17). Currently, the proportion of students in the third level of higher education at TU in Zvolen is 4.8%. A positive role in fulfilling study obligations is played by the application of the ECTS-based system of doctoral studies. The majority of doctoral students complete their studies within the standard length, and the obligation to pay the annual tuition fee for exceeding the standard length of studies has a major impact on this fact. A number of full-time third level students undertake additional pedagogical studies or a course in engineering pedagogy. The current situation obliges doctoral students to participate in the teaching process.

The total number of graduates at the Technical University in Zvolen in the academic year 2020/2021 was 593, of which 472 in the full-time form of study and 121 in the part-time form. The number of graduates by faculty was as follows: total (DF/EF): UŠP - 44 (33/11), LF - 176 (140/36), DF - 258 (209/49), FEE - 75 (64/11), FT - 40 (26/14).

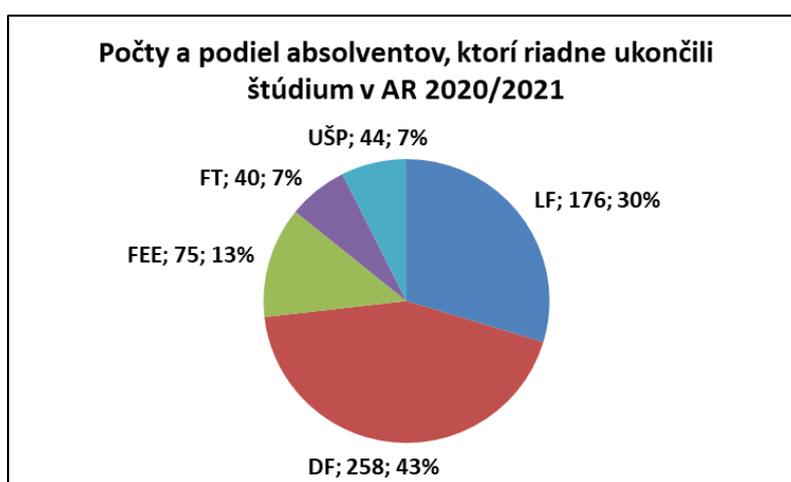


Fig. III. 3 Number and share of graduates at the faculties of TU or UŠP in the academic year 2020/2021

All final theses in all three levels of study are subjected to an originality check through the Central Register of Final Theses (CRZP) by comparing the theses stored in the CRZP with each other. A report on the originality of the thesis is then issued and forms part of the thesis defence materials.

One of the parameters that reflects the success of students in their studies is the completion of their studies in its standard length. In case of exceeding it, the student is obliged to pay the tuition fees. In the period under review, 159 students were obliged to pay tuition fees for exceeding the standard length of studies and 581 students were obliged to pay tuition fees for studying in the external form of study. 101 students applied for a reduction or remission of tuition fees, while 17 students had their tuition fees waived and 71 had their tuition fees reduced. A more detailed overview of tuition fees is given in Table 4 Annex 1.

Admission procedure

The admission procedure for the academic year 2021/2022 took place at all TU faculties and university study programmes. The admissions model at each faculty is based on multi-year experience, trends and the reality of the study programmes, and the admission conditions are approved each year by the academic bodies of the faculties and the university respectively. As a rule, the assessment is

based on the results of secondary school studies, including matriculation examinations. Applicants increasingly use the electronic form of application for studies, which is available to them via the university's information system.

With the planned number of 1,025 students admitted to study at TU in Zvolen from the academic year 2021/2022 in the **first level of higher education** in both forms of study, 892 applications from applicants for study were registered at TU in Zvolen. 865 applicants were admitted and 549 students showed up for enrolment. In the **second level of higher education**, 346 applications from applicants were submitted for the planned number of 665 admitted applicants. 334 applicants were admitted and 303 students turned up for enrolment, a slight increase on the previous year. The admission procedure has long shown a significant difference between admitted and enrolled students, especially in the Bachelor's degree programmes.

In the academic year 2020/2021, 35 new PhD students were enrolled in the **third level of higher education** at the TUZVO, of which 24 in the full-time form receiving a scholarship and 11 students enrolled in the part-time form of study. By faculty, the number of newly admitted students was as follows: LF 12 (9FT+3PT), DF 11 (7FT+4PT), FEE 5 (4FT+1PT), FT 2 (1FT+1PT) and UŠP 5 (3FT/2PT). Charging for the part-time form of study is reflected in a significant decrease in interest in study at third level. Overall, compared to the previous year, we have seen the same number of new students enrolled.

In the academic year 2020/2021, on the occasion of 17 November, the Rector of the Technical University in Zvolen awarded 17 exceptional students who, in addition to excellent academic results, spread the good name of the Technical University in Zvolen at home and abroad.

COVID-19 pandemics crisis

After the start of the academic year it was possible to provide contact teaching for the first three weeks. From the fourth week until the end of the summer semester, including exam periods, learning and testing continued online. In particular, Microsoft Teams and the University Information System were used for online teaching and examination. The state examinations were conducted entirely by attendance, in compliance with all epidemiological precautions. The entire teaching process in the academic year under review was affected by the COVID-19 pandemics crisis, with students in the final year in particular finding it significantly more difficult to consult and complete the experiments in their final theses. The online form of teaching was regularly monitored from both the faculty and university management levels. However, there were also several problems with the implementation of the online form of learning, such as less than ideal access to the Internet by students or lecturers. The transition and preparation for online teaching took a lot of extra time for lecturers. The university continuously provided lecturer rooms, teachers with modern IT equipment and over time these activities improved and this way of teaching became the standard.

Student mobility

The aim of the TUZVO mobility and training programmes is to ensure an increase in the number of all mobility of students, teachers and other staff in line with the qualitative requirements of the participating institutions, taking into account the specific professional focus of the University, its faculties and other organisational units.

Erasmus+

The European Commission sees mobility projects in vocational education and training and higher education as active tools to make people more employable in the labour market. As individual demands on the future workforce increase, Europe needs to develop measures to better prepare young people for the changes of the future. In the long term, mobility projects have the ambition to

link educational institutions with the research and business environment and thus support regional development.

Mobility of students and teachers of TUZVO are implemented at foreign universities with which TUZVO has signed a contractual bilateral cooperation within the Erasmus+ programme.

In 2021 there were 116 Erasmus+ contracts in force with 83 partners from 20 programme countries and 7 contracts with universities in Russia, Costa Rica, USA, China, Belarus and Ukraine, with which TUZVO continues to cooperate with partner countries. In the 2021-2027 programme period, it will be necessary to re-sign digital inter-institutional contracts, which will be registered on the Erasmus Dashboard common platform. During the transition period, i.e. until the end of 2022, all existing contracts from the previous phase of the programme are still valid.

The allocation of funding for Erasmus+ KA131 projects in 2021 has already been adapted to the new Erasmus+ priorities for the 2021-2027 programming period.

Priorities of the programme period 2021-2027 to which TU in Zvolen also subscribes:

- Inclusion and diversity = innovative education for all;
- Digitisation = reflecting the needs of the modern digital age;
- Environmental sustainability = raising awareness of the climate situation and promoting sustainable behaviour;
- Active participation = development of social and multicultural competences, critical thinking and active citizenship based on the democratic principle in lifelong learning and youth work;

The year 2021 brought a huge drop in the number of student mobilities and in the uptake of grants related to the coronavirus pandemic and the measures taken. In 2020/2021, only 4 students went on mobility and one international student was accepted for online mobility.

The Department of International Relationships regularly organises Erasmus+ information days for students, provides consultations, publishes information materials on the Erasmus+ programme and cooperates with faculties to promote the programme among students, teachers and staff of TUZVO. It publishes information about its activities on the TUZVO website and sends invitations and information to students electronically via UIS. The Erasmus+ Information Day was held online on 29. 09. 2021 on the topic Erasmus+ mobility and internships for students to EU countries [Erasmus+ info seminar for students - YouTube](#).

The rules of student and staff mobility are defined in the Organizational Directive No. 1/2020 on the implementation of Erasmus+ mobility.

An important partner in the implementation of graduate mobility is the non-profit organization WorkSpace Europe with which TUZVO has been cooperating since 2017 as a member of a consortium of 11 universities. In 2021, 10 TUZVO graduates have been nominated for graduate internships.

In 2021, projects were implemented:

2018-1-SK01-KA103-045936 for the period from 01.06.2018 to 31.05.2021

2019-1-SK01-KA103-060107 extended from 01.06.2019 until 31.05.2022

2020-1-SK01-KA103-077753 for the period from 01.06.2020 to 31.05.2022

2021-1-SK01-KA131- HED-000006289 for the period from 01.09.2021 to 31.10.2023

2018-1-SK01-KA103-045936 - the project was officially closed with the final report on 31.07.2021

A total of 138 participants went on mobility under this project, which was 2 less than the number stated in the contract. The fulfilment of the quantitative expectations almost in full and in physical form was also evaluated very positively by the Erasmus+ National Office in the light of the COVID-19 pandemic. The slight decrease in internships, study visits and teaching at partner universities was offset by an increased interest in staff training. Across all mobility categories, interest in mobility to

the Czech Republic, the Czech Republic and Poland continued to be strongest for staff. Three students from abroad studied at TUZVO as part of the project. Interest in employee mobility increased - 25 foreign lecturers lectured at TUZVO and 11 foreign employees participated in training. The project was extended from 24 to 36 months due to the pandemic. The utilisation of the grant was 83.9%. The consolidated score of the final project report was 90 (out of a total of 100 points).

2019-1-SK01-KA103-060107 - the project has been extended by 12 months due to the pandemic and will be completed with the final report on 31/07/2022

A total of 144 mobilities were planned within the project. Due to travel constraints, the disbursement of funds and the implementation of the mobilities were problematic.

In the academic year 2019/2020, 23 student mobilities for the purpose of study (out of 24 planned) and 6 student internships in companies (out of 40 planned) were carried out at TUZVO. Funds for the implementation of teacher and staff mobilities can be drawn until 31.05.2022.

Within the framework of the incoming Erasmus+ student mobility, TU in Zvolen received 13 foreign students from Germany, Poland, Croatia and the Czech Republic. In addition to students, 19 foreign teachers and staff from six EU countries were also admitted.

2020-1-SK01-KA103-077753 - the project will be completed with the final report on 31.07.2022

Interim evaluation of the project: in total, only 67 mobilities were planned within the project, also considering the pandemic situation.

From this project, 9 student mobilities for the purpose of study (out of 16 planned) and 2 student internships in companies (out of 15 planned) were implemented at TUZVO in the academic years 2020/2021 and 2021/2022.

Funding for the implementation of teacher and staff mobility is available until 31.05.2022.

2021-1-SK01-KA131- HED-000006289

In Call 2021, the following funds were allocated to TU in Zvolen in the new phase of the Erasmus+ programme on the basis of the submitted application:

Table III.2 Amount of funding received in Call 2021 Erasmus+ KA131 in EUR

2021-1-SK01-KA131-HED-000006289	Number of	Grant
Mobility - Study	30	75 390
Student internships	20	38 860
Teacher mobility - teaching	20	13 020
Staff mobility - training	20	14 240
Mixed intensive BIP programmes	5	32 000
Green Travel - Students		1 250
Green Travel - Teachers		600
Organisation of mobilities		36 000
TOTAL	90	211 360

Table III.3 Evolution of the number of Erasmus+ student mobilities

Academic year		14/15	15/16	16/17	17/18	18/19	19/20	20/21
Students	Sent for a study	47	48	51	38	37	23	2
	Sent for an internship	29	41	34+3*	33+13*	21+2*	6+11*	2+10*
	Admitted from abroad	3	5	4	10	8	11	1

* graduate mobilities implemented within WorkSpace Europe, not funded by TUZVO projects

The Department of International Relationships regularly organises Erasmus+ information days for students, provides consultations, publishes information materials on the Erasmus+ programme and cooperates with faculties to promote the programme among students, teachers and staff of TUZVO. It

publishes information about its activities on the TUZVO website and sends invitations and information to students electronically via UIS. The Erasmus+ Information Day was held online on 29. 09. 2021 on the topic Erasmus+ mobility and internships for students to EU countries [Erasmus+ info seminar for students - YouTube](#).

The rules of student and staff mobility are defined in the Organizational Directive No. 1/2020 on the implementation of Erasmus+ mobility.

An important partner in the implementation of graduate mobility is the non-profit organization WorkSpace Europe with which TUZVO has been cooperating since 2017 as a member of a consortium of 11 universities. In 2020, 10 TUZVO graduates have been nominated for graduate internships.

Within the mobility of academic staff, 37 mobilities were carried out. Other planned and upcoming mobilities could not be implemented due to the measures against the spread of COVID-19 virus, which have been implemented by all partner countries and institutions. TUZVO has requested the National Agency to amend the KA1 COVID-19 contract, thus extending the possibility to draw down funds by 12 months, i.e. until 31.05.2022, for the project from the 2019 Call.

The funds for the organisation of mobility are used for the co-financing of staff mobility within the Erasmus+ programme, for the support of virtual mobility, to cover travel costs of the staff of the Department of International Relationships, visits to foreign partner institutions, purchase of Slovak language textbooks for foreigners, book guides to Slovakia, souvenirs, refreshments and meals for foreign guests, remuneration for teachers and staff providing administration of the Erasmus+ programme at the TUZVO.

KA107 Erasmus+ Mobility of students and staff between programme and partner countries *Project 2018-1-SK01-KA107-046079*

The project was aimed at deepening cooperation between TUZVO and two universities in the Russian Federation (Federal State Autonomous Educational Institution of Higher Professional Education North-Eastern Federal University Named after M.K.Ammosov, Yakutsk, and State Budget Institution of Higher Professional Education Saint Petersburg State Forest Technical University Named after S.M. Kirov) and enabled the implementation of student and staff mobility and the expected knowledge transfer. The bilateral contractual relationship not only aimed at the internationalisation of the outputs of both universities, but also envisaged the support of the development of the personal and professional profile of the participating students and staff.

In total, four teacher mobilities and four student mobilities were implemented.

The budget of the project was EUR 24,150 after the increase of funds, of which EUR 21,033 (87%) were used by the end of the project.

Teachers from TUZVO together with colleagues from Saint-Petersburg State Forest Technical University (Russia) and South Eastern Finnish University of Applied Sciences (Finland) met in an online space on 21 April 2021 to exchange experiences in distance learning. The meeting entitled "Distance learning in forest based higher educational institutions" was initiated by TUZVO on the basis of the cooperation resulting from the project which was completed on 31.07.2021. Although the pandemic made it impossible to carry out all the planned mobility and mutual face-to-face meetings, the exchange of experiences took place completely smoothly in the online environment. The virtual meeting featured presentations by teachers representing the participating universities, with reflections on the quality of education using an exclusively online method, as well as a discussion on students' attitudes. It can be argued that the current pandemic is a significant multiplier of the digital transformation of the university itself. It has caused a complete digitalization of the students' educational process. The immediate demands on the quality of internet connectivity, hardware and software equipment and the required level of digital skills were in a sense a small revolution in the lives of both students and teachers. Staff were also forced to accelerate the digitisation of learning and related processes and to develop new learning materials - completely in digital form. Although the pandemic situation can be seen as a driving force for digital transformation of all parties involved in education, it is not developing social skills, closing the space for creativity, developing students' critical

thinking and not using the full potential of staff. In the digital transformation environment, a different working and social environment is emerging, which places demands on this generation of learners in terms of new skills and professions (to be proficient in networking, mobility, technological innovation and flexibility). Whether the increased level of digital skills will also increase students' competences and prerequisites for better integration in the labour market is somewhat questionable. Vladislav Kaputa, DF, Erasmus+ project leader 2018-1-SK01-KA107-046079, spoke at the meeting on behalf of TUZVO.

In November 2021, the Slovak Academic Association for International Cooperation - National Agency of the Erasmus+ Programme for Education and Training carried out an in-depth audit of the supporting documents of the project No. 2018-1-SK01-KA107-046079, which did not reveal any financial non-compliance.

Project 2019-1-SK01-KA107-060224

TUZVO has been allocated funds in the amount of EUR 8,180 for the provision of 2 mobility of teachers to/from Instituto Tecnológico de Costa Rica, Cartago, Costa Rica for a period of 36 months from 01.08.2019 to 31.07.2022. The planned mobilities could not be carried out due to the suspension of the mobilities due to the coronavirus pandemic and have been postponed to 2022.

Project 2020-1-SK01-KA107- 078162

The Faculty of Wood Sciences and Technology and the Faculty of Technology were successful in the 2020 Call for proposals in KA107, preparing mobility cooperation projects with partner universities in Belarus, Ukraine, the USA and China.

In 2021 only one mobility was realized - prof. Haviarová from PURDUE University in the USA. Catalog of student projects created in the framework of Erasmus+ project cooperation between TUZVO and PURDUE University 2021: *The Biomimicry Method and its Application for Sustainable Innovations Inspired by Nature*.

Further activities have been postponed to 2022.

In 2021, there is no new call for proposals for the Mobility of students and staff between programme countries and third countries by the European Commission.

KA2 Erasmus+ Cooperation Partnerships

TRANSFARM project

Vocational education & training for transhumance practitioners, No. 2021-1-NO01-KA220-VET-000025048 is implemented from 01.12.2021 to 01.06.2024 within the ERASMUS+ scheme KA220 Cooperation Partnerships in Vocational Education and Training. The leader of the consortium of partners is the Norwegian University of Life Sciences, Faculty of Landscape and Society, Norway, and the following partners are cooperating in the project: Aristotle University of Thessaloniki, Hof und Leben GmbH, European Landowners' Organization, On Projects Advising SL, Technical University in Zvolen and Institute for Research on European Agricultural Landscapes e.V. (EUCALAND). The main output of the project will be e-learning material available on the website and is intended for young farmers and rural entrepreneurs who want to start and/or maintain seasonal pastoralism. The training material will enable them to acquire the skills and knowledge to better respond to the changing challenges and new demands of their work. The project leader at TUZVO is doc. Ing. Martina Slámová, PhD., FEE.

Project activities of the Center of Continuing Education for the year 2021, University of the Third Age (UTV) within the Erasmus+ programme:

Increase and development of manual skills and physical vitality of citizens of the European Union over 50 years

Project code: 2018-1-SK01-KA204-046291

Project coordinator: Technical University in Zvolen

Partners: Associação Rede de Universidades da Terceira Idade, Almerim, Portugal; Uniwersytet Trzeciego Wieku w Lubsku, Poland; Mendel university in Brno, Czech republic; Fundacion Universidade da Coruna, Spain

Mobility in 2021:

- 22 - 24.06.2021 Lubsko, Poland, participants: Selecký, Kiss + 6 UTV students
- 05. – 07.07.2021A Coruna, Spain, participants: Selecký, Kiss + 6 UTV students

Women 55+ versus COVID-19. Exchange of good practices in supporting the development of personal and social competences and learning skills , as well as increasing social inclusion of disadvantaged people.

2020-1-PL01-KA227-ADU-095746

Project coordinator: Zakład Doskonalenia Zawodowego w Zielonej Górze, Zielona Gora, Poland

Partners: the Technical University in Zvolen; Fundacion Universidade da Coruna, Spain; Project Net - Riga, Latvia; Ankara Elmadag Halk Egitim Merkezi Mudurlugu, Ankara, Turkey

Mobility in 2021:

- 22. 06. 2021 Lubsko, Poland, participants: Selecky, Kiss + 1 UTV lecturer
- 27.09. - 01.10.2021 Ankara, Turkey, participants: Kiss + 7 UTV lecturers

Healthier Europeans - a healthier Community

Project code: 2020-1-PL01-KA204-082141

Project coordinator: Uniwersytet Trzeciego Wieku w Lubsku, Poland

Partners: the Technical University in Zvolen; Project Net - Riga, Latvia; Associação Rede de Universidades da Terceira Idade, Almerim, Portugal; Asociatia Parinti pentru copii, Campia Turzii, Romania

Mobility in 2021:

- 22. 06. 2021 Lubsko, Poland, participants: Selecky, Kiss + 1 UTV lecturer
- 25. - 29.10.2021 Lubsko, Poland, participants: Kiss + 8 UTV lecturers

CEEPUS

In addition to the Erasmus+ programme, TUZVO also focuses on participation in other international programmes and networks, in particular the CEEPUS programme.

Tab. II. 6 Participation of HEIs in CEEPUS networks in 2021/2022

network number	network name	responsible person/coordinator of CEEPUS mobility at the university
CIII-PL-0701-10-2122	Engineering as Communication Language in Europe	Erika Sujová FT
CIII-RS-0507-11-2122	Research, Development and Education in Precision Machining	Erika Sujová FT
CIII-RS-1012-07-2122	Building Knowledge and Experience Exchange in CFD	Pavol Beňo FT
CIII-PL-1308-04-2122 (Umbrella)	Proecological and antibacterial laquer products for woodworking industry	Ján Sedliačik DF

Due to the COVID-19 pandemic, no CEEPUS mobilities were carried out in 2020.

National Scholarship Programme of the Slovak Republic

The National Scholarship Programme as a programme to support mobility of students, doctoral students, university teachers and researchers, which is implemented by the Slovak Academic Information Agency (SAIA), on the basis of a mandate from the Ministry of Education, Science, Research and Sport of the Slovak Republic, announces twice a year calls for scholarships and travel grants.

In the calls in 2020 with the implementation of activities in 2020/2021, four scholarship holders were approved from all applicants for study or research stay abroad under the National Scholarship Programme, the implementation was postponed to 2021.

Further mobility

DAAD "Ostpartnerschaften" solved in cooperation with Georg August Universität Göttingen and TU in Zvolen – guarantor: prof. Ľ. Scheer, prof. Dr., W. Kurth.

Long-term topics of mutual cooperation are applied informatics, spatial information systems, geoinformatics, forest modelling and growth simulators. The planned mobilities for 2021 have been postponed to 2022 due to the unfavourable pandemic situation.

SLDK in cooperation with the Slovak Academic Information Agency in Banská Bystrica has been organizing information seminars of SAIA for a long time and continuously mediates individual consultations for students of TUZVO, focused on the offer of international mobility programmes and study stays within the approved plan of scientific and professional events.

During the interruption of the full-time form of teaching at TUZVO in connection with the Covid-19 disease and the ongoing distance learning form of study in 2021, in the summer semester of AR 2020/2021, online SAIA webinars were made available to TUZVO students, provided by a lecturer from SAIA Žilina. In the winter semester of AR 2021/2022, SAIA online webinars on mobility and foreign stays were also provided in cooperation with SAIA in Banská Bystrica.

An overview of student mobility is given in Table 6 in Annex 2.

IV. INFORMATION ON THE PROVISION OF CONTINUING EDUCATION

In AR 2020/2021, the Development and Continuing Education Plan of the Technical University in Zvolen was implemented in accordance with the concept of continuing lifelong learning as systematic professional education in all categories.

The compulsory training and retraining received by 130 staff members was based on the relevant legislation and standards. The cost of this training amounted to EUR 1,274.40 (EUR 2,232.08 in 2019). On its own account, the Technical University in Zvolen organised PPO and OSH training for 43 employees.

The cost of staff training activities related to participation in conferences, seminars, training courses at home or abroad amounted to EUR 27,804.28 (EUR 56,611.15 in 2019). Of the 379 persons attending, 229 were teachers.

In the area of staff training, a system of individual learning was also applied - through participation in webinars, videoconferences, the study of professional literature, foreign languages and online learning events.

At the University of the Third Age in the academic year 2020/2021, a total of 423 students in 23 fields of study were enrolled in all fields of study. There were no graduates in that academic year because studies were interrupted for COVID.

Among other activities of the Centre for Continuing Education, it is worth mentioning the organisation of:

- English language course for employees and students of TUZVO (27 participants),
- Accredited Security Technician Course (16 participants),
- Refresher Training for Security Technicians (17 participants).

The Technical University in Zvolen has been granted accreditation of additional pedagogical studies (DPŠ) until 2023 in accordance with Act No.317/2009 Coll. on pedagogical employees and professional staff. In the academic year 2020/2021, the study did not open due to the epidemiological situation in Slovakia with the COVID-19 disease, as part of the education is also the completion of pedagogical practice at secondary vocational schools, in which the teaching took place online and it was not possible to provide this practice for students of the DPŠ.

V. INFORMATION ON RESEARCH, ARTISTIC AND OTHER CREATIVE ACTIVITIES OF THE UNIVERSITY

The new year has begun in a period of difficult changes. Once again, it was heavily marked by the spread of the respiratory disease COVID-19. The measures and guidelines taken to reduce the risk of infection have put our University's teaching, research and other processes on an extraordinary course. The interruption of contact teaching, the introduction of home office, the cancellation of planned business trips, the cancellation of planned public events on campus, and the provision of the entire process in the form of an online space have also left their mark on the scientific research activities of the university. In the conditions of the pandemic crisis, changes in the quality assurance system of higher education are being addressed, as well as amendments to the Higher Education Act and further restrictions in the funding of universities.

The new comprehensive system of accreditation of study programmes and the requirements for the quality of education that we are currently working on at the University are based on European quality standards. They are expected not only by applicants for studies, but also by young teachers and scientists who decide to stay or go abroad.

With the continued reduction of state subsidies to public universities, the new way of evaluating science, research and artistic activities, and the upcoming changes in the funding of universities, as well as the proposed amendment to the Higher Education Act, which affects the recognised principles of academic freedom and autonomy, these steps appear to be mutually incompatible. With such a number and scope of reform elements, the reform becomes too great a burden for Slovak higher education institutions and universities, which is not yet covered financially.

In addition to the accreditation process, in 2022 the universities will be subject to periodic evaluation of research, development, artistic and other creative activities through the Ministry of Education, Science, Research and Sport of the Slovak Republic on the basis of the Directive No. 59/2021 on periodic evaluation of research, development, artistic and other creative activities.

The latest Scimago Institutions Ranking (SIR) 2021 includes 18 Slovak institutions. The Slovak Academy of Sciences was once again the best ranked institution at 581st place. The most successful Slovak university was Comenius University in Bratislava at 627th place. The Technical University in Zvolen is in 801st place. In the comparison of Slovak research institutions, as in the previous year, it is in 12th place and the drop in the ranking of TUZVO is due to the size of the institution.

In 2021, the Technical University in Zvolen joined the international evaluation of universities and higher education institutions U-Multirank. U-Multirank is an internationally recognised benchmarking tool for students, teachers and universities that compares over 1,900 institutions based on selected areas such as general information, teaching and learning, research, international orientation, regional engagement, and knowledge transfer. The Technical University in Zvolen is the 8th Slovak university to provide data for the processing of over 100 indicators in the selected areas. The results of the comparison will be available during the U-Multirank 2022 evaluation.

The year 2021 is the 5th year of implementation of the Long-Term Plan of the Technical University in Zvolen for the years 2017 - 2023 with a vision to 2030, which was developed in accordance with the requirements of Act No. 131/2002 Coll. on higher education and on amendment and supplementation of certain acts as amended. In the field of scientific research, creative and artistic activities, the strategic goal is to achieve internationally accepted results in research, artistic activities and the transfer of knowledge into economic and social practice. Progress in the implementation of the measures and their development into individual tasks can be ascertained on the basis of indicators (measurable indicators). The implementation of some of the measures will continue in 2022, according to the new work in progress.

TUZVO is currently a stable and successful research and educational institution in important indicators. This is confirmed by international rankings of universities and research institutions. The University meets the provisional criteria for the authorisation to use the designation 'research university' published by the Ministry of Education, Science, Research and Sport of the Slovak Republic. The provisional criteria take into account the evaluation of research, development, artistic and other creative activities of higher education institutions in the framework of the last comprehensive accreditation in 2015. By fulfilling these criteria, TUZVO has entered the elite group of Slovak universities.

Staffing of research activities

Academic staff and students in the third level of higher education or PhD students participate in the scientific research and publishing activities of the University according to the following tables, which indicate their number and structure.

Table V.1 Structure of academic staff (data to 31.12.2021)

Workplace	Teaching staff				Research staff	Total				
	prof.	doc.	Professional assistants	TOTAL		2017	2018	2019	2020	2021
LF	16	24	23	63	36	92	91	88	92	99
DF	13	25	53	91	11	107	103	104	105	102
FEE	6	10	21	37	6	43	40	41	41	43
FT	1	13	9	23	3	30	29	28	27	26
OOS	0	0	11	11	2	15	15	15	14	13
TUZVO	36	72	117	225	58	287	278	276	279	283

Table V.2 Structure of students in the third level of higher education (data to 31.12.2021)

Workplace	Students in the third level of study				
	2017	2018	2019	2020	2021
LF	38	40	29	28	31
DF	50	49	29	30	29
FEE	31	25	18	22	17
FT	19	21	15	11	9
USP	0	0	0	7	13
TUZVO	138	135	91	98	99

The total number of academic staff has been declining in recent years, mainly due to a reduction in state subsidies to public universities. There has been a decrease in the number of staff in the positions of associate professors and assistant professors. The number of researchers is supplemented by researchers employed only on projects. In 2021, the Management of TUZVO approved the Organisational Directive No. 3/2021 on postdoctoral positions at TUZVO. The Directive allows to fill the posts in connection with the research projects on the basis of previous proposals of the deans and responsible project investigators in the form of a selection procedure by a written employment contract for a definite period of time and for a fixed weekly working time.

The change in the funding of doctoral studies by the Ministry of Education, Science, Research and Sport of the Slovak Republic has a significant impact on the number of doctoral students admitted. This is funding from the chapter of salary funds. In view of these facts, the faculties announce topics for doctoral studies only by those supervisors who are researchers of current scientific projects and

have recently published together with doctoral students in impacted journals. Since 2020, PhD students are also on the University Study Programme (UŠP) of the Technical University in Zvolen.

The following table gives an overview of the research capacities of teaching staff, researchers and PhD students by faculty as well as for the whole university on projects to be solved in 2021 and for comparison we also present the summarized values for the last 5 years.

Table V.3 Researcher capacity on projects to be addressed in 2021 and comparison with previous years (in hours)

Faculty	Teaching staff	Research staff	PhD students	Total				
				2017	2018	2019	2020	2021
LF	92 831	45 627	28 905	142 296	146 586	147 643	156 719	167 363
DF	105 588	6 650	29 350	162 445	167 808	143 790	131 457	141 588
FEE	38 098	2 220	12 740	41 935	49 096	61 300	45 954	53 058
FT	24 233	4 050	13 400	38 080	48 150	38 800	36 330	41 683
TOTAL	260 750	58 547	84 395	384 756	411 640	391 533	370 460	403 692

In the long term, the research capacity is concentrated on solving grant tasks from the Ministry of Education, Science, Research and Sport of the Slovak Republic, both by teaching and research staff. The total capacity of hours on projects for the Technical University increased by 33,232 hours compared to last year, i.e. by 8.97%. The average researcher capacity in the year under review was 1,159 hours per teaching staff member, 1,009 hours per researcher and 852 hours per PhD student.

Specialised research and development workplaces

Two excellent teams are active at the Technical University in Zvolen. In the summer of 2018, the Accreditation Commission published an overview of excellent teams at Slovak universities, which it selected within the second call of its project "Identification of excellent scientific teams of universities in Slovakia" held in 2017. The aim of the commission was to draw public attention to the fact that Slovak universities also have teams that have scientific results recognized in the world and that teach creativity to their students, involve them in scientific or artistic creation and provide quality education.

A excellent team called Structure and Properties of Lignocellulosic Materials (WOODMAT) is working under the leadership of prof. Kačík. The cutting-edge team continued inter-faculty and interdepartmental cooperation in solving APVV (2) and VEGA (3) projects, whose responsible researchers are individual members of the top expert team. These projects financially cover the needs of the research activities, therefore the allocated funds were used to motivate the members of the top team. The team's activities have resulted in publications in reputable impacted journals. In 2021, the members of the top expert team published 14 articles in foreign peer-reviewed journals in the Current Contents Connect - CCC database (ADC category) and 3 articles in journals included in the Web of Science - WOS database (ADM and ADN categories), as well as other articles in scientific journals, scripts in foreign publishing house.

The publication of an article in Applied Materials Today (IF = 10.041) can be considered a significant achievement. In collaboration with a world-class facility from Oak Ridge National Laboratory, TN, USA. In 2021, another manuscript was developed with this team and is currently under review.

The team leader, prof. Kačík successfully defended his doctoral dissertation thesis before the permanent committee for the defence of doctoral dissertations in the field of Science of Nonmetallic Materials and Building Materials - 020424 and before the Scientific Board of the Slovak University of Technology in Bratislava and was awarded the scientific degree of "DrSc."

A excellent team called Biological Basis of Silviculture (SylviBio) works under the leadership of prof. Gömöry. Due to pandemic constraints, it has not been possible to make greater use of the funds to

support working trips. The subsidy was primarily used for remuneration of the members of the excellent team and for the support of postdoctoral fellows who were previously affiliated to the team as PhD students (Dr. Konôpková, Dr. Hrivnák). The scientific output of this broader team includes 9 WoS entries for 2021, in addition to a number of other publications in the pipeline. Support in the form of a grant greatly expands the opportunities for team members to work on these outputs.

In addition to the two accredited excellent teams mentioned above, 11 teams with an H-index greater than 10 and 3 applied research teams were identified. At the same time, we note that two centres of excellence are established at TUZVO: Centre of Excellence: Adaptive Forest Ecosystems, led by prof. Rudolf Kropil and the Centre of Excellence for Decision Support in Forest and Landscape, under the leadership of prof. Ján Tuček.

In the framework of the distribution of state budget subsidies to public universities for 2022, a criterion derived from the results of the evaluation of the quality of research activities of the university was applied to support excellent research components. The following have been identified as excellent components, belonging to the top 25% of the best departments in the Slovak Republic: DF in technical sciences, LF in agricultural sciences and departments of DF and LF for social sciences.

Projects supported by foreign grant schemes

In 2021, the research teams were involved in 19 international cooperation projects: 5 H2020 projects, 1 LIFE project and 11 COST projects. TUZVO staff have long been cooperating with several foreign research institutes and universities (Poland, Austria, Germany, France, Spain, Hungary, Bulgaria, Russia, Great Britain, China, Greece, Portugal, USA, Canada).

H2020-SFS-2020, No. 101000289 Holistic management practices, modelling and monitoring for European forest soils (HoliSoils), where the responsible researcher for TUZVO is Ing. Michal Bošela, PhD., 2021-2025. The overall objective of HoliSoils is to develop a harmonised soil monitoring framework and new holistic soil management practices that will help mitigate CC, adapt forests to cope with CC and sustain the provision of various ecosystem services essential for human livelihoods and well-being. To this end, HoliSoils incorporates new methodologies and expertise on analytical techniques, data sharing, soil properties and processes with model development to develop tools for soil monitoring, refine the assessment of GHG emissions in the LULUCF sector, increase the effectiveness of GHG mitigation measures, and improve numerical prediction of mitigation, adaptation and ecosystem services on soils. HoliSoils focuses on forest soils and considers soils as an essential - but often neglected - part of ecosystems, with rich biodiversity determining overall ecosystem functionality and the provision of ecosystem services (e.g. wood resources, water supply, C sequestration). In 2021, the researchers set up an experiment at the Dobroč site to monitor carbon and methane fluxes in the soil. Soil respiration will be compared between a spruce monoculture and a mixed natural forest. The data obtained will also be used to establish a European network for measuring carbon fluxes in forest soils in Europe and to improve global models.

H2020 - Characterisation Of A Green Microenvironment And To Study Its Impact Upon Health and Well-Being in The Elderly As a Way Forward for Health Tourism (H2020-MSCA-RISE-2016-CHARMED, 734684), where the responsible researcher for TUZVO is Ing. Magdaléna Pichlerová, PhD. 2017-2020. The original end date of the project was 31 December 2020. The original duration was 48 months, but due to the pandemic situation, the end of the project was postponed to 30.06.2021, when the final report on the monitoring of visitor numbers in the CHKO Poľana for the period 19.06. 2019 - 18.06.2021 using Linetop counters (pyroelectric sensors), which are used in conjunction with the control room to record passing people (hikers, cyclists, in-line skaters, cross-country skiers, etc.) from 6 profiles (Kalamárka, Vodopád - northern access, Priehybina 1, Žliebky, Priehybina 2, Vodopád - southern access, Vepor). The outcome was a successful defence of the DP solved in the context of the project topic (Viktória Kvietková), which was devoted to the analysis of the potential of the Čierny Balog municipality to promote the well-being of its inhabitants and visitors: Kvietková, V., 2021: Does Čierny Balog have the potential to promote the well-being of its inhabitants and visitors? Thesis, TU FEE,

Zvolen, 93 p. Finally, a compulsory secondment took place on 13 November 2021-12 December 2021 at the partner institution Antonetti Nadia in Nemi, Italy (Prof. Pichler) and 2 working trips (13-16 November 2021; 11-14 December 2021) were carried out to Nemi, Italy; meeting with the project manager, consultation on the final project reports, field survey on the use of hiking trails for intervention research. Final conference with presentation of the summary results achieved within the project was held on 29.11.2021.

H2020 - Critical Solutions for Elderly Well-being (H2020-MSCA-ITN-EID-2019-RISE-WELL, 860173) where the responsible investigator for TUZVO is Ing. Magdaléna Pichlerová, PhD. 2020-2024. Within the framework of the solution, a research methodology on forest recreation on subjective well-being, stress and cognitive function of the elderly population was developed. Approval was obtained from the independent bioethics committee at the BBSK to conduct the research, a research cohort was assembled, and an experiment was conducted during which all relevant parameters were continuously determined in the research participants. Results and samples were continuously processed laboratory and statistically at the home institution and partner institutions. At the same time, the data was analysed from a database on the quality of life of the elderly in EU countries. Two foreign researchers and PhD students were involved in the above topics.

H2020 - Proactive monitoring of cancer as an alternative to surgery (H2020-MSCA-RISE-2019-PRISAR2, 872860), where the responsible investigator for TUZVO is: Ing. Magdaléna Pichlerová, PhD. 2020-2024.

The role of TUZVO as a consortium partner is to contribute to the knowledge of QOL ("quality of life") through the analysis of suitable natural environments and thus help to improve the quality of life of cancer patients. The researchers participated in 2 webinars: 13.04.2021 - Webinar on analytical methods and development of probes (5 expert contributions + project overview; agenda available from the institutional project coordinator) and 28.10.2021 - Webinar on CTC Quantification and Characterisation (3 expert contributions + project overview; agenda available from the institutional project coordinator).

H2020 SILVANUS - Integrated Technological and Information Platform for wildfire Management, where the responsible researcher is: doc. Ing. Andrea Majlingová, MSc., PhD. (2021-2025). The project deals with the management of wildfires in natural environments, forest resilience and climate change. It is funded by the EU Horizon 2020 Green Deal and coordinated by Università Telematica Pegaso (Italy). In 2021, activities related mainly to the administration of the project were ongoing. The Kick-off Meeting of the project took place in December 2021. As TUZVO is the coordinator of one of the key work packages of the project related to the collection and evaluation of data on technologies, data, practices and requirements imposed on the 3 phases in fire fighting, it has developed guidance questionnaires for conducting surveys and questionnaires used to gather information at the level of the 49 consortium partners and also with external stakeholders.

LIFE16 NAT/SI/000634 Preventing the extinction of Dinario-SE Alpine lynx population through reinforcement and long-term conservation, where the responsible researcher for TUZVO is Dr. h. c. prof. Ing. Rudolf Kropil, PhD. 2017-2024. Within the LIFE LYNX project, further opportunistic year-round monitoring of the lynx lynx (Lynx lynx) in the territories of central and eastern Slovakia was carried out. Deterministic (systematic) monitoring of lynx with photo traps and censusing with the spatial population size estimation (SCR) method in the Volovské vrchy Mountains was continued. Three lynx individuals were captured in the Veporské vrchy and Vtáčnik mountains, which were subsequently released as part of population restitution in Croatia and Slovenia.

The COST programme is an instrument for European cooperation in science and technology, enabling the coordination of nationally funded research at European level. COST contributes to reducing the fragmentation of investment in European research and opening up the European Research Area (ERA) to global cooperation. University staff have served as national delegates in the following COST Steering Committees:

- COST Action CA 20132 - Urban Tree Guard - Safeguarding European urban trees and forests through improved biosecurity, (UB3GUARD), responsible investigator Mgr. JUDr. Zuzana Dobšínská, PhD., 2021-2025
- COST Action CA 20123 - Intergovernmental Coordination from Local to European Governance, (IGCOORD), prof. Dr. Ing. Jaroslav Šálka, 2021-2025
- COST Action CA15206 - Payments for Ecosystem Services (Forests for Water), (PESFOR-W) - Payments for Ecosystem Services (Forests for Water), responsible researcher for TUZVO: prof. Dr. Ing. Jaroslav Šálka, 2016-2021
- COST Action CA 19128 - Pan-European Network for Climate Adaptive Forest Restoration and Reforestation (PEN-CAFORR), responsible researcher for TUZVO: prof. Ing. Dušan Gömöry, DrSc., 2020-2024
- COST Action CA18237 - European Soil-Biology Data Warehouse for Soil Protection (EUdaphobase), responsible researcher for TUZVO: doc. Ing. Erika Gömöryová, CSc., 2019-2023
- COST Action CA15226 - Climate-smart Forestry in Mountain Regions (CLIMO), responsible researcher for TUZVO: doc. Ing. Katarína Střelcová, PhD., 2017-2021
- COST Action CA 18207 - Biodiversity of Temperate forest Taxa Orienting Management Sustainability by Unifying Perspectives, responsible researcher for TUZVO: Ing. Mariana Ujházyová, PhD, 2019-2023
- COST Action CA16229 - European Network for Environmental Citizenship (ENEC), (European Network for Environmental Citizenship), responsible researchers for TUZVO: Ing. Vladislav Kaputa, PhD., Ing. Hana Maťová, PhD., 2018-2021
- COST Action CA18135 - Fire in the Earth System: Science & Society, responsible researcher for TUZVO: doc. Ing. Andrea Majlingová, PhD., 2019-2023
- COST Action CA18236 - Multi-disciplinary Innovation for Social Change, responsible researcher for TUZVO: Ing. Vladislav Kaputa, PhD., 2019-2023
- COST Action CA18226 - New approaches in detection of pathogens and aeroallergens, responsible investigator for TUZVO: doc. Ing. Branko Slobodník, PhD., 2019-2023

In 2021, within the framework of the **Operational Programme Integrated Infrastructure**, Priority Axis: 9 Support for Research, Development and Innovation, the Technical University in Zvolen ensured the financial closure of 2 projects approved within the framework of the Calls for support of research and development capacities in 4 domains of smart specialization, the aim of which was to finance research activities in the selected research area for the period from 01.01.2016 to 31.12.2019.

Comprehensive research on mitigation and adaptation measures to mitigate the negative impacts of climate change on forest ecosystems in Slovakia (FORRES), ITMS 313011T678 - submitted under the call OPVai-VA/DP/2018/1.1.3-08 - Healthy Food and Environment domain. The project activities were substantively completed on 31.12.2019. The project carried out independent research and development in the field of risk reduction in the provision of forest functions related to climate change in order to increase knowledge in this area. A maximum non-repayable financial contribution (NFA) of EUR 1.7 million has been approved for the project in 2019. In 2021, funds from the final payment request amounting to EUR 76 131.62 were disbursed.

Comprehensive Research on Determinants for Environmental Health (ENVIHEALTH), ITMS 313011T721 - submitted under the call OPVai-VA/DP/2018/1.1.3-10 - Population Health and Health Technologies domain. The project activities were substantively completed on 31.12.2019. The project carried out independent research and development in the field of risk reduction in ensuring better quality environmental health. A maximum amount of EUR 1.2 million was approved for the project in 2019. In 2021, funds from the final payment request amounting to EUR 72,693.73 were disbursed.

The project of the Faculty of Wood Sciences and Technology and Faculty of Technology Progressive research on the performance of wood-based materials and products (LIGNOPRO), ITMS 313011T720 - submitted under the call OPVai-VA/DP/2018/1.1.3-07 - domain Industry for the 21st century, was financially completed with the final payment in 2020.

On 11.09.2020 the Partnership Agreement between the National Forestry Centre Zvolen (main partner) and the Technical University in Zvolen, Comenius University in Bratislava, University of Žilina in Žilina, YMS, a.s. (project partners) for the implementation of the project Research and development of non-contact methods for the acquisition of geospatial data for the purpose of forest monitoring for more efficient forest management and increased forest protection (FOMON), ITMS 313011V465, entered into force. The application for NFP was submitted in 2019 under the Call for support for long-term strategic research - RIS3 Smart Specialisation Domain "Healthy Food and Environment" (OPVal - VA/DP/2018/1.2.1-06). The Technical University in Zvolen within the project implements activity No. 3 - Rationalisation of mapping, identification of forest status, optimisation of game management and forest management using advanced remote sensing technologies. The project will be completed by 30.6.2023. The maximum amount of NFP approved for the project is 477 thousand EUR. In 2021, funds amounting to EUR 132,547.17 have been transferred.

Since 01.01.2020 the Technical University as a partner participates in the implementation of the project FDAAS - automated system for fire risk assessment, ITMS 313010Q879. The main partner is the company Ardaco, a.s., Bratislava. The project was submitted under the call of the Ministry of Economy of the Slovak Republic for support of innovation through industrial research and experimental development within the Digital Slovakia and Creative Industry domain (OPVal-MH/DP/2018/1.2.2-17). The implementation of the project lasts from 01.01.2020 to 31.12.2021. The maximum amount of NFP approved for the project is 80 thousand EUR. In 2021, funds in the amount of EUR 42,547.70 were transferred.

Projects supported by domestic grant schemes

TUZVO submits projects to various grant agencies every year.

VEGA: On 12.04.2021, a call for applications for new projects with the start of the solution in 2022 was published, oriented to support the improvement of the quality of basic research in individual groups of disciplines of science and technology and to strengthen the competitiveness of Slovakia. TUZVO participated in this call with 27 applications for projects, the MŠVVaŠ SR proposed 17 projects for funding, which is a 63% success rate.

KEGA: On 12.04.2021, a call for applications for new projects was published with the start of the solution in 2022, aimed at applying for grants for new projects of applied research oriented to the support of pedagogical models of education and training, new technologies, forms and methods within the school system and outside the classroom. TUZVO participated in this call with 11 project applications, the MŠVVaŠ SR proposed 3 projects for funding, which is a 27% success rate.

APVV: On 10.09.2020 APVV announced a public call for applications for research and development projects in individual groups of fields of science and with the designation VV-2021. TUZVO participated in this call with 19 applications, of which 3 projects were submitted by other co-investigating organizations. At the moment, we do not have any information on the projects that will be approved by the Agency under VV 2021.

During the year 2021, bilateral calls for applications for joint projects supporting cooperation between organisations in the Slovak Republic and other countries (Serbia, China, Ukraine, Poland) were also announced. TUZVO participated in these calls with 7 applications for projects, of which 2 projects (SK-CN and SK-PL) were approved for funding.

On 04.10.2021 a bilateral research call for applications for joint research and development projects supporting cooperation between organisations in the Slovak Republic and the Czech Republic will be announced. TUZVO has joined this call with one application, but at the moment we have no information whether the project will be funded.

Table V.4 Success rate of submitted projects at TU in Zvolen over the last five years

	VEGA					KEGA				
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
Podané projekty	24	26	23	24	27	13	18	17	17	11
Financované projekty	13	11	12	14	17	6	11	6	7	3
% úspešnosti	54	42	52	58	63	46	61	35	41	27
	H2020, HORIZONT EURÓPA					APVV-VV				
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
Podané projekty	4	10	6	8	4	22	22	22	22	19
Financované projekty	-	-	2	1	2	10	7	8	8	
% úspešnosti	-	-	33	12,5	50,0	45,5	31,8	36,4	36,4	0,0

In 2021, a total of 68 projects (45 VEGA projects and 23 KEGA projects) were implemented at TUZVO in the grant agencies of the Ministry of Education, Science, Research and Sport of the Slovak Republic. Of these, TUZVO was a co-investigating organisation on 3 VEGA projects and 4 KEGA projects. Compared to the previous year, when 66 projects were solved at the University, this is only a slight increase.

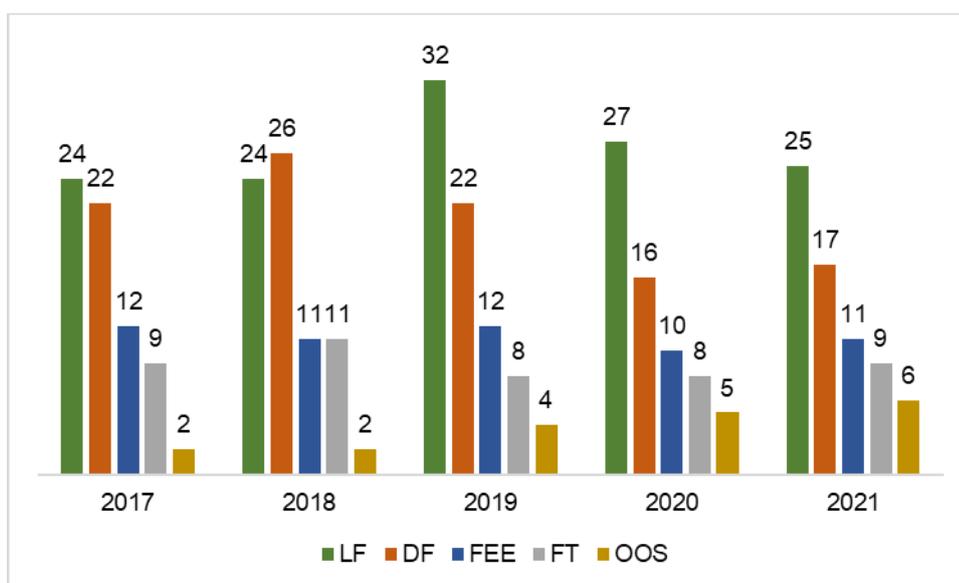


Fig. V.1 Development of the number of projects from the Ministry of Education, Science, Research and Sport of the Slovak Republic

In the framework of the announced General Calls of the APVV, 36 projects (starting and continuing) and 1 project of the bilateral call (SK-PL) were solved at the Technical University in Zvolen. This is a decrease of 1 project compared to the year 2020, when 34 projects were addressed at the University.

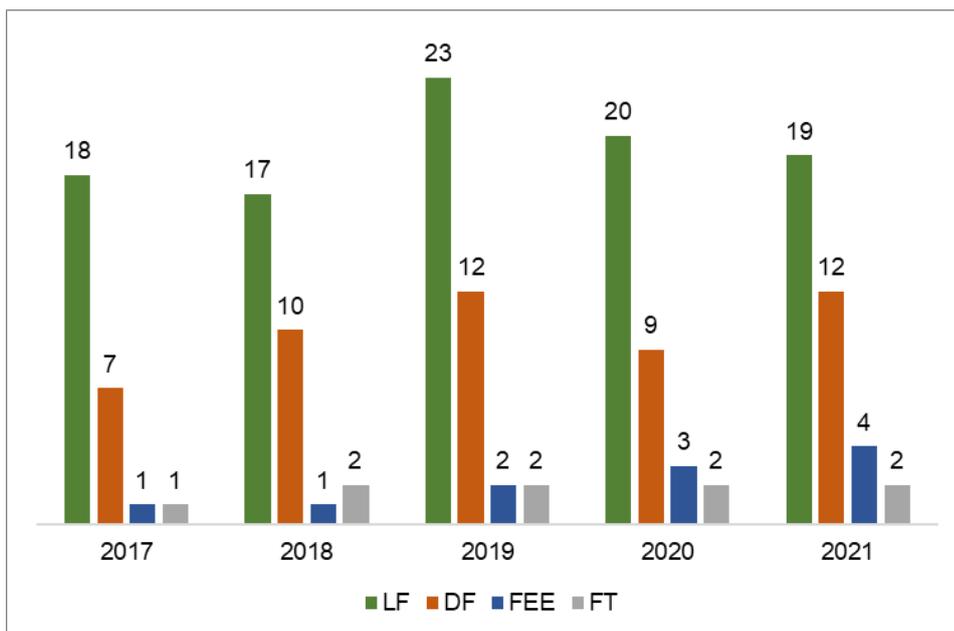


Fig. V.2 Evolution of the number of APVV projects

The success of faculties in obtaining domestic projects can be assessed more objectively by calculating the number of projects from domestic grants (VEGA, KEGA and APVV) per one academic staff member. The university average is marked in purple.

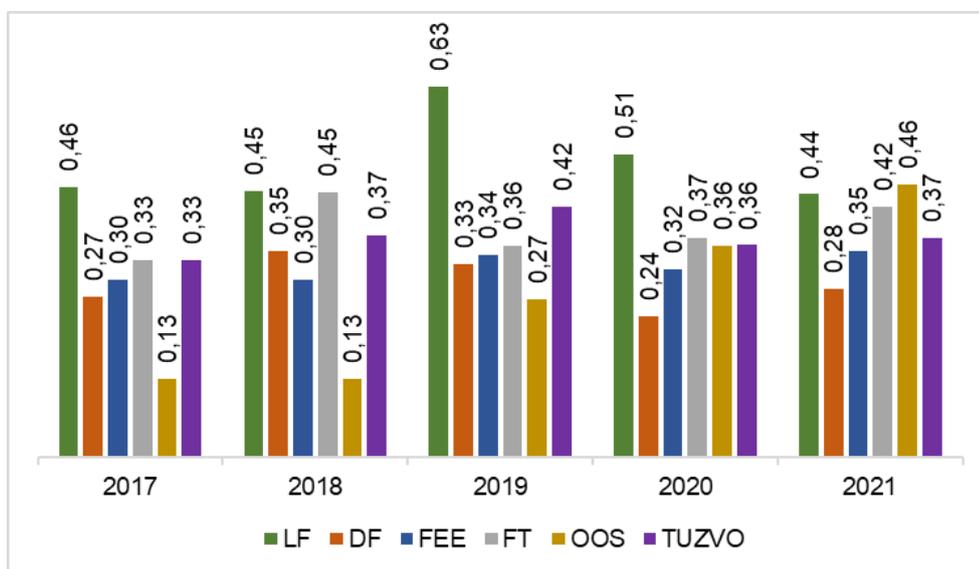


Fig. V.3 Development of the number of domestic projects in AZ

The university average is marked in purple. In each of the monitored years, LF has the highest number of domestically funded projects per academic staff member. Among the other organisational units, the most productive is the Institute of Foreign Languages, whose staff has solved up to 4 KEGA projects, which, when calculated per 10 employees of the Institute, creates a high number.

Research activities not supported by grants

TUZVO staff continued to be involved in research projects in 2021, which were obtained through orders, work contracts, collaboration agreements and entrepreneurial activities. Highlights include:

Beech forest management of VŠLP, under the leadership of prof. Ing. Milan Saniga, DrSc. The project was continued within the framework of the implementation of partial stages at individual departments of the Faculty of Forestry, mainly within the framework of the special-purpose activities of the VŠLP.

Forecast of the impacts of the zonation of the Muránska Planina National Park on forestry entities, under the leadership of prof. Ing. Marek Fabrika, PhD. The study dealt with the forecast of the development of timber production, recreational value of the forest and its static stability and biodiversity in the time horizon of 30 years in the Muránska planina area depending on different variants of the zonation of the National Park. On the basis of the forecasts of forest condition development, the economic impacts of different zonation variants or prolongation of the current management regime were also quantified. The forecasts showed that regardless of the zonation proposal and the management method, the current state of the forest in the next 30 years predicts a slight increase in the recreational value of the forest stands, a more significant reduction in static stability and a significant increase in the biodiversity of the forest stands. At the same time, it has been demonstrated that the variant without zonation is associated on average with poorer recreation performance (especially in periods when harvesting interventions were planned), lower biodiversity, but also higher static stability of stands and lower level of management risk. Each of the new forest use zoning options considered shows an economic loss compared to the current business-as-usual management, which can be quantified by the difference in the respective net present values of the compared options. This economic loss is highest in the original zoning proposal 01/2020 (90.22 % decrease compared to the variant without zoning change) and gradually decreases as the period of leaving the B1 zone for self-development increases (only 43.33 % decrease).

Action plan for the promotion of forest protection on the territory of the Bratislava Self-Governing Region under the Memorandum on cooperation and joint action in forest protection, under the leadership of prof. Dr. Ing. Jaroslav Šálka, 2020. Technical University in Zvolen for the Bratislava Self-Governing Region prepared on the basis of the offer for the contract "Action plan for the promotion of forest protection on the territory of the BSK - analytical part (hereinafter referred to as "BSK") in the sense of the Memorandum of cooperation and joint procedure in the protection of forests. On the basis of the analytical part, TUZVO was asked to prepare the second part of the document, the drafting part. The main objective is to describe in detail, on the basis of the analytical part of the Action Plan, the measures, the way they will be implemented and the financing options with specified time horizons, which will ensure the achievement of the objectives of the Memorandum of Understanding. Specific measures are to be proposed for specific forest management units to support forest ecosystem services. At the same time, model proactive measures will be proposed to retain water in forest communities in the form of proposals for forest management modification and model technical solutions. An inventory of forest infrastructure is also to be carried out and forest management modifications are to be proposed in the water harvesting area of the BSK to improve the quantity and quality of groundwater and surface water. In the first year, work started on the methodology for the inventory of forest roads and a survey was carried out among the signatories of the Memorandum on the need to provide forest ecosystem services 18 in the territory of the BSK. The study is being carried out by TUZVO staff from four departments of the Faculty of Forestry: KERLH, KPLZI, KLĽLM and KAZMZ.

Forecast of the development of the capital value of the land in the administration of LESOV SR, š. p., Muránska Planina affected by the decree of OU Banská Bystrica, Department of Environment of 24.01.2020 No. j. OU-BB-OSZP1-2020/007031-3-Ku - prof. Ing. Ján Holécý, CSc. 2021. Determination of the capital value of forest assets is a generally accepted way of assessing the economic value of forest. The value of forest assets includes the value of forest land (as a factor of production, a resource that produces value) and the forest stand (in simplified terms, the value of timber mass). The method is

based on the calculation of the Net Present Value (NPV) achieved over the harvesting period, i.e. the difference between all income and expenditure incurred in each period of the forest stand's existence. The inputs to the calculations are based on the outputs of the Sibyl growth simulator. The analysis evaluated the impacts of retaining a defined part of the land (25%, 50%, 75% of the transferred area) on self-development in the territory of the Muránska planina NP by determining the difference between the capital value of the property in the case of non-implementation of the proposal (variant V1) and the capital value of the property in the case of the implementation of the proposal (variants V2, V3, V4). The results show that under the lowest management constraint considered (Option V2 - transfer of 25% of the area), this decision would result in a total economic loss over the forecast period of 30 years of EUR -319,113,344; which, when converted to an annual equivalent, amounts to EUR -13,402,331. The results also show that for the highest management constraint considered (Option V4 - relocation of 75% of the area), the decision to implement it would result in an economic loss of EUR -931,903,851; with an annualised value of EUR -39,138,709. The simulation results for the continuation of the business-as-usual option (V1) also indicate that neither ecological stability nor net management returns are impaired under unchanged future zoning.

Determination of the subspecies affiliation of the sage grouse and assessment of the degree of relatedness in individuals from breeding and wild, under the direction of Ing. Diana Krajmerová, PhD., 2017-2021. In 2021, additional analyses of individuals from breeding flocks in Řepčonka and Boubín were carried out. Relationships of individuals and potential parent individuals originating from the Wisla, Boubín and Řepčonka breeding flocks were determined. Analyses were carried out to recommend individuals suitable as parental individuals for the breeding flock in Řepčonka so as to minimise the degree of relatedness between parental individuals.

Analysis of impacts/modification of forest management induced by strengthening of recreational functions on LC Lesy SR Bratislava, under the leadership of doc. Ing. Róbert Sedmák, PhD. In 2021, the analytical part of the expert project continued to be elaborated according to the requirements of the client - DG ŠL Banská Bystrica. It was mainly the recalculation of compensation needs of several variants of modified management agreed between the city representatives and the ŠL staff directly in the field. The recalculations included not only substantial refinements of the expected timber sales revenues on the basis of more detailed information on the actual monetization of various assortments, but also refinements of the impacts of the cessation of timber harvesting. The refined calculations of expected logging revenues then served to determine more objectively the compensation requirements of the SL for a number of sub-variants of compensation resulting from the fact that part of the stands managed by the SL are managed under lease. The project is implemented in cooperation of three departments of the Faculty of Forestry - the Department of Forest Resource Planning and Informatics, the Department of Forest Economics and Management and the Department of Applied Zoology and Wildlife Management.

UNIVNET - University and Industrial Research and Education Platform for Recycling Society, under the leadership of Dr.h.c. prof. Ing. Rudolf Kropil, PhD. The continuous development of industry as well as consumer lifestyle leads to an increase in the amount of waste produced, which includes plastic and rubber waste from the automotive industry. Currently, the share of plastics in the total weight of cars ranges from 10 to 15%, and up to 30% in volume terms. As the share of plastics application increases, the volume of scrapped cars, car wrecks and plastic waste is also increasing. As well as plastic waste, waste rubber (insulation, carpets, etc.) and worn tyres are still a global problem and their volume is much higher than the amount of waste that can be rationally recovered. The amount of waste tyres is increasing by around 17 million tonnes per year. This situation has forced the formation of recycling projects and the use of plastic and rubber waste from end-of-life cars. Therefore, the aim of many scientists is to develop new methods of recycling some of the most produced plastic polymers. The aim of this consortium is to reduce the content of plastics, tyres and other rubber materials constituting waste from the automotive industry, to reduce the consumption of raw materials, especially those derived from non-renewable resources, and to use waste rubber and plastics as a

secondary raw material, reducing the huge environmental burden of waste plastics and rubbers. The aim of the project was to prepare new composite materials containing waste rubber (tyres, carpets, insulation) and plastics from cars, to evaluate the properties of the composites and the possibilities of using them as construction material for exterior and/or interior applications. On the basis of the partial results, it was possible to produce new composites which will be protected by intellectual property in 2022. At the same time, a concept for an investment business plan for the production of new composites was developed. Within the framework of the project, partial results were published in monoFigures entitled "Progressive technologies of waste recovery in the automotive industry" and the second one in a renowned publishing house abroad entitled "Analysis of the state, forecasts and new technologies of waste recovery in the automotive industry" The results from the monoFigures were presented at the UNIVNET online conference.

SEMOD-76-2/2019 Research of wood composites for increasing the level of protection of soldiers - KOCHRAN, under the supervision of doc. Ing. Roman Réh, CSc., 2019-2021. The project was successfully completed in 2021. The aim of the project was to develop a new flat high-quality structural material in the form of a special plywood board for the purpose of increasing the level of soldier protection. A new composite material based on beech wood veneers as well as alternatively using a combination with non-wood materials was developed. This material uses a combination of the properties of two heterogeneous materials, i.e. the high bonding ability of wooden beech veneers and phenol-formaldehyde adhesive, and alternatively the high strength of a non-wood composite based on man-made fibres in the form of a special combined plywood board. The new material of both types is designed to absorb large amounts of kinetic energy and has great potential for the construction of safe structures for engineer shelters, command observation posts, logistic vehicles, guard and observation towers (check-points) or as a safe packaging material for the transport and storage of ammunition and explosives in order to increase the level of protection of the soldier.

Quality assessment of selected shrub elements Krásna Hôrka, under the leadership of doc. Ing. Alena Rohanová, PhD. Research at the Faculty of Wood Sciences and Technology has long been devoted to the assessment of the quality of structural timber, especially for the conditions of Slovakia. In 2021, the Faculty of Wood Sciences and Technology of TU in Zvolen assessed the quality of selected truss structural elements at Krásna Hôrka Castle. During the assessment, methods for determining the quality of timber in situ were applied in accordance with STN and EN regulations.

Research of regional varieties of fruit trees under the leadership of Ing. Juraj Modranský, PhD., 2021-2022. The research of regional varieties of fruit trees was carried out within the territory of the Starina reservoir basin - cadastral area of Starina nad Cirochou, Dara, Smolník nad Cirochou, Ruské, Veľká Poľana, Ostrožnica and Zvala. The aim was to identify the diversity of fruit species across the species spectrum. The overall outputs of the conducted research provide an overview of the representation and value of the existing gene pool of old and regional varieties of apple, pear, plum and other fruit species in the area of interest. From the processed data of the detailed research, a characterisation of the current state of the gene pool of fruit trees was compiled and the possibilities and needs for its preservation were assessed, as well as the prospects for preserving the existing individuals of fruit trees and varieties in relation to their current state.

Preparation of selected chapters of the analytical, synthesis and design part of the Regional Territorial Ecological Stability System (RÚSES) for selected districts (Skalica) - II. and III. Stage under the leadership of Ing. In 2021, the evaluation and incorporation of comments of the affected municipalities, affected state administration bodies, natural and legal persons on the RÚSES Skalica was addressed. These were the comments of the Trnava Self-Governing Region, the City of Holíč, the ŠOP SR Administration of the White Carpathians Protected Landscape Area, the District Office of Skalica, the Slovak Water Management Company Š.p. The comments concerned the technical report itself as well as the cartoFigureic documents. A field survey was necessary to incorporate the comments. The project was completely handed over in 2020, it was sent for comments, the comments were incorporated and the project was approved in 2021.

Document of care for trees of the town of Banská Bystrica I. stage under the leadership of Ing. Dušan Daniš, PhD., 2021-2022. 170/2021 Coll., which implements Act No. 543/2002 Coll. on Nature and Landscape Protection, as amended, the tree care document provides an overview of the distribution, condition, quality and ecological, landscape, aesthetic and cultural-historical significance of trees in the cadastral territory of the municipality, contains proposals for the care of trees and the location of tree planting in the cadastral territory of the municipality and is the basis for decision-making of nature protection authorities. The "Document on the care of trees of the town of Banská Bystrica - Stage I" is prepared in accordance with the contract and the legislation of the Slovak Republic in the scope of mapping and analysis of all trees of the sites selected by the Client on the land owned by the town of Banská Bystrica and its administration.

In total, more than 6600 trees were evaluated, inventoried, passported and processed in GIS on 10 sites with a total area of 62.5 ha. The mapping process also involved the 1st and 2nd year students of the OVK study programme provided in the second level of higher education. The document also included the proposal of trees for replacement plantings, selection of areas for replacement plantings and a list of risk taxa for use in the public green space of Banská Bystrica.

Internal grant agency projects

In 2021, the 15th year of IPA TUZVO activities was already underway. The activities of the Project Agency are aimed at supporting the research activities of young employees - teaching and research staff, as well as internal PhD students up to 30 years of age. The priority goal of the IPA is for young staff and PhD students to gain practice and experience in project development and project level management. In the long term, the assumption that experience from IPA projects is an incentive to obtain projects from national and international agencies is fulfilled.

In the framework of the call for submission of projects to the IPA TUZVO in 2021, 26 project applications were submitted: from LF 6 projects, DF 12 projects, FEE 5 projects and from FT 3 projects. Out of these 26 applications, 3 applications were rejected due to formalities. 22 projects were considered at the PR IPA TUZVO meeting on 09.04.2021, out of which 11 projects were proposed for funding in the total amount of: 10,426 EUR. In 2021, a lower amount of funding was allocated compared to 2020, namely EUR 9,790; which is 7.77% less and this was reflected in the number of funded projects.

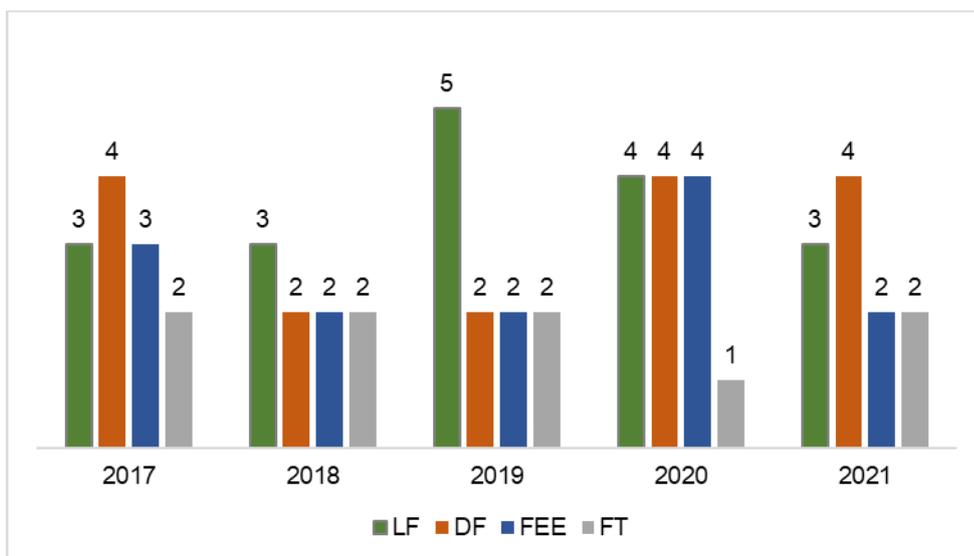


Fig. V.4 Evolution of the number of IPA research projects in progress

In 2021, the following projects were carried out by young researchers through IPA TUZVO:

IPA 1/2021 Proposal of possibilities of increasing the service life of tools working in forestry, responsible investigator: Ing. I.Vargová Monika, FT.

IPA 2/2021 Modification of the cooling method of the compact heat exchanger in the cooling circuit of the car engine, responsible investigator: Ing. Lipnický Marek, FT.

IPA 3/2021 Design and validation of a new methodology for detecting the effect of weathering of flame accelerants on their identification in the detection of fire causes, responsible investigator: Ing. Hodálik Marek, DF.

IPA 4/2021 Application of a new progressive method of flame propagation on the surface of lignocellulosic materials, responsible investigator: Ing. Ing. Kmeťová Elena, DF.

IPA 6/2021 Theoretical-methodological framework for research on international interaction and national forestry policy in the Slovak Republic, responsible researcher: PhDr. Halušková Lenka, LF.

IPA 9/2021 Mapping the current situation in the field of green growth in the wood processing industry in Slovakia, responsible investigator: Ing. Vetráková Miroslava, DF.

IPA 11/2021 Analysis of socio-economic factors influencing the demand for mechanical wood processing products, responsible researcher: Ing. Hlodák Marek, DF.

IPA 17/2021 Identification of environmentally important species of microorganisms by sequence analysis, responsible investigator: Ing. Prepílková Veronika, FEE.

IPA 19/2021 Changes of oak forest communities in the period of great acceleration, responsible investigator: Ing. Kotrík Marek, LF.

IPA 25/2021 The use of remotely piloted aerial system in the process of derivation of tree height responsible researcher: Ing. Pondelík Marek, LF.

IPA 26/2021 Evaluation of selected urban ecosystem services, responsible investigator: Ing. Murtinová Veronika, FEE.

The final defences of the 15th year were held on 11.03.2022 in the form of attendance. 11 final theses were submitted for evaluation. The IPA Project Board stated that the assessments of the final reports were positive and the funding of the IPA TUZVO projects was in accordance with the current Statute. All final reports were submitted within the deadline and all met the requirements as specified in the 2021 call. The members of the IPA Project Board evaluated the presented final papers with the following assessment:

Certificates with A grade - about successful completion of the project and achieving excellent results were awarded to three researchers Ing. Monika Vargová, Ing. Marek Lipnický, and PhDr. Lenka Halušková.

Certificates with grade B - on successful completion of the project were awarded to eight researchers Ing. Marek Hodálik, Ing. Elena Kmeťová, Ing. Miroslava Vetráková, Ing. Marek Hlodák, Ing. Veronika Prepílková, Ing. Marek Kotrík, Ing. Marek Pondelík and Ing. Veronika Murtinová.

Funds obtained from foreign and domestic grants

In 2021, TUZVO received funding from 3 foreign projects (1 H2020 project, 2 Horizon Europe projects and two international cooperation projects based on contract research).

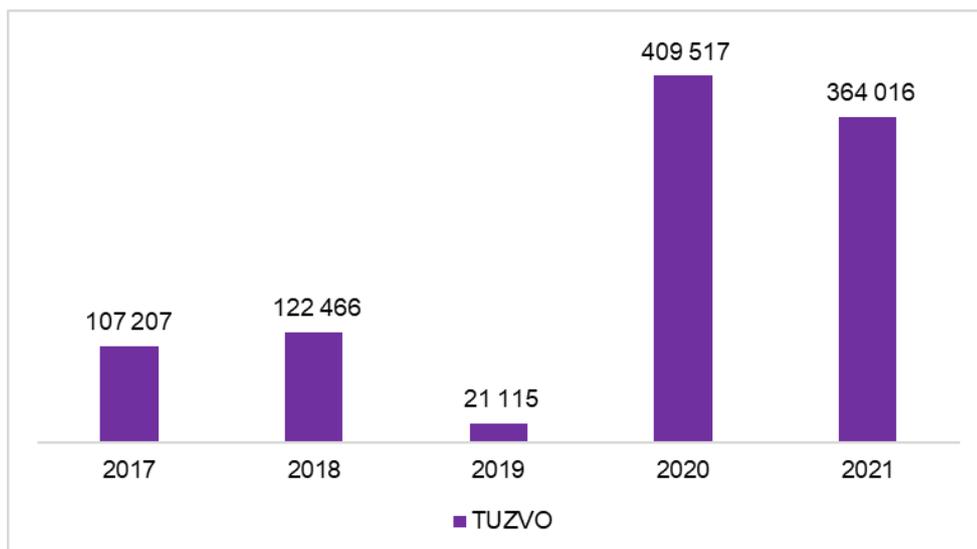


Fig. V.5 Overview of the number of funding allocated from foreign sources (in EUR)

In the table below we present an overview of the number of funds allocated from domestic sources in 2021 by faculties and other organisational units of the University. The number of allocated funds also includes grant projects that have been funded directly from co-organisations, not only from the chapter of the Ministry of Education, Science, Research and Sport of the Slovak Republic.

Table V.5 Overview of the number of domestic funding allocated (in EUR) and the number of projects to be implemented in 2021

	LF	DF	FEE	FT	OOS	TUZVO
APVV - VV	711 890	535 282	41 341	84 122	0	1 372 635
Počet projektov	19	11	4	2	0	36
Iné projekty APVV	0	244	0	0	0	244
Počet projektov	0	1	0	0	0	1
VEGA	234 187	110 392	56 808	48 132	0	449 519
Počet projektov	21	12	7	5	0	45
KEGA	34 436	38 762	17 945	12 286	29 919	133 348
Počet projektov	4	5	4	4	6	23
SPOLU	980 513	684 680	116 094	144 540	29 919	1 955 746
	44	29	15	11	6	105

As we can see in 2021 the university has received 1,955,746 EUR; which is the most allocated funds received from domestic grants in the last 5 years. A negative aspect is the unbalanced structure between faculties and departments

The success of faculties in raising funds can be assessed more objectively by calculating the amount of funds raised from domestic and foreign sources per academic staff member.

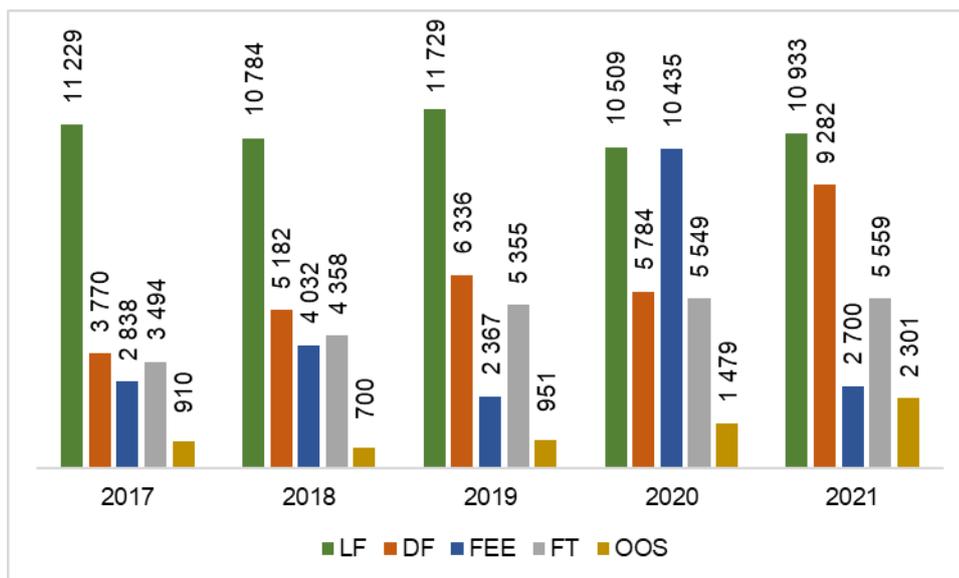


Fig. V.6 Amount of funding (in EUR) received from all sources per academic staff member

For 2021, financial sources of EUR 9,790 were available for IPA research projects. The IPA Project Board of TUZVO approved a maximum amount of EUR 1 000 per project, but the subsidy for the projects was reduced based on the points awarded in the lecturers' assessments. The following table shows the allocation of funding to projects by faculty.

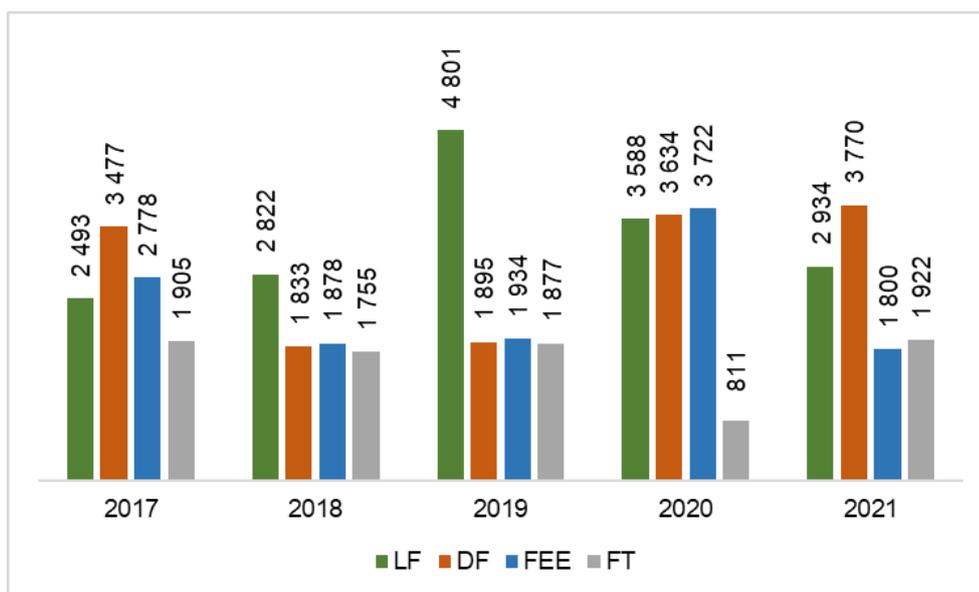


Fig. V.7 Number of funds allocated to IPA projects

Publication activity

In 2021, in the Central Register of Publication Activity, data imports from the CREPČ 1 database to the CREPČ 2 database were carried out in several phases. All import phases were preceded by a thorough cleaning of records, their deduplication and the creation of new records (mainly authoritative). All these activities were delegated by the CVTI SR to academic libraries, which had to manage the editing of records in CREPČ only within their limited staff capacities. The reporting year 2021 was the last year of processing according to the old legislation (Decree of the Ministry of

Education, Science, Research and Sport of the Slovak Republic 456/2012 Coll.). The Library had to focus its activities also on the creation of EPCA data analyses for the necessary preparation of the smooth implementation of the new Decree 397/2020 Coll. on the Central Register of Publications and the Central Register of Artistic Activities into the library system.

The results of publication activity for 2021 compared to previous periods are presented in Table V.6 and Figure V.8. The individual categories of publication activity A-D were established by the MŠVVaŠ SR and were also valid in 2021. This breakdown is important from the perspective of allocation of funding for TUZVO, whereby (code-named ADC and ADD). In addition, from 2018 onwards, the quartiles of journals within the respective research areas in which the articles have been published are also taken into account in the funding of universities. The management of TUZVO seeks to motivate creative faculty members to publish more, especially in category B, through the incentive-based remuneration system, and thus to change the overall structure of publication activity with the aim of partially reducing the predominant share of publications in category D (i.e. other publications not registered in the Current Contents, Web of Science and Scopus databases). The University's publication activity benchmarked for 2020-2021 is presented in a tabular Annex 2 - Table 13.

Table V.6 Publication activity of TU in Zvolen in the years 2020-2021 (data to 15 February 2022)

YEAR	LF		DF		FEE		FT		OOS		TOTAL	
	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
PAZ*	92	99	105	102	41	43	27	26	14	13	279	283
A1	10	6	10	9	2	0	1	2	3	2	26	19
	4.13%	2.36%	3.68%	2.65%	2.13%	0.00%	1.04%	2.20%	6.25%	5.41%	3.46%	2.39%
	0.11	0.06	0.10	0.09	0.05	0.00	0.04	0.08	0.21	0.15	0.09	0.07
A2	12	18	17	28	6	1	5	6	6	6	46	59
	4.96%	7.09%	6.25%	8.26%	6.38%	1.35%	5.21%	6.59%	12.50%	16.22%	6.12%	7.42%
	0.13	0.18	0.16	0.27	0.15	0.02	0.19	0.23	0.43	0.46	0.16	0.21
B	96	80	62	98	32	44	16	24	5	7	211	253
	39.67%	31.50%	22.79%	28.91%	34.04%	59.46%	16.67%	26.37%	10.42%	18.92%	28.06%	31.82%
	1.04	0.81	0.59	0.96	0.78	1.02	0.59	0.92	0.36	0.54	0.76	0.89
C	26	24	50	52	12	6	19	9	11	11	118	102
	10.74%	9.45%	18.38%	15.34%	12.77%	8.11%	19.79%	9.89%	22.92%	29.73%	15.69%	12.83%
	0.28	0.24	0.48	0.51	0.29	0.14	0.70	0.35	0.79	0.85	0.42	0.36
D	98	126	133	152	42	23	55	50	23	11	351	362
	40.50%	49.61%	48.90%	44.84%	44.68%	31.08%	57.29%	54.95%	47.92%	29.73%	46.68%	45.53%
	1.07	1.27	1.27	1.49	1.02	0.53	2.04	1.92	1.64	0.85	1.26	1.28
Σ	242	254	272	339	94	74	96	91	48	37	752	795
	2.63	2.57	2.59	3.32	2.29	1.72	3.56	3.50	3.43	2.85	2.70	2.81

*PAZ = number of academic staff (teaching staff + researchers with university education)

Note: Number of publications in the group/percentage of the number of publications in the group in a given year/number of publications per 1 AZ

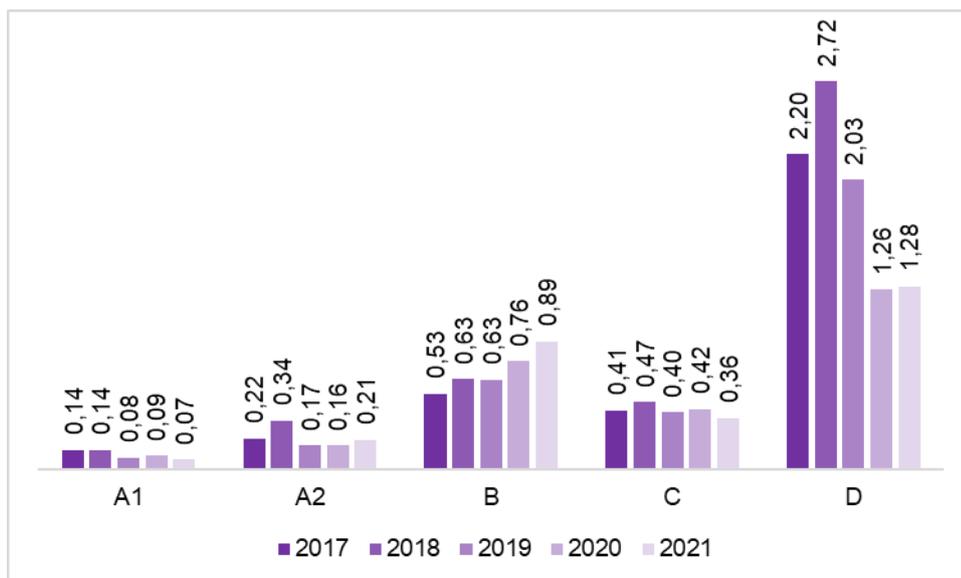


Fig. V.8 Development of publication activity per academic staff member at TUZVO (data to 15 February 2022)

Detailed lists of grant projects, other research and non-research projects are given in tabular Annex 2 - Table 19 and Table 20.

Artistic activity

The outputs of artistic activities are evaluated in accordance with the Organizational Directive No. 7/2013 and the Decree of the Ministry of Education, Science, Research and Sport of the Slovak Republic No. 456/2012 Coll., similarly to the publishing activities. In 2021, a total of 24 entries were registered in the Central Register for the registration of artistic activity (www.crepc.sk) in the reporting period from 01/01/2021 to 31/01/2022. The following Figure is processed as of 12/02/2022, i.e. after the closure of the register for the year 2021. It shows all outputs on which both staff and PhD students of the Department (internal and external) have worked.

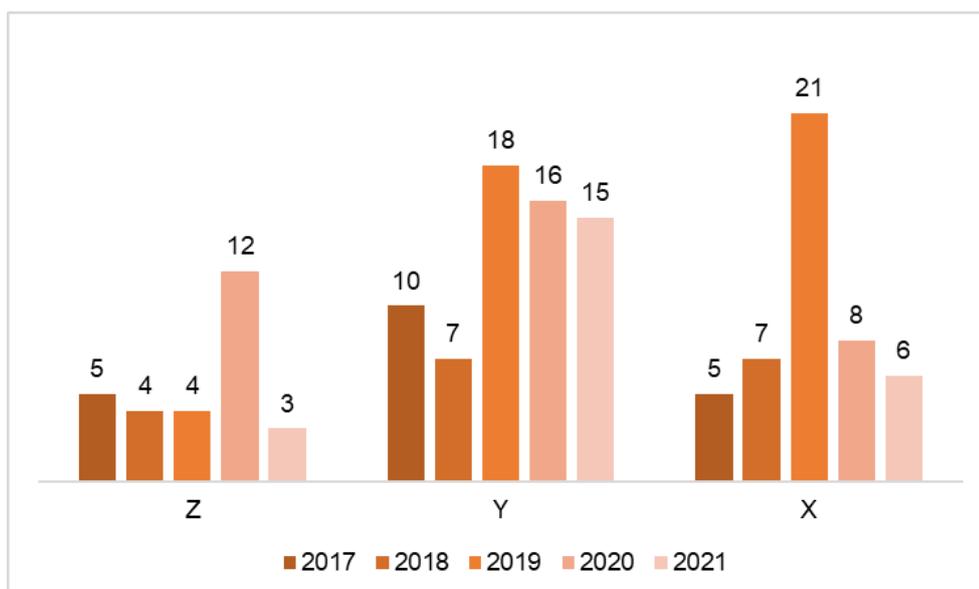


Figure V.9 Development of artistic activity (data to 12 February 2022)

The highest decrease is observed in the highest quality artistic outputs in category Z, the average in categories Y and X, while these outputs have not yet been verified by the Expert Evaluation Body (OHO) in the Centre for Scientific and Technical Information of the Slovak Republic (CVTI) SR.

The following are the most significant participation of the Department of Furniture and Interior Design in the category Z - major works of art in 2021: Solo exhibition Ľubo Gajdoš - Between Design and Object presented a selection of works of art-design and sculptural work. FULBRIGHT 75 VIRTUAL ART EXHIBIT (October 22 - December 31, 2021: New York, USA) The exhibition was organized as part of the celebration of the 75th anniversary of the Fulbright Program. Design without borders (10. 10. - 28. 11. 2021: Budapest, Hungary) - Design without Borders by Austrian, British, Czech, Czech, Estonian, Finnish, Dutch, Hungarian, German, German, Polish, Italian, Austrian, Portuguese, Romanian, Slovenian, Spanish, Swiss and Slovak designers of furniture, textiles, objects and jewellery, photoFigureers, as well as a series of events complemented by performances of contemporary dance and concerts of contemporary classical music.

A detailed overview and list of artistic activities is provided in the tabular Annex 2 - Table 14 and Table 21.

Industrial law protection in the form of patents, utility models and designs

Industrial law protection is dealt with by the Technology Transfer Department. The support of knowledge transfer into practice at the Technical University in Zvolen consists in cooperation with the Industrial Property Office of the Slovak Republic, the Centre for Scientific and Technical Information of the Slovak Republic (CVTI SR), the Banskobystrian Self-Governing Region (BBSK) and establishing contacts with external organizations.

In 2021, the Technology Transfer Department participated in the first incubation programme Start up! at TUZVO, which was designed for all innovative ideas at all stages of entrepreneurship. The Start up! at TUZVO was open to individuals or teams planning to start an innovative business. The application process was open online from 27.04 to 14.05.2021. RTT registered a total of 15 interesting ideas, which were thoroughly assessed by representatives from the Technology Transfer Office and the Start Up! The authors of the shortlisted ideas went on to participate in short online interviews to present the submitted ideas as well as to discuss the possibilities of their development. The actual incubation programme Start Up! 9 best ideas that were directly or indirectly related to the focus of our university, such as wood processing industry, ecology or forestry, got into the incubation programme at TUZVO. The participants of the programme went through several weeks of seminars provided by the Start Up! with the help of their subject matter experts. The program taught them how to properly validate their small business idea, how to develop a good business plan, and how to navigate online marketing or boost sales through an interactive website.

On 18.11 a professional seminar on technology transfer support was held on the topic: how to commercialize intellectual property rights? How to enter a university incubator? How to turn your innovative idea into a business? The seminar was intended for all university staff and students who were interested in learning about this issue. It was held online in the MS Teams environment.

The Department for Technology Transfer cooperates on the project National Infrastructure for Technology Transfer in Slovakia - NITT SK II (2016-2023). Also in 2021, the support of the local technology transfer centre continued through the implementation of the NITT SK II project.

In 2021, the Technical University in Zvolen joined the Call for funds in cooperation with SIEA: Innovation vouchers ONLY FOR APPLICANTS FROM THE BANSKO-BYSTRIAN SELF-GOVERNING REGION, whose provider was the Ministry of Economy of the Slovak Republic as the intermediary body for the Operational Programme Integrated Infrastructure (hereinafter referred to as "OP II") acting on behalf of the Ministry of Transport and Construction of the Slovak Republic as the managing authority for OP II. In the framework of this call all faculties of the Technical University in Zvolen were included in the list of eligible researchers, only there was no drawdown of funds from our side.

During the summer semester 2021, the second part of the Study - Supporting and hindering factors in the process of transfer of scientific knowledge into practice at the Technical University in Zvolen was also carried out at the University. The aim of the study was to identify the supporting and limiting factors in the transfer of knowledge into practice from the perspective of university employees. The respondents were asked to assess whether the neutrally formulated factors act as barriers to their involvement in the transfer of scientific knowledge into practice or, on the contrary, support their involvement in the transfer of scientific knowledge into practice. A total of 92 employees participated in the survey out of a total of 283 creative employees of the university surveyed.

On 22.01.2021, the Ministry of Education, Science, Research and Sport of the Slovak Republic registered a new association of ten Slovak universities called the Consortium of Slovak Universities, abbreviated as U10+, in the register of universities. The main objective of U10+ was to prepare a Feasibility Study of the Consortium, which consists of a benchmarking assessment and a SWOT analysis of the Consortium members. Both the evaluation and the SWOT analysis were divided into 10 areas. Based on the brainstorming session, 5 factors were identified for each area of the SWOT analysis. The brainstorming group agreed that the most violent aspects of the university in the area of Innovation - Knowledge Transfer are "Interest of companies in innovative cooperation with the university for gaining competitive advantage especially in new green technologies" (total maximum score of 10) and "Activities at the Slovak and EU level to support the development of national and regional innovation centres and university innovation projects (CVTI, VUC)" (score of 9). However, the biggest threat in this area is still the persistent "Mistrust and lack of interest of the business sector in cooperation with the university in the transfer of knowledge into practice" (total minimum score achieved - 10). The University has seen a boom in this area, especially in the field of 'green technologies', but its aim is still to extend such collaborations to a wider group of partners in economic practice. The factor 'Early legislative, administrative and financial rules at national level hampering business-university collaboration in transferring knowledge into practice' was identified as another serious threat (-10 points).

On the basis of the results of some research projects (APVV, VEGA) of the employees and students of TUZVO, original and often unique technical solutions were created, for which the originators filed applications for industrial-legal protection to the Industrial Property Office of the Slovak Republic in the form of 3 utility models and 2 designs in the year 2021.

Utility Models:

- Modification of prefabricated wall panels of buildings to ensure airtightness, the author is Ing. Pavol Sedlák, PhD.
- Passive loudspeaker for smart devices with stand function, the author is Ing. Ján Šustek, PhD.
- Device for determination of the rate of flame propagation on the surface of polymeric materials and method for this determination, authors are doc. Ing. Martin Zachar, PhD., prof. RNDr. Danica Kačíková, MSc., PhD., doc. Ing. Andrea Majlingová, PhD.

Designs:

- Slogan of the Faculty of Wood Sciences and Technology TUZVO, authors are Ing. Miroslav Chovan, ArtD., doc. Ing. Zuzana Tončíková, ArtD.
- Bowl HLAVOLAM, the authors are Ing. Miroslav Chovan, ArtD., doc. Ing. Zuzana Tončíková, ArtD.

The Industrial Property Office issued for TUZVO in the evaluated year 1 Patent Deed, the owners of which are the Institute of Molecular Biology of the Slovak Academy of Sciences, the Institute of Chemistry of the Slovak Academy of Sciences, the Technical University in Zvolen and the Institute of Music Science of the Slovak Academy of Sciences, as well as 4 Certificates of Registration of Utility Model, the owner of which is the Technical University in Zvolen and 18 Certificates of Registration of Design, the owner of which is the Technical University in Zvolen.

As of 31.12.2021, the Technical University in Zvolen is the owner of 14 valid patent documents, 43 valid certificates of registration of utility models, 42 certificates of registration of designs in the register and 1 certificate of assignment of a trademark in the register at the Industrial Property Office.

Presentation of research results to the public

Popularisation of science is an important activity because it brings new knowledge to the layman in a simple way and makes the meaning of scientific work clearer. Without such activities, the feeling that research is pointless and that we are spending unnecessary resources on it could prevail in society. The perception of the importance of experts and professional institutions for a well-functioning society would decline. From this point of view, it is essential that educators, technicians and scientists themselves should be able to present their work and the results of their research in an interesting and simple way.

TUZVO is involved in the project Support to the National System for Popularization of Research and Development (Pop VaT II). CVTI SR, section National Centre for Popularisation of Science and Technology in Society (NCP VaT) announced a competition for contact points for the national popularisation network in 2021. The contact points were to operate in individual regions of the Slovak Republic and were to provide assistance in activities related to building a positive perception of the importance of science and raising awareness of science and technology through the implementation of selected popularisation activities of NCP VaT. Due to the current epidemiological situation, these posts have not been filled. Nevertheless, work was carried out to build a network and support other popularisation activities developed not only through the CVTI SR, but also in the individual regions of the SR.

The Week of Science and Technology in Slovakia is organised annually by the Ministry of Education, Science, Research and Sport of the Slovak Republic in cooperation with the CVTI SR and the National Centre for Popularisation of Science and Technology in Society. The 18th edition of the Week of Science and Technology in Slovakia took place from 08. to 14.11.2021. As the TVT took place during the third wave of the coronavirus pandemic, the format was adapted to the situation this time as well. Most of the events were therefore again online. However, specific events were also held in cities across Slovakia.

Other interesting events included:

A simulator of a flying device - a jet-board - in virtual reality. An opportunity to personally experience virtual reality (HTC Vive) on a flying device simulator, whose flight is controlled by tilting an unstable plate and controlling the power of static (virtual) jet engines. The public event was organized in cooperation with the Faculty of Technology of TU in Zvolen and SLDK.

News in science, research and practice in the field of Security Sciences. The aim of the workshop was to provide an opportunity for students of the POB study programme and other workshop participants to get acquainted with new trends in the field of Security Sciences with an emphasis on solutions in practice, linking science and research with practice. Through the presentations of renowned experts, the current results of cooperation between science, research and practice in the field of security were presented.

Student Scientific Activity (ŠVOČ) has become an integral part of the support of students' scientific and professional activities and has become a tradition at the University. In general, it is one of the complementary forms of educational activities, the culmination of which is the Student Scientific Conference, where students of all three levels of education can present the results of their scientific research work. ŠVOČ is an important support for the overall scientific research work at TUZVO and is also of great benefit to the students themselves, as it develops their scientific research creativity and professional self-confidence on the basis of positive experiences. In 2021, the ŠVOČ took place full-time only at the Faculty of Forestry. The other faculties, due to the pandemic measures of COVID-19, organized this conference online for the students. A total of 88 research papers were presented in 11 sessions.

VI. HABILITATION AND INAUGURATION PROCEEDINGS

The Slovak Accreditation Agency for Higher Education has developed the Standards for Habilitation and Appointment of Professors and the Methodology for the Evaluation of these Standards.

In 2021, the Department of Science and Research worked on the preparation and approval of guidelines for the accreditation process related to scientific research activities, based on which the following materials were approved:

- a) Organizational Directive No. 5/2021 on the acquisition of rights, reconciliation of rights, modification and cancellation of rights for habilitation and inauguration proceedings at TUZVO. The Directive establishes these procedures and processes, including the definition of the rules of procedure of the Board of Guarantors of Habilitation and Inauguration Proceedings.
- b) Organisational Directive No. 6/2021 Implementing Regulations of the TUZVO to the Decree of the Ministry of Education, Science, Research and Sport of the Slovak Republic No. 246/2019 Coll. on the procedure for obtaining scientific-pedagogical titles and artistic-pedagogical titles of associate professor and professor. The Directive regulates the initiation, course and termination of the habilitation proceedings for awarding the title of associate professor and the inauguration proceedings for appointment as a professor in the conditions of TUZVO, as well as the mandatory publication of documents on the University's website. It also deals with the withdrawal of the title of associate professor and the proposal for the removal of a professor. An integral part of the directive are its annexes concerning models of the affidavit of the candidate that his/her publications are not plagiarised, as well as a model professional curriculum vitae and a model licence agreement of the opponent of the thesis.
- c) Organizational Directive No. 7/2021 Minimum threshold criteria for the initiation of habilitation and inauguration proceedings in the fields of study Forestry at the Faculty of Forestry, Wood Sciences and Technology at the Faculty of Wood Sciences and Technology, Safety and Security Sciences at the Faculty of Wood Sciences and Technology, Ecological and Environmental Sciences at the Faculty of Ecology and Environmental Sciences, and Mechanical Engineering at the Faculty of Technology. The criteria are measurable indicators with specified minimum thresholds, all these documents were discussed in the Scientific Boards of the Faculties, the Academic Senate of the TUZVO and approved in the Scientific Board of the TUZVO.
- d) Organisational Directive No. 9/2021 on the evaluation of creative activities at TUZVO. The directive contains the purposes and principles of the evaluation of creative activities, the approval of criteria for the evaluation of the level of creative activities and the selection of outputs and the provision of documents for its evaluation. An integral part of the Directive is a guide for the completion of the Creative Activity Output Form (VTC).
- e) Organisational Directive No. 10/2021 Criteria for the evaluation of the quality level of creative activity outputs for the study fields Forestry at the Faculty of Forestry, Economics and Management at the TUZVO, Wood Sciences and Technology at the Faculty of Wood Sciences and Technology, Safety and Security Sciences at the Faculty of Wood Sciences and Technology, Art at the Faculty of Wood Sciences and Technology, Ecological and Environmental Sciences at the Faculty of Ecology and Environmental Sciences, and Mechanical Engineering at the Faculty of Technology. The criteria include guidance at different levels A+ for top internationally recognized quality level, A for significant internationally recognized quality level, A- for internationally recognised quality level, B for nationally recognised quality level and C for below the standard of nationally recognised quality level. In each field of study, the level criteria are assessed in scientific publications registered in a database, a scientific monography or a chapter in a scientific monography or textbook, and industrial property law. The study field of Art at the Faculty of Wood Sciences and Technology has specific criteria. All these documents have been discussed in the Scientific Boards of the faculties and approved by the Scientific Board of the TUZVO.
- f) Organizational Directive No. 11/2021 General criteria for occupying the positions of professors and associate professors and specific conditions for occupying the positions of professors and associate

professors at all faculties of TUZVO. All these documents were discussed in the Scientific Boards of the faculties and approved by the Scientific Board of TUZVO.

- g) Organizational Directive No. 8/2021 Code of Ethics and Academic Integrity at TUZVO. The directive contains the code of ethics for employees and students of TUZVO, the obligations of employees in observing scientific and academic integrity, the most serious violations of scientific and academic integrity. At the end of the Directive, the Ethics Committee as an independent advisory body of the Rector as well as the rules of procedure of the Ethics Committee are described.

As of 31.12.2021, TUZVO has been granted the right to conduct habilitation proceedings and inauguration proceedings in 12 disciplines. The list is given in the tabular Annex 2 - Table 17 and Table 18. No rights to provide habilitation and inauguration proceedings have been suspended, withdrawn or terminated as of 31.12.2020.

The President of the Slovak Republic appointed the following professors in 2021: prof. Ing. Roman Réh, CSc. From the Faculty of Wood Sciences and Technology, in the field of Wood Sciences and Technology with effect from 22.04.2021 and prof. Ing. Alena Očkajová, PhD. from the Faculty of Natural Sciences of Matej Bel University in Banská Bystrica in the field of Wood Sciences and Technology, whose appointment procedures took place at TU Zvolen. Furthermore, the President of the Slovak Republic appointed with effect from 29.04.2021 prof. Ing. Miloš Hitka, PhD. in the field of Management, whose appointment procedure took place at the Comenius University in Bratislava and prof. Ing. Mariana Sedliačiková, PhD. in the field of Economics and Business Management, whose appointment procedure took place at the Matej Bel University in Banská Bystrica both from the Faculty of Wood Sciences and Technology TU in Zvolen. An overview of the inauguration procedures at the University is presented in the tabular Annex 2 - Table 7.

Five proposals for the appointment of doc. Ing. Peter Jaloviar, PhD., doc. Dr. Ing. Pavel Král from Mendel University of Agriculture and Forestry in Brno, doc. Ing. Stanislav Kucbel, PhD., doc. Ing. Erika Gömöryová, CSc. and doc. Ing. Branislav Olah, PhD. were submitted to the Minister of Education for further proceedings. Proceedings for appointment as professor - doc. Ing. Andrea Majlingová, PhD. was initiated at the Faculty of Wood Sciences and Technology.

Rector of TUZVO Dr. h. c. prof. Ing. Rudolf Kropil, PhD. handed diplomas to five associate professors whose habilitation proceedings took place at TUZVO, doc. Ing. Peter Koleda, PhD. from FT in the field of Production Technology with effect from 11. 01. 2021; doc. Ing. František Máliš, PhD. from the Faculty of Forestry in the field of Forest Phytology with effect from 28. 04. 2021; doc. Ing. Tomáš Lepešek, PhD. from FEE in the field of General Ecology and Ecology of Individuals and Populations with effect from 14. 05. 2021; doc. Ing. Nadežda Langová, PhD. from DF in the field of Construction and Technology of Wooden Products with effect from 12. 07. 2021; doc. RNDr. Judita Kochjarová, CSc. from LF in the field of Forest Phytology with effect from 18. 10. 2021 An overview of habilitation proceedings at the University is presented in the tabular Annex 2 - Table No. 8.

Four associate professors were habilitated at other universities - doc. Ing. Zuzana Tončíková, ArtD. in the field of Design with effect from 20. 01. 2021, doc. Ing. Silvia Lorincová, PhD. in the field of Management with effect from 01. 07. 2021 and doc. Ing. Erika Loučanová, PhD. in the field of Sectoral and Cross-Sectoral Economics with effect from 15. 06. 2021, all from DF and doc. Ing. Martina Slámová, PhD. from FEE in the field of Landscape Protection and Land Use with effect from 10. 11. 2021.

Four habilitation proceedings - Ing. Julián Tomašík, PhD. from LF, Ing. Eva Mračková, PhD. from the Faculty of Wood Sciences and Technology, Ing. Andrea Diviaková, PhD. from FEE and RNDr. Alexander Csanády, PhD. from the Faculty of Humanities and Natural Sciences of the University of Prešov were started at the faculties of the University.

In the year under review, there were no withdrawals of university degrees or motions for dismissal of professors at the University, as documented in Annex 2 - Table 22.

The Scientific Board of the Slovak University of Technology in Bratislava, based on a successful defence of the doctoral dissertation, will award the scientific rank of Doctor of Technical Sciences to prof. RNDr. František Kačík, DrSc., from DF with effect from 15.03.2021.

The Attestation Commission of the Technical University in Zvolen and subsequently the Commission of the Slovak Academy of Sciences for the assessment of scientific qualifications of employees awarded the scientific qualification degree IIa to Ing. Denise Sedmáková, PhD. from LF in the scientific field of Forest Cultivation.

VII. UNIVERSITY STAFF

In 2021, human resources management at the Technical University in Zvolen was directed towards the fulfilment of the strategic objectives of the University in relation to the implementation of the ongoing reform of the Recovery and Resilience Plan, with the aim of increasing the performance of TU in Zvolen, to increase the qualification structure of employees in all categories, especially teaching and research staff, with emphasis on the category of professors and associate professors. The management of TU in Zvolen strives to create consistency between the number of posts and the number and structure of staff so that each systematised post is filled by a highly professional and qualified employee in compliance with the legislation in force and the internal regulation of TU in Zvolen, which is the 'Principles of the selection procedure for filling university teaching posts, research posts, professors' and associate professors' posts, and posts of senior staff of TU in Zvolen'.

The optimization of the internal organizational and qualification structure at individual faculties and other organizational units of TU in Zvolen is continuously fulfilled as a strategic goal of the management of the Technical University in Zvolen.

Staff employment and skills structure

The registered number of employees of the Technical University in Zvolen (hereinafter referred to as TUZVO) in physical persons as of 31.12.2021 was 545 persons (excluding VŠLP), of which 309 were women and 236 were men. Teachers and researchers accounted for 51.74 % of the total number of employees.

Table VII.1 Number of registered staff of TUZVO data to 31.12.2021

Number and structure of staff	Physical number Staff	Share in %
Teaching staff		
of which: professors	35	
Associate Professors	72	
assistant professors with VH	113	
assistant professors without VH	4	
Total	224	41,10
Research staff		
of which: with university	27	
University for projects	24	
USO	7	
Total	58	10,64
professional staff	95	17,43
administrative staff	58	10,64
operational staff of the Rector's Office and the OOS	54	9,91
student dormitory staff	39	7,16
student canteen staff	17	3,12
TOTAL	545	100 %

The qualification structure of university teachers according to individual faculties and institutes is presented in the Annex - Table 10.

Table VII.2 Qualification structure of teachers for 2019-2021

year	Professors	Associate Professors	assistant professors with PhD.(CSc.)	assistant professors without PhD.(CSc.)	University teachers Together
2019	33	68	129	7	237
2020	35	71	125	4	235
2021	35	72	113	4	224

The status of university teachers at the four faculties and two institutes at TU in Zvolen in terms of age structure is presented in Table VII.3.

Table VII.3 Age structure of teachers for 2019-2021

year	age					Together
	up to 34 years	35 - 44 years old	45 - 54 years old	55-64 years old	65 and over	
2019	19	77	63	58	20	237
2020	18	69	71	54	23	235
2021	13	63	79	46	23	224

There has been no increase in the development of the qualification structure of teachers in the category of professors compared to 2020, with three (3) professors inaugurated. In the category of Associate Professors, there was an increase of one Associate Professor on the register compared to 2020, nine (9) Associate Professors were habilitated. There was a decrease of twelve teachers in the assistant professors with a research degree category in 2021, and no change in the teachers without a research degree category from the previous year.

In 2021, 50 employees of which 19 were teachers and researchers terminated their employment. Of the 50 terminations, 29 were women. The turnover rate in 2021 was 9.17%. The increase in turnover is the result of the restrictive measures implemented throughout the calendar year.

The registered number of employees in natural persons in 2021 compared to 2020 has decreased by 28 employees. As part of the retrenchment measures taken in 2021, 44 employees terminated their employment. 16 project staff were recruited. The reduction in the number of non-teaching staff as well as the category of teachers at TU in Zvolen is due to the development of the economic situation and the declining number of students at TU in Zvolen, the restrictive measures taken as a result of the implementation of the reforms of the Recovery and Resilience Plan, employment in the conditions of higher education institutions, the optimisation of the number and structure of posts and other measures taken by the management of TUZVO to improve the performance of the university, as well as the reduction of employment in the public administration.

The filling of posts of teachers, researchers and senior staff at TUZVO was carried out in 2021 in accordance with the legislation in force and in accordance with the "Principles of the selection procedure for the filling of posts of university teachers, posts of researchers, professors and associate professors and senior staff at TU in Zvolen". These principles are based on Act No 131/2002 Coll. on Higher Education and on Amendments and Additions to Certain Acts, as amended, and Act No 552/2003 Coll. on the Performance of Public Work, as amended.

A total of 57 tenders were launched in 2021. Of these, there were 51 competitions for university teachers, 2 competitions for researchers and 4 competitions for senior staff. All the competitions attracted 60 candidates, 57 of whom were internal staff and 3 of whom were external.

An overview of the selection procedures for university teaching posts is given in Annex 2 - Table 9.

Staff development and continuing education

In 2021, the development and continuing education plan for TUZVO employees was implemented as systematic education / training in all job categories. The development and continuing training of TU employees are aimed at continuous improvement and fulfilment of the required knowledge, abilities and skills necessary for the performance of the agreed work activity. Further education and development of employees was carried out by participation of employees in training and retraining, conferences, symposia, courses, seminars, trainings, external doctoral studies, language training and other professional events.

The compulsory vocational training and retraining was completed by 91 employees (drivers, drivers of reference vehicles, electricians, operators of stable pressure vessels, forklift trucks, lifting equipment, etc.). The cost of this training in 2021 was EUR 2,283.00. On its own account, the Technical University in Zvolen organised PO and BOZP training for 33 employees.

A total of 314 staff members, of whom 139 were teaching staff, participated in training (including compulsory professional training resulting from legislation), courses, conferences, seminars, symposia and other educational activities in 2021. Due to the course of the situation regarding the spread of COVID-19 disease, the implementation of face-to-face training activities has been suspended or implemented in on-line mode. The total cost of staff training and development, including mandatory training, amounted to EUR 27,762.90 in 2021.

Table VII.4 Structure of continuing education of TUZVO employees

Type of education	Amount in EUR	Number of employees	of which teachers
Conferences, seminars, trainings, symposia, courses	25 479,90	190	112
Compulsory vocational training	2 283,00	91	27
BOZP and PPO		33	2
TOTAL	27 762,90	314	141

In the area of staff development, the system of individual learning was also applied in 2021 by participating in webinars, video conferences, studying literature, foreign languages and online learning events.

Employer's social policy and employee care

In order to implement the objectives of the social policy, the employer continued to provide support to employees in 2021, in particular by fulfilling the obligations from the concluded Collective Agreement for 2021. The management of TU in Zvolen in cooperation with the University Trade Union of TU in Zvolen created conditions for maintaining or increasing the quality and scope of social security of TUZVO employees by contributions from the Social Fund in accordance with the Act on Social Security of TU in Zvolen, in accordance with the Act on Social Security of TUZVO. 152/1994 Coll. on the Social Fund and its amendments and in accordance with Act No. No. 595/2003 Coll. on Income Tax and supplementary regulations to finance social policy. In 2021, in addition to the allowance for meals and transport, the employer used the social fund to provide employees with allowances for workforce regeneration, culture, corrective optical aids, allowance for the birth of a child, social assistance in the event of an extraordinary event, allowance for long-term sick leave of an employee, for the death of an employee, for the achievement of a life anniversary, for recreation, spa treatment, for blood donation, allowance for the retirement of an employee, and others. The employer made a contribution to supplementary pension savings as part of the employees' care. In 2021, the recreation allowance for the promotion of tourism in the Slovak Republic was paid on the basis of 189 applications from TU in Zvolen employees in the total amount of EUR 30,577.76. 7 employees applied for a child's sports activity allowance, the allowance amounted to EUR 350.00.

Increased attention was also paid in 2021 to improving the quality of suitable working conditions for a special group of employees, namely employees with disabilities, employees with limited working capacity and employees returning from maternity or parental leave or taking maternity and parental leave. The Technical University in Zvolen is obliged under Act No 5/2004 Coll. on Employment Services and on Amendments and Supplements to Certain Acts, as amended, to employ a compulsory proportion of citizens with disabilities as a special category of employees. This proportion is exceeded by 7 employees.

Staff mobility

Erasmus+ staff and teacher mobility is designed to facilitate the acquisition of knowledge or specific know-how through practical experience abroad. It is also important to acquire practical skills relevant to the professional development of individual jobs and, in addition, this type of mobility creates relationships that help to establish cooperation between the university and foreign companies or universities. Short-term stays abroad are most often teaching at a partner university or an internship in a company or training, with a minimum duration of 2 working days or 8 teaching hours in the case of teacher mobility. We have continued to see an increasing trend in the number of Erasmus+ participants from among the teachers and staff of TUZVO, which is supported not only by the allocation of direct funds allocated for these mobilities from the European Commission through the Slovak Academic Association for International Cooperation, but also by the use of a significant amount of funding for the organisation of mobilities.

In the AR 2020/2021, within the Erasmus+ project *KA103 Mobility of students and staff in HEIs within the programme countries*, 9 teacher and 27 staff mobilities were implemented at TUZVO. In addition, 8 foreign teachers and staff from four EU countries were admitted to TUZVO.

Table VII.5 Activity of teachers and staff by workplace in AR 2020/2021

	Outgoing teachers (teaching)	Outgoing staff (training)	Incoming staff (teaching, training)
DF	4	5	3
LF	-	3+2*	1
FEE	1	2	-
FT	4	9	5
OOS	-	7	-

*Virtual mobility

Table VII.6 Evolution of the number of Erasmus+ mobilities

Academic year		14/15	15/16	16/17	17/18	18/19	19/20	20/21
Teachers	Seconded for teaching	21	25	26	26	34	11	9
	Posted for training	17	34	40	41	46	13	28
	Admitted from abroad	23	27	19	23	21	19	

A comprehensive overview of all academic staff mobilities is presented in a tabular Annex 2 - Table 11.

VIII. STUDENT SUPPORT

The system of student support is also provided in the form of various types of scholarships in accordance with applicable legislation and internal regulations of TU in Zvolen. Students have the opportunity to receive scholarships from the funds provided for this purpose from the state budget and from the University's own resources through the scholarship fund. From the state budget, students are granted social, motivational, trade union and, for the first time, pregnancy scholarships. At TU in Zvolen, the incentive scholarship is provided as a benefit or extraordinary scholarship. From TUZVO's own resources, students are granted an extraordinary scholarship.

The social scholarship is intended for full-time students in the first and second level of study who have permanent residence in the Slovak Republic. When calculating the number of the scholarship, the total income of the jointly assessed persons is considered. The social grant may be awarded only to students whose family income is close to the minimum subsistence level.

The incentive scholarship is awarded to students studying in first or second level study programmes and is assessed according to the quality of the academic results achieved in the enrolled subjects.

From the funds allocated in the distribution of the subsidy of the Ministry of Education, Science, Research and Sport of the Slovak Republic, subsidies are also allocated for selected fields of study. For TU in Zvolen, in the past, several fields of study were concerned. For the academic year 2020/2021, the conditions for the allocation of trade union scholarships in the fields of study *wood sciences and technology, ecological and environmental sciences and mechanical engineering* have been met. The subsidy for the scholarships is based on the number of students in the selected field of study in full-time form who are considered in determining the subsidy for the implementation of accredited study programmes with a graduate employability coefficient of more than 0.95 and for the first two levels of higher education. The use of these funds is earmarked for students in selected fields of study and may be paid to no more than 50 % of students in a designated field of study.

All students at TU in Zvolen who have achieved outstanding results in the field of studies (Rector's Award, Dean's Award), in professional, scientific, research or sports activities or have successfully represented the University or the Faculty at important national or international events can apply for an extraordinary scholarship. The number of students and the funding for scholarships paid in AR 20/21 are shown in Table VIII.1.

Table VIII.1 Scholarships at TUZVO in AR 20/21

Type of scholarship													
Faculty	State budget subsidy						Non-purpose subsidy - own resources				Total		
	Social		Motivational		Trade Unions/Pregnancy		Scholarships for doctoral students		Extraordinary				
	PŠ	VČ	PŠ	VČ	PŠ	VČ	PŠ	VČ	PŠ	VČ	PŠ	VČ	
USP	3	5,885	4	4,150			9	91,067	10	2,250	26	103,352	
LF	19	33,205	21	12,300			25	261,934	16	4,110	81	311,549	
DF	31	54,100	51	26,800	91/1	32,942/1 000	18	188,784	31	6,100	223	309,726	
FEE	15	24,160	13	7,250	92/1	34,132/1 000	12	118,304	7	1,360	140	186,207	
FT	5	9,250	9	5,300	47	20,520	6	61,332	5	1,050	72	97,452	
TUZVO	73	126,600	98	55,800	230/2	87,594/2,000	70	721,421	69	14,870	542	1,008,286	

Note: PŠ - number of students, VČ - amount paid in EUR

The social grant was paid to 73 students in AR 20/21 (113 in AR 19/20, 149 in AR 18/19, 208 in AR 17/18, 253 in AR 16/17) in the first and second level of full-time studies in the total amount of EUR

126,600 (EUR 181,945 in AR 19/20, EUR 243,430 in AR 18/19, EUR 330,610 in AR 17/18, EUR 397,755 in AR 16/17). The incentive grant was paid to 98 students for an amount of EUR 55,800 (in AR 19/20: 211 students for an amount of EUR 89,350, in AR 18/19: 239 students for an amount of EUR 147 650, in AR 17/18: 211 students for an amount of EUR 110,296 , in AR 16/17: 212 students for an amount of EUR 129,740). The exceptional grant was paid to 69 students for a total of EUR 14,870 (in AR 19/20 to 186 students for EUR 33,893, in AR 18/19 to 243 students for EUR 41 522, in AR 17/18 to 230 students for EUR 40 460, in AR 16/17 to 326 students for EUR 60,725). Scholarships in selected fields of study were paid to 230 students for a total of EUR 87 594 (in AR 19/20,268 students for EUR 84,358, in AR 18/19 53 students for EUR 15,930, in AR 17/18,117 students for EUR 39,720, in AR 16/17 94 students for EUR 25,440). For the first time, a pregnancy grant was also awarded and paid to two female students for a total of EUR 2,000.

Funds for scholarships for full-time students of the third level are allocated within the framework of the allocation of the subsidy at TU in Zvolen or from the faculties' own resources. In AR 20/21, EUR 721,421 (LF EUR 261,934, DF EUR 188,784, FEE EUR 118,304, FT EUR 61,332 and UŠP EUR 91,067) were paid to doctoral students from their own resources.

In AR 20/21, 164 students (in AR 19/20 188 students incurred EUR 148,200, in AR 18/19 178 students incurred EUR 140 500, in AR 17/18 224 students incurred EUR 162,900, in AR 16/17 242 students incurred EUR 192,800) were obliged to pay tuition fees for exceeding the standard length of studies or for concurrent studies in the total amount of EUR 131,200, of which 39 students in the LF, 81 students in the DF, 32 students in the FEE, 8 students in the FT and 4 students in the UŠP were obliged to pay tuition fees for exceeding the standard length of studies or for concurrent studies. A number of students applied for tuition fee reduction or remission in accordance with the internal regulations of TU in Zvolen. After adjustments, the tuition fee was set at EUR 106,250 (19.02% reduction). Almost 97.72% of the students paid the tuition fees and those students who did not pay the tuition fees were expelled from their studies or dropped out during the academic year 2020/2021. The recovery of tuition fees was handled through the legal department of TUZVO.

In the part-time form of study, 556 students were obliged to pay tuition fees totalling EUR 283,100. Here too, students had the possibility to apply for a reduction or remission of tuition fees. After adjustments, the resulting amount was reduced to EUR 270,912 (a reduction of 4,3 %).

In accordance with the amendment to the Higher Education Act, a university coordinator for students with specific needs is working at TU in Zvolen. His activities are governed by the methodological guidelines for creating conditions for students with specific needs at higher education institutions. Based on the completion of an entrance questionnaire and a personal interview with the coordinator on the basis of an application, the student is assessed annually for the duration of his/her studies, but of course also several times during the academic year if his/her health condition requires it. During the course of AR 20/21 there were 17 students, (LF - 5, DF - 10, FT - 1 and UŠP - 1), who were assessed for specific needs and appropriate provision was made for them without reducing the demands on their academic performance. For these students, a room for students with specific needs has been created and furnished at the University, where they can spend their free time between classes or prepare for their study obligations. They are provided with the necessary information technology and comfort for undisturbed study. In this year, the funds allocated in the budget for students with specific needs were used to build a barrier-free entrance to the Slovak Forestry and Wood Sciences Library of the Technical University in Zvolen.

IX. UNIVERSITY SUPPORTING ACTIVITIES

The main activities of TUZVO are carried out at the faculties with significant support of other organizational parts, which are: the Institute of Foreign Languages, the Institute of Physical Education and Sport, the Borova Hora Arboretum, the Centre of Continuing Education, the Centre of Information Technologies, the Slovak Forestry and Wood Sciences Library, the Student Dormitories and Canteen, Publishing House of the Technical University, the Development Workshops and Laboratories, and the University Forestry Enterprise.

In 2021, their activities were severely affected by restrictions related to the spread of the COVID-19 disease. Nevertheless, the organisation of work and effective management have managed to minimise the negative impacts and to meet most of the objectives necessary for the operation of the TUZVO in 2021.

Institute of Foreign Languages (ÚCJ)

The Institute of Foreign Languages (ÚCJ) as a philological department provides academically and professionally oriented language education in accredited study programmes of individual faculties of TU in Zvolen. In this way it contributes to increasing the level of linguistic competence of students.

In the field of internationalisation of studies and support of international mobility of students, the ÚCJ offers language training in Slovak for foreign students at TU in Zvolen who come from outside the European Union, as well as Slovak courses for incoming Erasmus+ students in the framework of short-term stays. The ÚCJ in cooperation with the Slovak Academic Information Agency (SAIA) promotes foreign mobility for students of TU in Zvolen.

The ÚCJ is involved in assessing the language competence of staff in the context of selection procedures.

In its scientific research and project activities, the ÚCJ covers the fields of didactics of languages, communication and linguistics in the application area. It presents the results of research and collaboration in these areas in periodically published scientific proceedings and the open access scientific journal *Apps - Academic Journal of Applied Linguistics and Languages*.

Institute of Physical Education and Sport (ÚTVaŠ)

The activities of the Institute of Physical Education and Sport as a university-wide workplace were focused on physical education activities for students of TU in Zvolen, who could enrol in one-credit courses in Physical and Sport Education or Elective Sport and Health at the Bachelor's or Engineer's level of education. In addition to the core subjects, students had the option to choose different forms of physical activities in the course form of physical education or in the club form of physical education, which, however, were significantly limited in 2021. The pedagogical process at ÚTVŠ was led by university teachers, who were the guarantors of the sports activities offered and, in cooperation with the Slovak University Sports Association, organised sports events and competitions within the university, the region and Slovakia. In cooperation with sports associations, they also participated in the preparation of student-athletes to represent not only our university, but also Slovakia. The most notable achievement for TU in Zvolen is the 2nd place in the finals of university women's volleyball. The decrease in the number of TV students and in the representation of the university compared to previous years was caused by restrictions related to anti-pandemic measures, ban on sports, cancellation of competitions and distance learning.

In the field of scientific research, the staff of the Institute of Physical Education and Sports was devoted to the issue of physical and sport education at different levels of education, the development of physical abilities in seniors and the possibilities of sport in the natural environment. They have published their results in scientific articles and presented at scientific conferences. In September 2021, the staff of the Institute of Physical Education and Sports organised the 12th annual scientific

conference with international participation Physical education and sports - a means of creating a relationship of the young generation to movement and sport. The team of the Institute of Physical Education and Sport has compiled and published a peer-reviewed collection of scientific papers. In the field of lifelong learning at the University of the Third Age, the staff of the Institute of Physical Education and Sport participated in teaching and organising the 10th International Sports Olympiad for the students of the University of the Third Age.

In the framework of the call for building sports infrastructure, a grant of EUR 130,000 from the Sports Support Fund was obtained in cooperation with TJ Slávia TU in Zvolen. Within the project, a new multifunctional gymnastics gym will be built from the unused premises of the former boiler room in block A of the Ľ. Štúr Dormitory.

Borova Hora Arboretum (ABH)

The activities of the Borova Hora Arboretum (ABH) in 2021 were oriented towards fulfilling the tasks resulting from the long-term concept of building collections and the main mission of the workplace. In 2021, special attention was also paid to the collection of trees and the adaptation of the area so that practical teaching and scientific research tasks could be carried out on the ABH premises.

Due to the pandemic situation, teaching and planned events were carried out on a limited scale. As part of the pedagogical work, 2,224 student-hours of 5 subjects were taught in ABH during contact teaching and data were continuously collected for the preparation of bachelor, diploma and dissertation theses.

Within the framework of scientific research activities, two KEGA grant projects were solved at the department, where ABH staff are the leaders and representatives. Professional staff of the arboretum participated as co-investigators in one VEGA project. The premises of the arboretum were also used by the scientific and professional staff of TU in Zvolen in solving 8 research tasks or scientific projects.

Among the public events, we have carried out the Welcoming of the Bird Messengers of Spring, Rhododendron Days, Rose Days, Barrier-Free Days and Autumn at ABH on a limited scale. During these events, 1,895 visitors viewed the ABH collections. In addition, Arboretum staff provided guided tours for 517 domestic visitors. Due to the pandemic situation, excursions for foreign visitors were not organised. In the summer months we registered increased individual interest in visiting ABH. This was probably a reflection of the pandemic situation, when a stay in the natural environment associated with education became a priority for visitors. In total, more than 8,000 visitors viewed the ABH collections.

A significant benefit for the use of ABH in the following years was the implementation of the project "Reducing the energy consumption of the building of the Centre of Professional Practice - Arboretum TU in Zvolen".

Centre for Continuing Education (CĎV)

The Centre for Continuing Education (CĎV) as an other organisational part of TU in Zvolen is focused on the development and provision of further education to the citizens of the Slovak Republic within the meaning of Act No. 568/2009 Coll. on Lifelong Learning, in cooperation with the faculties of the University in accordance with their professional focus. It was established as an organisational part of the University in June 2004 and successfully followed up the activities of the Local Centre for Distance Learning (LSDV).

The main focus of the CĎV is the organization of courses, seminars and conferences, the creation of new educational courses and educational projects. It also acts as a consultancy centre for the submission of national and international educational projects. CĎV also manages the University of the Third Age (UTV), where there are more than 400 students.

The activities of the Centre for Continuing Education are mainly financed through extra-budgetary sources such as the Rural Development Programme, Erasmus plus, European Social Fund. It is also

actively involved in various grants and subsidies from the sources of: the City of Zvolen, the Banská Bystrica Self-Governing Region and the Ministry of the Interior of the Slovak Republic.

In 2021, ČĎV (despite a significant decrease in activities related to COVID-19) continued to coordinate and implement the international Erasmus+ projects IDEMASAP 50+; SAFER and HEALTHY, and at the same time received a new international project from Erasmus+ called ADULT. We have completed a national project aimed at the professional public from the Rural Development Programme - Flood Control Measures.

Fulfilling the tasks of the Long-term plan of TU in Zvolen for ČĎV:

- English language course for employees and students of TU in Zvolen, 42 participants;
- Safety technician course and refresher training for TU in Zvolen students and general public, 20 participants;
- AutoCAD course, 4 participants;
- University of the Third Age, 339 participants.

Centre of Information Technology (CIT)

CIT is a university-wide workplace of TU in Zvolen, which in 2021 ensured the continuous operation of the information and communication infrastructure, including the central information systems IS.

For the students of TU in Zvolen provided internet access in the dormitories, internet access in lecture halls and the auditorium, access to the Internet via wifi in common areas and exteriors of the university, access to the UIS - the university information system from publicly available web kiosks located in the university buildings, updating the UIS according to the current legislation, updating individual modules for the study agenda, the agenda for PhD students, the agenda for accommodation of students in dormitories and the agenda for the admissions procedure in electronic form, issuing and renewing multifunctional cards. During distance learning, CIT provided remote access to classrooms and support in the use of MS Office 365 applications for online teaching.

In addition to student support, CIT also provided other support activities of the university such as operation of the electronic registry, support of users of the economic EIS-Sofia, operation of the attendance and catering IS, maintenance of the ICT infrastructure including hardware and software resources used at TU in Zvolen, maintenance of the SANET network node, maintenance of the Zvolen optical network ZOMES and security of information and communication technologies.

Slovak Forestry and Wood Sciences Library (SLDK)

The Slovak Forestry and Wood Sciences Library is an academic library of the TU in Zvolen, within the meaning of Act No. 126/2015 Coll. on Libraries, it is a scientific-information, bibliographic, coordination and advisory workplace of the University and at the same time, as a specialized scientific library with nationwide scope in the field of forestry and wood sciences and technology, it also performs tasks and activities beyond the scope of the TU in Zvolen.

The library participates in the information security of teaching and scientific research activities of TU in Zvolen, supports the educational process and lifelong learning. It ensures the registration of publications and reports of TU in Zvolen staff in the Central Register of Publications and Artistic Activities, and participates in the implementation of university-wide tasks.

SLDK provides access to study literature, professional and scientific publications and other information resources. As of 31 December 2021, the library collection amounted to 380 819 library units. The purchase of library stock, books, periodicals, standards and electronic information resources in 2021 totalled EUR 45,540, of which extra-budgetary resources for the purchase of literature obtained from grants from the SLDK and TU in Zvolen (Fund for the Promotion of Arts, Ministry of Education, Science, Research and Sport of the Slovak Republic) totalled EUR 13,000. In 2021, the Slovak Forestry and Wood Sciences Library received a grant of EUR 6,000 from the Fund for the Support of Arts for the acquisition of the library collection, the project will be completed by 30.06. 2022. SLDK

also provided for the purchase and processing of specialist books, periodicals and standards for the needs of sub-libraries from the grant funds of the University in the total amount of EUR 9 500.

Access to external electronic information resources continued in 2021 as part of the national NISPEZ project. The Web of Science, Scopus, Science Direct, Springer Link, Wiley Online Library, ProQuest Central, Knovel and the Summon search portal were accessible to students, teaching and research staff. Access to the JSTOR Ecology&Botany Collection databases, paid for from TU in Zvolen funds, and access to the Gale database, a national license, was also provided. Library users had access to licensed electronic information resources by remote access through the SLDK online catalogue under the EZproxy licence.

Due to the persistent unfavourable epidemiological situation in connection with the COVID-19 disease in 2021, interruption of contact teaching and distance learning in all levels of study at TU in Zvolen and the implementation of reconstruction works (replacement of windows in the entire building of the SLDK building), in the summer semester of the academic year 2020/2021, students were mainly provided with electronic services, consultation and research services, interlibrary loan service, online reference service. Students and library users were continuously informed about freely available resources and the use of temporarily free resources also through webinars. The library continued to provide students with access to Citace PRO, a citation manager - a tool for automatic generation and management of citations.

The STN-online service, allowing access to all Slovak technical standards and technical standardization information introduced into the STN system, was also made available by SLDK in 2021. During the summer semester of 2020/2021, the Slovak Office for Standardization, Metrology and Testing made the STN-online service available to students, pedagogical and scientific researchers of TU in Zvolen also in the form of remote access. Granting general consent to the citation of standards for students and staff of TU in Zvolen, in accordance with the current legislation, Act No. 60/2018 Coll. on Technical Standardization and Decree No. 76/2019 by the Office for Standardization, Metrology and Testing of the Slovak Republic. The general consent is valid until 18.06.2022, the agenda is provided by SLDK.

In the winter semester of the academic year 2021/2022, a new service "Virtual Reading Room", access to study literature in digital form, was also made available to students of TU in Zvolen. During the year 2021, students of TU in Zvolen could also use a new self-service return box for the return of borrowed literature, located outdoors.

Professional and educational events within the approved plan of scientific and professional events were also in 2021 implemented mainly in the online space - activities during the Week of Slovak Libraries, exhibition of foreign-language professional literature SLOVART *Literature-Research-Knowledge-Science*, 9. Information Day on the Council of Europe Landscape Convention 2021, 13th edition, was held on 22 July 2021 in cooperation with FEE and SAŽP at the Congress Centre of TU in Zvolen with strict epidemiological measures.

Student Dormitories and Canteen (ŠDaJ)

The activities of both organizational units of TU in Zvolen were largely affected by the COVID-19 pandemic. Both full-time and part-time studies were conducted remotely throughout the first half of the year and in December 2021. During the period of the emergency measures, the operation of the ŠDaJ was ensured by a reduced number of employees. Part of the staff, in accordance with the valid decisions of the Crisis Staff of TU in Zvolen, used the possibility to work from home. These facts affected the scope of accommodation and catering services provided to students, employees and the public.

In 2021, ŠD provided the management and operation of two accommodation facilities with a total capacity of 1 278 beds. The accommodation capacity of the individual Student Dormitories (ŠD) on 31.12.2021 was as follows: ŠD, Student street 27 - 608 beds and ŠD Student street 17 - 670 beds. Accommodation was provided in double and triple rooms of different quality levels. As of 31.12.2021,

785 students and PhD students were accommodated in the accommodation facilities of TU in Zvolen. Of these, 758 students with Slovak nationality and 27 foreign students. Accommodation for students in quarantine was also operationally set up on the premises of ŠD.

The normal activities of clubs and interest groups of TU in Zvolen students were curtailed in 2021. Out of 18 student clubs, clubs and branches of international student organisations, only those clubs and clubs whose activities are connected with animal care were active on a daily basis.

The Student Canteen (ŠJ) provided catering for students as part of its main activity and catering for TU in Zvolen employees and foreign boarders as part of its business activity. During working days it offered a choice of five types of meat and meatless meals. The operating hours of the student canteen were from 06:45 to 17:00 during the working week. In 2021, the canteen served a total of 78,162 meals, of which 23,242 meals were served to students, 47,540 meals to TU in Zvolen employees and 7 380 meals to other diners.

Publishing House of the Technical University (VTU)

The Publishing House of the Technical University in Zvolen as a university-wide workplace performed standard university-wide tasks for students and employees of the Technical University in Zvolen in 2021 even in the conditions of the pandemic situation.

The existing priority of VTU was to ensure the publication of literature from the approved editorial plan for 2021, the publication of literature approved outside the editorial plan, the publication of books and documents from the implemented projects of TU in Zvolen, the publication of printed materials intended for operational purposes and promotion of the University.

The publication of literature and other printed materials is conditioned by their reception, Figureic processing, editorial control, fulfillment of the conditions resulting from the law on publishing activities, such as the calculation of author and production sheets, mandatory printouts and the printing and book processing itself, this process was carried out in 2021 as the conditions at the TU in Zvolen allowed it.

The sale of literature was ensured through the TU in Zvolen shop and the TU in Zvolen E-shop, and at the same time, services in the field of binding of final theses (bachelor's, diploma's, habilitation), printing and copying services were provided for students and employees of the TU in Zvolen through online contacts.

Last but not least, VTU also provided publishing, printing and copying services for students and employees of TU Zvolen for other natural and legal entities in the framework of business activities.

Development workshops and laboratories (VDL)

Development workshops and laboratories (VDL) form the basis of the production and research capacity of the TU University, with specificities especially for the needs of the field of forest-wood-ecology-environment. The VDL are one of the organisational parts of TU in Zvolen. They fulfil a function in pedagogical, scientific research, business and interest activities.

The coronacrisis and measures related to ensuring the health and safety of employees and students at TU in Zvolen during the emergency situation related to the health risk of COVID-19 limited the possibilities and access of students to the premises of the VDL.

The specialized organizational part of VDL as a semi-operational workplace offers university students to combine theory with practice, so that it promotes creativity, allows to acquire also imaginative, manual skills by working in design, mechanical and chemical processing of wood, large wood-based materials, metal materials and plastics Each trained creative student who wants to, has the opportunity through experiential learning to not only perform their assigned task but also to understand the broader context.

Laser workplace with professional laser cutting and engraving CO₂ laser provides to realize a wide range of works especially for students. On the five-axis CNC under the responsibility of the Department of Woodworking, parts of several diploma theses have been realized. The whole process of executing the parts was an experiential learning experience for the students and the operator of these machining equipment was in the position of programmer, supervisor and expert advisor

A set of unique 3D virtual, imaging and printing technologies is installed in the Hall of Scientific and Experimental Workplaces. Here, students have the opportunity to learn about cutting-edge 3D technologies and to actively experience and work with the products as part of their learning.

VDL creates complex conditions for the creation of material outputs (test bodies, samples, processes) of scientific research in the required time, quantity and quality for year-long, diploma doctoral and dissertation theses.

For high school students, the VDLs enable them to contract their high school work experience and the tangible outcomes of their high school graduation work. The coronacrisis and the health and safety measures for employees and students at the Technical University in Zvolen during the emergency situation related to the health risk of COVID-19 negated this possibility.

The organisational component of the VDL supports scientific and creative activities of interest. VDL provide services, equipped space, machinery and technology facilities and assistance of experienced tribal staff. They also provide specialized laboratories and technicians where the space and technicians are under the management of the respective faculty or department.

University Forestry Enterprise (VŠLP)

In 2021, the University Forestry Enterprise contributed to the fulfilment of the long-term goals of the enterprise as well as to the fulfilment of the long-term goal of TU in Zvolen as a whole through its activities in individual areas. The basic priorities of the management of the VŠLP in 2021 were to ensure practical education of students of all faculties of TU in Zvolen in the natural laboratory of the VŠLP, scientific research activities of employees and students of TU in Zvolen in the premises and buildings of the VŠLP, as well as, to provide a variety of conditions for the demonstration of common, but also specific operating conditions from the point of view of science and research, exemplary care of forest ecosystems in accordance with nature-friendly forest management and positive and exemplary management at the VŠLP.

Practical teaching was carried out in 43 subjects. During the duration of the exercises, 35,312 student-hours were completed with the participation of 3,264 hours of the VŠLP staff. There were no student internships.

We dealt with the maintenance, modernisation and acquisition of fixed assets in accordance with the development concept and the strategic plan for the development of VŠLP. In accordance with the requirements and needs of TU in Zvolen, the employees of VŠLP performed tasks in the field of maintenance of greenery, technical cooperation in investment actions, provided mechanisms for winter maintenance of the TU in Zvolen campus. They also significantly contributed to the creation of optimal conditions for the teaching and research process of employees and students of TU in Zvolen as a whole. Emphasis was placed on the economic efficiency of production. The priority was to achieve a positive economic result, which we ensured also with the help of state subsidies.

In 2021, we took the most economical approach to timber harvesting, with the total volume of timber harvesting in 2021 representing 54% of the annual decennial plan. The share of incidental logging in 2021 was 15%. Since 2018, we have been applying the system of indicators of ecological stability of the VŠLP in our logging and planting activities, taking into account climate change, which we have developed in cooperation with the Department of Forest Cultivation. We manage the forest stands on the basis of compliance with the principles of sustainable forest regeneration, through the PEFC (Programme of the Endorsement of Forest Certification Schemes) scheme. Increased emphasis is placed on compliance with the principles of the Due Diligence Scheme (DDS) when placing timber on

the market. In order to promote environmentally responsible, socially beneficial, economically viable forest management and to improve the quality of forest land management of TU in Zvolen, VŠLP has been audited by the Forest Stewardship Council (FSC) through NEPCon after the pre-audit. Since 25.8.2021 VŠLP is a holder of the FSC certificate for 100% of the LPF area. For the sake of transparency of timber sales, in 2021 we have implemented timber sales through electronic auctions in the volume of 12% of the total timber sales. We plan to increase this percentage significantly in 2022. The increased emphasis on maximum efficiency in timber marketing, including through electronic auctions, has resulted in a significant increase in average timber monetization and revenue from raw timber sales.

The year 2021 was marked by a covid pandemic, and we used the end of the year to prepare the basis for 2022 in accordance with the concept of the strategic plan for the development of the VŠLP. The management priorities for 2022 are identical to those for 2021.

X. UNIVERSITY DEVELOPMENT

The development of the TUZVO in 2021 and its consistency with the fulfilment of the development objectives - investment and financing in an environment affected by the COVID-19 pandemic - can be assessed positively. It is obvious to everyone that all the impacts of the pandemic have negatively affected the performance of the University in all three key areas of its activities - teaching, research and business. As documented in Table X.1, we assess the structure of investments for the year in question positively (positive growth compared to 2020). Investments of a technical and technological nature, as well as construction investments (reconstruction and modernisation of premises), allow for the growth of the University's performance as a whole (growth of performance - non-endowment activity, entrepreneurial activity), or a reduction in operating costs. In 2021, premises for the teaching and research process were revitalised at university level, with a total area of 1,727 m² and a total value of more than EUR 562, 000. These premises (mainly laboratories) will be part of the complex "University Science Park ENVIROTECH of the Technical University in Zvolen". The modernisation of the ABH building, the construction of a coworking centre, the completion of the replacement of windows and doors in the SLDK, the reconstruction of the campus water supply system, as well as a number of small investments at the workplaces to increase their efficiency and to meet the regulations for the protection of persons and property can also be evaluated positively. Although the impact of the pandemic has affected the overall running of the University, staff have performed successfully in all areas.

Missed revenues from the non-subsidy and business area were significantly eliminated by obtaining a contribution from the Ministry of Education, Science, Research and Sport of the Slovak Republic in the amount of EUR 2,207,568, which also significantly ensured the fulfilment of the University's management objectives.

The economic result for 2021 was planned at EUR 306 856,- and was well exceeded, amounting to EUR 789,701 (Table X.2). This result can be considered excellent despite the fact that during 2021, in particular, revenues in all three areas were significantly affected by the COVID-19 pandemic. Once again, there were no revenues from European Structural and Investment Funds projects in the year. The ABH building refurbishment project commenced in May 2021 and the approval process was completed in March 2022.

Also in 2021, consideration was given to opportunities to grow the University's efficiency, taking into account the impact of the global pandemic caused by COVID-19. The formulated measures correspond to the "Methodology of subsidy distribution and budgeting of the Technical University in Zvolen", which is changed annually following the "Methodology of distribution of subsidies from the state budget to public universities" of the Ministry of Education, Science, Research and Sport of the Slovak Republic, which affects the impossibility of unambiguous quantification of addressable indicators and their year-to-year comparison. It will be possible to create an effective funding model only in 2022, when the methodology of the Ministry of Education, Science, Research and Sport of the Slovak Republic should be elaborated and its validity for at least 3 years.

The project "Optimization of the organizational structure of TUZVO for 2021" was implemented in the organizational structure of TUZVO in 2021, which corresponded with the volume of financial resources obtained in the form of subsidy and the expected results of business activities. The number of employees as of 31.12.2021 was reduced by 42.8 full-time positions with a saving of financial resources amounting to EUR 318,500. Further changes will be implemented in 2022 in relation to the budget of TUZVO for 2022 as well as the measures of the Ministry of Education, Science, Research and Sport of the Slovak Republic in the area of "Revision of employment and remuneration expenditure in the Ministry of Education of the Slovak Republic".

The changes implemented to optimise staff numbers in 2021 (43 staff) have created a good case for a reduction in payroll costs in 2022, however the current staffing level of 545 is still high and does not correspond with the decline in student numbers for 2021. The long term decline in student post

and the corresponding reduction in staff numbers is a key factor in the University's efficiency gains in 2022.

Table X.1 - Structure of FHCI investments in 2021 and their evolution in 2016-2021 (in EUR)

No r.	Investment	EUR			
1	Purchase of land and intangible assets	5,321			
2	- of which: purchase of software	4,729			
3	Purchase of buildings and structures	3,897			
4	Purchase of machinery, apparatus, equipment, techniques and tools	386,559			
5	- of which: interior furnishings	24,066			
6	- telecommunication technology	0			
7	- computer technology	71,692			
8	- operating machinery, apparatus, equipment, techniques and tools	260,801			
9	- special machinery, apparatus, equipment, techniques, tools and materials	0			
10	- communication infrastructure	0			
11	Purchase of means of transport	32,639			
12	Preparatory and project documentation	0			
13	Implementation of buildings and their technical evaluation	1,118,638			
14	Reconstruction and modernisation of machinery and equipment	0			
15	Purchase of other fixed assets	0			
16	Expenditure on acquisition and technical improvement of assets Total:	1, 547,054			
Development of TUZVO investments in 2016-2021					
2016	2017	2018	2019	2020	2021
EUR 1,905,995	EUR 2,647,558	EUR 3,501,422	EUR 3,424,831	EUR 1,049,039	EUR 1,547,054

Table X.2 - Economic results of TUZVO for the years 2012 - 2021 (in EUR)

Year	Main non-subsidy activity			Business activity			Total		
	Revenue	Cost	HV	Revenue	Cost	HV	Revenue	Cost	HV
2012	2 466 933	2 058 927	408 006	3 830 881	3 580 375	250 506	6 297 814	5 639 302	658 512
2013	4 539 211	4 045 657	493 554	4 199 670	3 685 085	514 585	8 738 881	7 730 742	1 008 139
2014	2 433 486	2 041 617	391 869	4 877 094	4 256 180	620 914	7 310 580	6 297 797	1 012 783
2015	2 172 831	1 748 778	424 053	4 914 570	4 323 429	591 141	7 087 401	6 072 207	1 015 194
2016	2 635 303	2 341 549	293 754	4 942 873	4 419 629	523 244	7 578 176	6 761 178	816 998
2017	2 571 830	2 313 853	257 977	4 845 658	4 394 332	451 326	7 417 488	6 708 185	709 303
2018	2 489 583	2 195 789	293 794	4 394 120	4 032 156	361 964	6 883 703	6 227 945	655 758
2019	1 677 691	1 408 512	269 179	3 745 568	3 431 225	314 343	5 423 259	4 839 737	581 973
2020	1 255 554	1 005 673	249 881	2 399 280	2 151 634	247 646	3 654 834	3 157 307	497 527
2021	918 189	646 151	272 038	2 597 275	2 079 612	517 663	3 515 464	2 725 763	789 701

Table X.3 - Subsidy of the TUZVO provided by the Ministry of Education, Science, Research and Sport of the Slovak Republic in 2021 and its development in 2016-2021 (in EUR)

Subsidy/programme structure	Subsidy for current expenditure		Subsidy for capital expenditure		BV + TA total
	beginning of the year	end of the year	Begin. of the year	end of the year	end of the year
Sub-programme 077 11 - subsidy for the implementation of accredited study programmes and ensuring the operation of public universities, incl:	7 587 666	9 673 880	0	410 000	10 083 880
- for the provision of higher education and the operation of a public university	7 587 666	9 673 880	0	410 000	10 083 880
- to clinical sites	0	0	0	0	0
Sub-programme 077 12 - Subsidy for research, development or artistic activities	4 940 171	5 629 166	0	0	5 629 166
- Element 077 12 01 - Operation and development of infrastructure for research and development	4 940 171	5 048 949	0	0	5 048 949
- Element 077 12 02 - Basic research tasks at public universities initiated by researchers (VEGA grant agency)	0	446 869	0	0	446 869
- Element 077 12 05 - research and development tasks at public universities for the development of education in specified fields (KEGA grant agency)	0	133 348	0	0	133 348
Sub-programme 077 13 - Subsidy for the development of the public university	0	999 900	0	0	999 900
Sub-programme 077 15 - Subsidy for social support of public university students	770 427	1 561 901	0	0	1 561 901
- Element 077 15 01 - Social grants	78 935	83 535	0	0	83 535
- Element 077 15 02 - Incentive grants[§ 96a, paraFigure 1, letter a) of the Act]	44 820	44 820	0	0	44 820
- Element 077 15 02 - Incentive grants[§ 96a, paraFigure 1, letter b) of the Act]	84 150	84 084	0	0	84 084
- Element 077 15 03 - support for meals, accommodation, sports and cultural activities of students and pastoral centers, incl:	562 522	1 349 462	0	0	1 349 462
- a contribution to the accommodation and operation of student residences	511 845	1 289 435	0	0	1 289 435
- student meal allowance	30 591	30 591	0	0	30 591
- contribution to cultural, artistic and sporting activities and UPC	11 069	20 419	0	0	20 419
- contribution to the activities of physical education units and sports clubs	9 017	9 017	0	0	9 017
Programme 077 - Subsidy for higher education and science, social support of public university students - total	13 298 264	17 864 847	0	485 000	18 274 847
Development of the subsidy provided by the Ministry of Education, Science, Research and Sport of the Slovak Republic in the years 2016 - 2021					
2016	2017	2018	2019	2020	2021
EUR 13 288 766	EUR 13 262 748	EUR 14 991 172	EUR 15 872 070	EUR 17 785 107	EUR 18 274 847

XI. INTERNATIONAL ACTIVITIES OF THE UNIVERSITY

The priorities and strategy of international cooperation are in line with the Long-Term Plan of TUZVO also in the area of bilateral cooperation, which is the basis for the development of activities in all areas of international relations.

In 2021, there were 59 international contracts in force with partner universities and organisations in 20 countries (of which 2 new contracts were signed in 2021) and 64 domestic contracts (of which 10 new contracts were signed in 2021).

In 2021, TUZVO developed its cooperation with Serbia and China. On the basis of the existing long-standing cooperation, a cooperation agreement was signed with the University of Belgrade and a contract with the Academy of Agricultural Sciences in Shanghai was extended for another 5 years.

For TUZVO, membership in academic and professional international organisations is a prerequisite for achieving international recognition. It is an important key to creating the conditions for involvement in international projects, to obtaining new information on trends in education, research and university development, and also a means of establishing new contacts and promoting TUZVO.

Table XI.1 Highlights of the TUZVO Memberships in 2021

Name - contact person	Shortcut
European Economic and Social Committee - prof. Kropil	EESC
European Universities Association - prof. Kropil	EUA
Visegrad Universities Association - prof. Kropil	VUA
European Forest Institute - prof. Kropil	EFI
Slovak Academic Association of International Cooperation - doc. Olah	SAAIC
International Union of Forest Research Organizations - doc. Šulek	IUFRO
International Union of Game Biologists - prof. Kropil	IUGB
European University Information Systems Slovakia - Ing. Weis	EUNIS
International Academy of Wood Science - prof. Kúdela	IAWS
Society of Wood Science and Technology - doc. Lagaňa	SWST
International Association of Wood Anatomists - prof. Čunderlík	IAWA
International Research Group on Wood Protection - prof. Reinprecht	IRG
European Union of Foresters - prof. Saniga	FOR SILVA
PEFC Slovakia - doc. Šálka	PEFC
Association of Arboretums and Botanical Gardens of Slovakia - doc. Lukáčik	ZABOZAS
Association of Teachers of Foreign Languages at Universities - Mgr. Ľupták	CASAJC

Membership in international organisations gives the University not only rights but also obligations. In addition to the payment of membership fees, these include participation in annual conferences and scientific events, meetings of committees and governing bodies of these institutions. It can be stated that by developing international cooperation with the above-mentioned organisations TUZVO is clearly fulfilling its mission in the field of internationalisation of its activities.

XII. QUALITY ASSURANCE SYSTEM

The Technical University in Zvolen is an educational, scientific and artistic institution that accepts the building of the European Higher Education and Research Area. It responds to the main ideas and principles of the Bologna Process, namely to create an internationally recognised European common higher education area on the basis of commonly accepted standards and norms of educational quality.

Quality management at the Technical University in Zvolen is based on the Long-term plan of the Technical University in Zvolen (hereinafter referred to as TUZVO) for 2017 - 2023, which was approved by the Academic Senate of TUZVO on 27.02.2017.

Management of the University

To prepare quality graduates of the University, the existence of a functional internal quality assurance system is assumed, which includes in particular its provision, management, control and evaluation.

The principles of the internal quality assurance system are based on a long tradition of training university-educated professionals, as well as on the experience in solving national and international projects focused on the issue of quality management of higher education and management of higher education institutions in general.

The functional quality management system of TUZVO respects two interrelated aspects:

- the needs and interests of the University and
- the needs and expectations of customers, especially students and potential employers.

The implementation of the internal quality system at TUZVO is carried out on the basis of process management. The University has identified management, main and supporting processes as well as two external processes.

The principles and procedures of the internal quality assurance system depend on the internal environment of the TUZVO, mainly on the strategy and philosophy of the management of the higher education institution, the professionalism and approach to the work of university teachers, the level of students, the conditions created for education, the content of studies and the profiling of study programmes, the policy of accessibility of studies, but also on the external environment, that is, on the national and transnational policy and conditions of education, the status of the university teacher and the university in society, the participation and influence of stakeholders and groups in the quality assurance of education.

The Internal Quality Assurance System (hereinafter referred to as the IQAS) is based on the strategic decisions of the university management, which are conceived in the Long-term Plan of the Technical University in Zvolen for 2017 - 2023 and include the mission, vision and strategic plan.

The main principles of the internal quality assurance system at TUZVO are based on the following principles:

1. The quality of curricula, education and student work can be continuously improved.
2. TUZVO, together with its constituent parts, has institutional responsibility for the offer and delivery of quality education.
3. Assessment of the quality of education is carried out by both internal and external evaluators.
4. The assessment of the quality of education creates room for the application of the specificities of individual faculties and study programmes.
5. Part of the quality evaluation is also the evaluation of the applicability of the university graduates in practice, on the labour market.
6. Educational quality evaluation aims at continuous improvement of the learning environment and process based on facts, arguments and reliable feedback.

The organisational hierarchy of the management of the Internal Quality Assurance System at the University is three-tiered:

1. Management at the level of the Rector of TUZVO:

- Rector of TUZVO
- Vice-Rector for Education
- Board for Internal Quality Assurance System
- Scientific Board of TUZVO
- the management of TUZVO and the Rector's advisory bodies

2. Management at the level of Faculties' Deans:

- Dean of the Faculty
- Faculty management and the Dean's College
- Scientific Board of the Faculty
- Study programme guarantor

3. Management at the level of the workplace - department:

- Course gestor
- Head of Department.

The management of the University is responsible for the implementation and application of the internal quality assurance system.

By assurance of material, financial, information and human resources, TUZVO achieves the strategy defined in the long-term plan, the quality policy and the quality objectives. The quality assurance procedures adopted are monitored and evaluated at regular intervals. Staff and students are informed of the findings and corrective measures taken.

At TUZVO there is an advisory body of the Rector: the Board for Internal Quality Assurance System of TU in Zvolen (hereinafter referred to as the IQAS), which is an expert, advisory, initiating and methodological body of the Technical University in Zvolen in the field of implementation of the internal quality assessment system. Its activities are primarily focused on implementation and maintenance:

- (a) the internal quality assurance system,
- b) quality standards applied in university education,
- c) standards applied in the process of accreditation of study programmes pursuant to Act No. 131/2002 Coll. on Higher Education and on Amendments and Supplements to Certain Acts, as amended.

The Board for Internal Quality Assurance System is established in order to ensure the sustainability of the internal quality assurance system, all organizational parts of TUZVO and internal processes in compliance with the requirements of quality standards applied in university education and in the process of accreditation of study programmes according to Act No. 131/2002 Coll. on Higher Education and on Amendments and Supplements to Certain Acts, as amended.

Main tasks of the Board for Internal Quality Assurance System

Board for Internal Quality Assurance System of TUZVO in terms of content and methodology:

- (a) participate in the implementation of the internal quality assurance system,

- b) participates in the implementation of quality assurance systems, the requirements of which are defined by the superior national organisations such as the Ministry of Education, Science, Research and Sport of the Slovak Republic,
- c) participates in the implementation of the requirements for quality assurance of the provided higher education according to Act No. 131/2002 Coll. on Higher Education and on Amendments and Supplements to Certain Acts, as amended,
- d) participate in the implementation of non-standardised quality systems, the requirements of which are defined by international organisations such as the European University Association,
- (e) participate in the maintenance and improvement of the internal quality assurance system,
- f) participates in the development of the vision, mission, strategy and policy of quality and quality objectives within the University.

The Board for Internal Quality Assurance System is governed by the Statute of the Board for Internal Quality Assurance System, which has been approved by the Rector of the University.

The main customer of TUZVO are students. Their expectations and needs are confronted with the needs of practice and the European labour market. TUZVO is a public-law institution that provides services through education. The customer who uses its services is the most important for it and therefore the institution must know their expectations. Determining who the university's customer is is a priority. The TUZVO has identified three types of customer: the student, the labour market and the state (the Ministry of Education). The success and application of the university's graduates in practice (on the labour market) is an important criterion for evaluating the quality of their training in the educational process, and the application of the graduates on the labour market is in the interest of the state, the Ministry of Education, but also of the graduates themselves (and e.g. also their parents).

IQAS also assumes the involvement of students in the development of the quality assurance system, its implementation and the process of improving the set procedures in the field of quality assurance of the education system at TUZVO.

Student involvement in IQAS is done through:

- Membership of the Board for Internal Quality Assurance System,
- regular evaluation, monitoring, of individual subjects after the completion of the teaching process,
- regular evaluation of study programmes after state examinations,
- Regular evaluation of overall satisfaction with studies, the work of study departments, etc. (see evaluation in section b).

Evaluating the quality of educational services provided at the University is also one of the quality objectives since 2015.

In addition to routine activities, the activities of the IQAS at the TUZVO in 2021 were mainly focused on the evaluation of the University's internal processes. As these are processes where it is necessary to have a sufficient number of trained quality auditors from the university staff, it was necessary to organise and train internal quality auditors so that they could be subsequently included in the process of evaluating the university's internal processes. Two university employees were trained by the Internal Quality Auditor course at the Faculty of Technology of the TUZVO. On completion of the final examinations, the selected staff members were awarded the Internal Quality Auditor certificate according to ISO 19011:2018. This brings the total number of internal quality auditors to four employees. Records of customer satisfaction survey (both students and alumni of the University) exist. The results or conclusions are published in the report "Evaluation of educational activities". The records of the course sponsors exist and are embedded in the UIS in the applications "Catalogue of courses and curricula". The application also contains aggregated data on individual courses, indicating the individual supervisors.

Education

The evaluation of the quality of the educational process at the University was carried out in 2021 in accordance with the principles of the Internal Quality Assurance System at TUZVO according to the Organizational Directive No. 4/2014.

The analysis of educational activities is dealt with annually by the faculties, evaluated and approved at the level of the Dean's College and the Faculty Scientific Board. Several processes are established at the University to measure and evaluate the quality of the education provided. The University Information System is already used by default to evaluate the quality of the educational process. Periodically, twice per academic year, an evaluation of the educational process in each subject is carried out in the form of questionnaires in lectures and tutorials, and a survey is also carried out in the general evaluation of the quality of the educational process. The information obtained is used to identify facts and then any findings can be addressed through further procedures. The questionnaire and the evaluation of the general satisfaction with the provision of educational activities at TU in Zvolen for the AR 2020/2021 is shown in the following section. 290 questionnaires were evaluated over the period (after LF: 71, DF: 82, FEE: 74, FT: 51 and UŠP: 12).

From the findings it was possible to evaluate that 95% of students are satisfied with the choice of faculty (1% increase compared to the previous AR) or university, 91% of students are satisfied with the choice of the study programme they are studying (the same as in the previous AR). 95% of the students who answered this question are satisfied with the information at the university (an increase of 2% compared to the previous AR). 88% of the students are satisfied with the provision of didactic and computer technology for education, and almost all respondents (98%) expressed their satisfaction with the services of the study department. Compared to the previous academic year, the percentage of students who feel that they can express their opinion on the quality of the educational content of the faculty or university has increased by 2%. 84% of respondents were positive about this question (82% in AR 19/20, 85% in AR 18/19, 74% in AR 14/15 and only 58% in AR 12/13). Every student has these options (being informed via email communication). Despite this, 14% still think they do not have these options and 1% of respondents said they were not interested in expressing an opinion. One of the tasks of the university management and faculties will continue to be to inform students about these options.

The questionnaire for the evaluation of teachers' educational activities by subject is part of the UIS. Subject teachers, subject guarantors, heads of departments and faculty or university management have access to the evaluation questionnaires. Completion of the questionnaires is fully anonymous for students. From the results it can be concluded that those students who expressed their opinion overwhelmingly evaluated the teachers in a positive sense. However, there are also statements to a lesser extent (up to 10%) in which they expressed their dissatisfaction. The questionnaires can also be evaluated at other levels such as departments or individual teaching staff. It is in this way that possible shortcomings can be more accurately identified and appropriate action can be taken through the heads of departments.

The quality of education is also related to the readiness of university graduates for their future profession. Every three years, graduates of TU in Zvolen for the last five years are contacted. Through the last survey 508 graduates expressed their opinion. The evaluation of the answers of the survey respondents shows and confirms the fact that the employment rate of the graduates of TU in Zvolen is at the level of 96%. More than 50% apply the knowledge gained from the university in practice and 58% of the survey respondents, if they had the opportunity to decide again, would go to study the same study programme again. Almost 65% of respondents expressed satisfaction with the quality of education provided. 87% of survey respondents are satisfied with the knowledge and skills that graduates have acquired while studying at the university. Belonging to the region was confirmed in the further activities of the graduates of TU in Zvolen, 52% of graduates live in the Banská Bystrica self-governing region. It should be added that this basic analysis was carried out comprehensively for the whole university, while the results of the survey can and certainly should be analysed down to the level

of faculties or fields of study. At the same time, the respondents were also given the opportunity to comment on the recommendations for the way of education at TU in Zvolen in the form of textual answers. Their answers often emphasised the need for a greater connection between education and practice, as well as the need for a good command of foreign languages.

The external evaluation of the quality of education was not carried out in the assessed period, the faculties and the UŠP were preparing the reconstruction of the number of study programmes, which will be aligned and abolished in 2022. It is expected that the number of study programmes offered will decrease significantly.

The study results of TU in Zvolen students are evaluated in detail at the level of individual faculties in the reports on pedagogical activities. They contain information on average grades, repetition indices and overall student success in individual study programmes.

Table XII.1 shows student learning outcomes with data on weighted learning averages and repetition indices by faculty, degree and year of study.

Table XII.1 Study results of students of TUZVO in AR 20/21

Faculty, or ESL	weighted study average / retake index					Total
	Level / year of study	1st year of study	2nd year of study	3rd year of study	4th year of study	
LF	First	2.81 / 1.88	2.61 / 1.61	2.50 / 1.42	2.59 / 1.33	2.64 / 1.61
	Second	2.16 / 1.32	2.09 / 1.30	2.27 / 1.30		2.14 / 1.33
DF	First	2.83 / 1.86	2.21 / 1.40	2.28 / 1.27	2.13 / 1.24	2.44 / 1.50
	Second	2.08 / 1.29	1.94 / 1.16	2.11 / 1.25		2.02 / 1.24
FEE	First	2.59 / 1.64	2.32 / 1.59	1.80 / 1.21		2.33 / 1.52
	Second	2.04 / 1.44	1.62 / 1.14	2.00 / 1.57		1.84 / 1.30
FT	First	3.11 / 2.11	2.31 / 1.59	2.06 / 1.41	1.72 / 1.05	2.49 / 1.71
	Second	2.17 / 1.35	1.62 / 1.06	1.34 / 1.05		1.82 / 1.20
USP	First	3.08 / 1.98	2.07 / 1.29	2.16 / 1.25	2.42 / 1.00	2.41 / 1.48
	Second	1.75 / 1.14	1.79 / 1.10	1.82 / 1.02		1.78 / 1.11

The following conclusions can be drawn from the data:

- learning outcomes have improved quite significantly at several faculties and levels of study compared to previous academic years, which was certainly influenced by the way examinations were administered, which was largely online,
- study results as well as the index of exam repetition improve with advancement to higher grades, and are also more favourable in second level compared to the first level, which can be considered logical,
- the average % success rate of students' advancement to higher years is at the level of about 70-80%, in some bachelor study programmes in the first years even lower, which has also been more pronounced with the transition of education to the online space and the loss of direct contact between teachers and students.

Learning outcomes can also be assessed by students' exam results. Figure XII.1 shows the students' examination pass rates in subjects divided by subject area for AR 20/21. The marks were taken as the final mark for the subject irrespective of the term in which the mark was fixed.

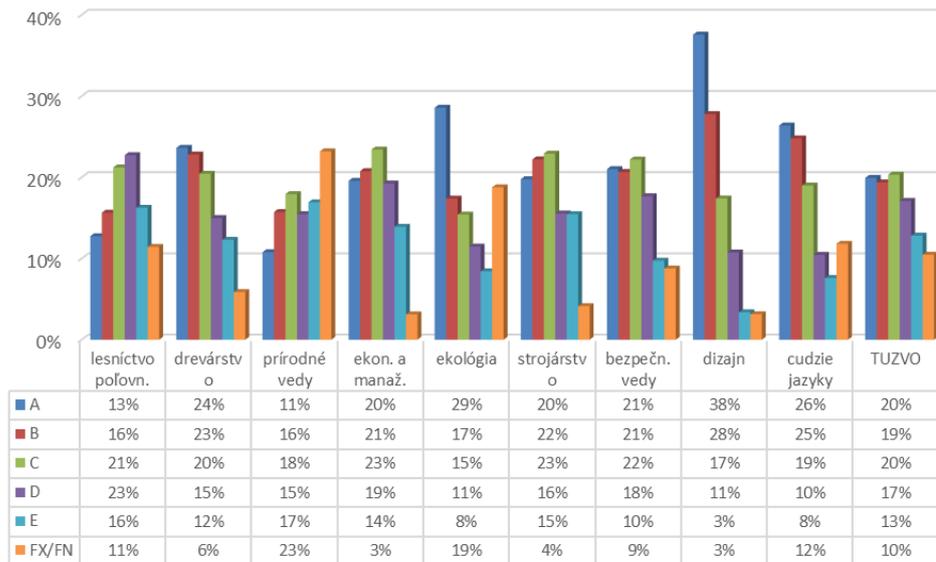


Fig. XII. 1 Evaluation of students' success rates in examinations by course focus

The results confirm that students have the greatest difficulties in science subjects, subjects at the Faculty of Forestry also seem to be difficult, on the contrary, the best grades are achieved by students in subjects in the fields of ecology, design and foreign languages. The most significant difference from the previous AR was in science subjects, where the proportion of failing grades (FX/FN) increased from 15% to 23%. This increase in failing grades was largely driven by the covid-education effect and is also transmitted to universities by online learning in high schools, the absence of matriculation exams, etc.

The state examinations were conducted according to the conditions set by the results of the comprehensive accreditation of 2015 and other re-accreditations and accreditations of new study programmes, while students were evaluated separately for the state examination in the field of knowledge of the field of study and separately for the defence of the final thesis.



Fig. XII. 2 Ratings of state examinations at the 1st and 2nd level of studies at TUZVO in AR 20/21

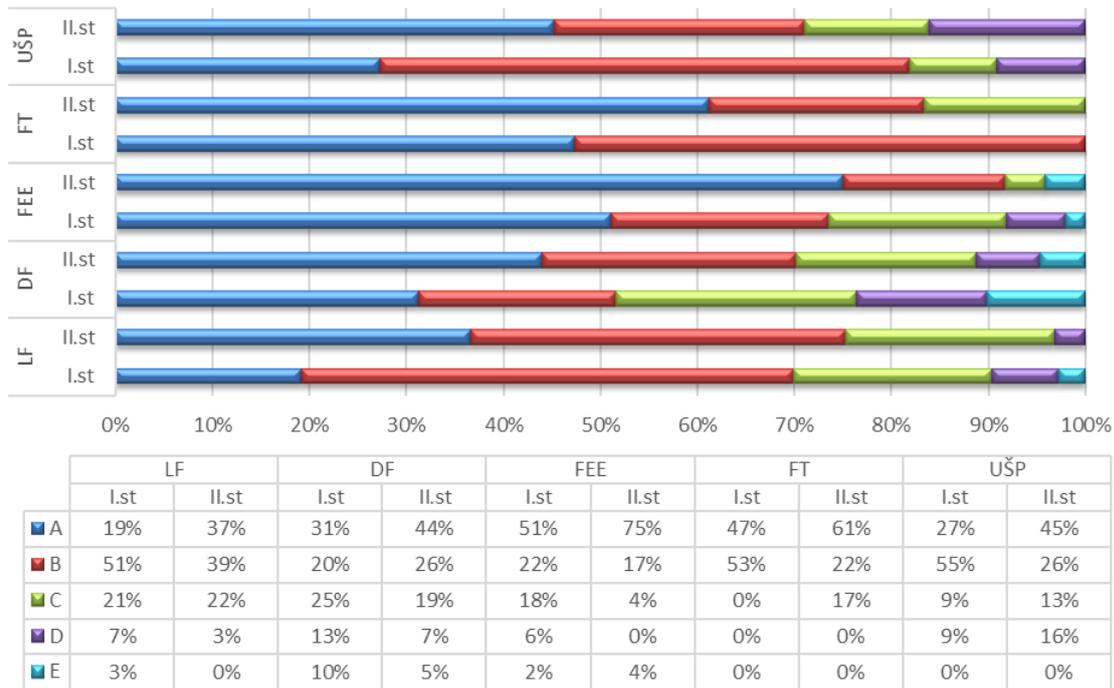


Fig. XII. 3 Evaluation of thesis defences at the first and second level of studies at TUZVO in AR 20/21

It can be stated that the grades in the state examinations and final thesis defences are on average much better than the grades in the courses during the studies. Similarly, it is evident that the end-of-study assessments are better at second than at first level of higher education. When evaluated separately in the state examination, i.e., the comprehensive examination in selected areas, and in the separate evaluation of the final thesis defence, it is clear that students achieve better marks in their thesis defences.

Creative activity

In 2021, a new Organizational Directive No. 8/2021 Code of Ethics and Academic Integrity at TUZVO was drafted. The Directive contains the code of ethics for employees and students of TU in Zvolen, the obligations of employees in observing scientific and academic integrity, the most serious violations of scientific and academic integrity. In the conclusion of the Directive, the Ethics Committee as an independent advisory body of the Rector as well as the rules of procedure of the Ethics Committee are described.

In the year under review, TU in Zvolen carried out research activities in three areas: basic research, applied research and transfer of knowledge into practice and popularization of scientific research activities.

The quality of scientific research activities at the national and international level in the field of basic and applied research was carried out by providing information seminars and individual consultations for doctoral students in the framework of information education aimed at information support of scientific research activities through SLDK. In the course of 2021, in view of the measures related to the COVID-19 disease and the ongoing distance learning in all levels of higher education and all study programmes offered by TU in Zvolen, the SLDK provided webinars, targeted electronic or telephone consultations for doctoral students. Information seminars were provided for students of the third level of higher education in the field of electronic information resources and new search tools in the form of webinars by external experts from Clarivate Analytics, Albertina icome and Suweco. On an ongoing

basis, during the year 2021, SLDK provided individual face-to-face and electronic consultations on the EPCA methodology for third-level students.

In 2021, laboratories with an area of 302 m², classrooms with an area of 1 202 m², as well as other technical rooms with an area of 222 m² were reconstructed not only for the top and excellent teams, but also for the pedagogical process. The above-mentioned premises create conditions for the growth of the performance of the departments, as well as for the increase of the working and study environment in the buildings of TU in Zvolen. The renovated premises extend the premises of the upcoming Science Park of TU in Zvolen.

In the framework of the distribution of state budget subsidies to public universities for 2022, a criterion derived from the results of the evaluation of the quality of research activities of the university was applied to support excellent research components. DF in engineering sciences, LF in agricultural sciences, and DF and LF departments for social sciences were identified as excellent components. The Ministry of Education, Science, Research and Sport of the Slovak Republic is preparing a new periodic evaluation of research, development, artistic and other creative activities in 2022, so this task will continue in 2022.

The area of quality assurance of knowledge transfer into practice is implemented by TUZVO through the Department for Technology Transfer, which cooperates on the project National Infrastructure for the Support of Technology Transfer in Slovakia - NITT SK II. (2016-2023). Also in 2021, the support of the local technology transfer centre continued through the implementation of the NITT SK II project. Within the framework of Activity 1: Building and development of the National System of Technology Transfer Support, the second part of the survey was carried out at the University to identify the hindering and supporting factors that result from the process of knowledge transfer into practice at the Technical University in Zvolen. With the support of the NITT SK II project, a seminar on "How to commercialize intellectual property? And how to establish innovative enterprises in the environment of the Technical University in Zvolen? The University was the main partner of the COINTT 2021 conference, where the Vice-Rector for Scientific Research, as a member of the Content Board of the COINTT Conference Commission, also participated in the panel discussion entitled "Presentation of scientific results and competences - a new challenge for technology transfer centres".

Furthermore, the Technology Transfer Department in cooperation with the initiative Start up! organized the Start Up! at TUZVO, the aim of which was to validate creative ideas of students and employees of the university as well as to support the establishment of innovative businesses. A total of 15 individuals and teams applied. The incubation programme *Start up!* at TU in Zvolen, the 9 best ideas that were directly or indirectly related to the focus of our university, such as wood processing industry, ecology or forestry, made it to the Incubation Program. Currently we have one participant who, thanks to the cooperation with *Start up!* has validated his idea and is receiving the first orders for his products. More info can be found on the "We Burn" website: <https://palime.wixsite.com/my-site>.

On 18.11.2021, an expert seminar was held on the topic How to commercialize intellectual property rights? How to join a university incubator? How to turn your innovative idea into a business? The seminar was intended for all employees and students of the university who were interested in learning about this issue. It was held online in the MS Teams environment. Employees of the Technology Transfer Department informed about the current activities of their department, how to commercialize industrial property rights or establish innovative enterprises in the environment of TU in Zvolen. Participants also had the opportunity to learn about the current directives related to this issue, as well as where to find their full text. The seminar was concluded with a discussion of all participants.

The second part of the survey was carried out at the university and focused on the identification of hindering and supporting factors that affect the process of knowledge transfer into practice at TU in Zvolen. The analysis and results of the survey are presented in the Evaluation of the scientific research activities of TU in Zvolen for the year 2021.

TU in Zvolen has been involved in the project Support of the national system for popularization of research and development (Pop R&D II) since 2016. The Centre for Scientific and Technical Information of the Slovak Republic (CVTI SR), section National Centre for Popularisation of Science and Technology in Society (NCP VaT) announced a competition for contact points for the national popularisation network in 2021. The contact points were to operate in individual regions of the Slovak Republic and were to provide assistance in activities related to building a positive perception of the importance of science and raising awareness of science and technology through the implementation of selected popularisation activities of the NCP VaT. Due to the current epidemiological situation, these posts have not been filled. Nevertheless, work was carried out to build a network and support other popularisation activities developed not only through the CVTI SR, but also in the individual regions of the SR.

XIII. COVID-19 CRISIS SITUATION

The new year has begun in a period of difficult change. Once again, it was heavily marked by the spread of the respiratory disease COVID-19. The measures and guidelines taken to reduce the risk of infection have put our University's teaching, research and other processes on an extraordinary course. The interruption of full-time teaching, the introduction of telecommuting, the cancellation of planned business trips, the cancellation of planned public events on campus, and the provision of the entire process in the form of an online space have also left their mark on the scientific research activities of the university. In the conditions of the pandemic crisis, changes in the quality assurance system of higher education are being addressed, as well as amendments to the Higher Education Act and further restrictions in the funding of universities.

Some projects were extended because some research could not be carried out. This mainly concerned applied research projects, both from domestic and foreign grants. TUZVO also postponed the deadline for the completion of the Internal Project Agency projects. Originally, these projects were supposed to end in January 2021, but due to the situation, the final defences were postponed until 01.06.2021.

The coronavirus and COVID-19 pandemic has shifted virtually all planned events (ŠVOČ, 23rd International Youth Scientific Conference) to the online space. Given the experience of the organisers of each event with video interviews from the previous year, these events went off without a hitch, although this form of presentation is not a full complement to the presentation format. Travel restrictions and quarantine measures also had a negative impact on opportunities to make international contacts and to tackle science and research projects.

XIV. CONTACT DETAILS

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XV. SUMMARY

The Technical University in Zvolen is a modern higher education institution that develops creative scientific research and on its basis provides education in all three levels of higher education. It has a unique profile with a focus on the forest - timber - ecology - environment complex, with appropriate extension into other technical, natural science, security, economic and artistic areas.

Despite the restrictive anti-pandemic measures that affected the activities of all institutions in 2021, TUZVO as a whole, its faculties and other organisational components fulfilled their main tasks in all areas.

On 22.01.2021, the Ministry of Education, Science, Research and Sport of the Slovak Republic registered a new Association of Ten Slovak Universities called the Consortium of Slovak Universities, abbreviated as U10+, in the register of universities. This completes the process of establishing the first consortium of universities in Slovakia, which started about two years ago.

On 22.04.2021, the President of the Slovak Republic Zuzana Čaputová appointed 27 new professors at a ceremony in the Presidential Palace in Bratislava. Among the newly appointed professors was prof. Ing. R. Réh, CSc., from the Department of Wood Technology, Faculty of Wood Sciences and Technology, TUZVO, who was awarded by title professor in the field of Technology of Wood Processing.

On 29.04.2021, the President of the Slovak Republic Zuzana Čaputová appointed 26 new professors in the Presidential Palace in Bratislava. Among the newly appointed professors were prof. Ing. M. Sedliačiková, PhD., awarded title of professor in the field of Business Economics and Management and prof. Ing. M. Hitka, PhD., as awarded title of professor in Management. Both newly appointed professors are from the Department of Economics, Management and Business of the Faculty of Wood Sciences and Technology.

In the academic year 2021/2022, the University offered studies in 47 study programmes at the first level of study, 38 study programmes at the second level of higher education and 40 study programmes at the third level of higher education, both in full-time and part-time form. In addition, the University offers further education courses and studies within the framework of the University of the Third Age.

In line with its profiling, it also fulfils its mission of a "green university", which stems from the traditions of the Mining Academy of Banská Štiavnica as one of the oldest technical and forestry universities in Europe and in the world. The concept of the "green university" is currently being fulfilled by TUZVO by providing the most modern scientific knowledge for consistent adherence to the principles of sustainable living.

The total number of graduates at the Technical University in Zvolen in the academic year 2020/2021 was 593, of which 472 in the full-time (FT) form of study and 121 in the part-time (PT) form. The number of graduates by faculty was as follows: total (FT/PT): UŠP - 44 (33/11), LF - 176 (140/36), DF - 258 (209/49), FEE - 75 (64/11), FT - 40 (26/14).

With the planned number of 1,025 students admitted to study at TU in Zvolen from the academic year 2021/2022 in the **first level of higher education** in both forms of study, 892 applications from applicants for study were registered at TU in Zvolen. 865 applicants were admitted and 549 students showed up for enrolment. In the **second level of study**, 346 applications from applicants were submitted for the planned number of 665 admitted applicants. 334 applicants were admitted and 303 students turned up for enrolment, a slight increase on the previous year. The admission procedure has long shown a significant difference between admitted and enrolled students, especially in the Bachelor's degree programmes.

In the academic year 2020/2021, 35 new PhD students were enrolled in the **third level of higher education** at the TU, of which 24 in the full-time form receiving a scholarship and 11 students enrolled in the part-time form of study.

After the start of the academic year it was possible to provide contact teaching for the first three weeks. From the fourth week until the end of the summer semester, including exam periods, learning and testing continued online. In particular, Microsoft Teams and the University's University Information System were used for online teaching and examination. The state examinations were conducted entirely by attendance, in compliance with all anti-epidemiological precautions. The entire teaching process in the academic year under review was affected by the coronary crisis, with students in the final year in particular finding it significantly more difficult to consult and complete the experiments in their final theses. The online form of teaching was regularly monitored from both the faculty and university management levels.

In 2021 there were 116 Erasmus+ contracts in force with 83 partners from 20 programme countries and 7 contracts with universities in Russia, Costa Rica, USA, China, Belarus and Ukraine, with which TUZVO continues to cooperate with partner countries. The rules of student and staff mobility are defined in the TUZVO Organizational Directive No. 1/2020 on the implementation of Erasmus+ mobility. The year 2021 brought a huge drop in the number of student mobilities and in the uptake of grants related to the coronavirus pandemic and the measures taken. In 2020/2021 only 4 students went on mobility and one international student was accepted for online mobility. An important partner in the implementation of graduate mobility is the non-profit organisation WorkSpace Europe, with which TUZVO has been cooperating contractually since 2017 as a member of a consortium of 11 universities. In 2020, 10 TUZVO graduates have been nominated for a graduate internship. TUZVO was also involved in networks within the CEEPUS programme and other mobility programmes.

In 2021, the Technical University in Zvolen joined the international evaluation of universities and higher education institutions U-Multirank. U-Multirank is an internationally recognised benchmarking tool for students, teachers and universities that compares over 1,900 institutions based on selected areas such as general information, teaching and learning, research, international orientation, regional engagement, and knowledge transfer. The Technical University in Zvolen is the 8th Slovak university to provide data for the processing of over 100 indicators in the selected areas. The results of the comparison will be available during the U-Multirank 2022 evaluation.

The solution of scientific research projects was provided at TUZVO by 283 academic employees and 99 students of the third level of study. Their total research capacity in 2021 was 403 692 hours. Among them, two top teams stand out - WOODMAT under the leadership of prof. RNDr. František Kačík, PhD., and SylviBio under the leadership of prof. Ing. Dušan Gömöry, PhD.

In 2021, the research teams were involved in 19 international cooperation projects: 5 H2020 projects, 1 LIFE project and 11 COST projects. TUZVO staff have long been cooperating with several foreign research institutes and universities (Poland, Austria, Germany, France, Spain, Hungary, Bulgaria, Russia, Great Britain, China, Greece, Portugal, USA, Canada).

In 2021, within the framework of the **Operational Programme Integrated Infrastructure**, Priority Axis: 9 Support for Research, Development and Innovation, the Technical University in Zvolen ensured the financial closure of 2 projects approved within the framework of the Calls for support of research and development capacities in 4 domains of smart specialization, the aim of which was to finance research activities in the selected research area for the period from 01.01.2016 to 31.12.2019.

In 2021, the 15th year of IPA TUZVO activities was already underway. The activities of the Project Agency are aimed at supporting the research activities of young employees - teaching and research staff, as well as internal PhD students up to 30 years of age. In the framework of the call for projects to be submitted to IPA TUZVO in 2021, 26 project applications were submitted, of which 11 projects were proposed for funding in the total amount of EUR 10 426.

In 2021, 20 projects from the grant agencies of the Ministry of Education, Science, Research and Sport of the Slovak Republic (17 VEGA and 3 KEGA) were approved at TUZVO. 36 projects (starting and continuing) and 1 project of bilateral call (SK-PL) were solved at the Technical University in Zvolen within the framework of the announced APVV General Calls.

The number of publications by authors from TUZVO in 2021 was 795, according to groups - A1: 19, A2: 59, B: 253, C: 102, D: 362, conversion per academic employee 2.81. The number of registered records of artistic activity was 24. In 2021, originators from TUZVO also filed applications for industrial law protection with the Industrial Property Office of the Slovak Republic - 3 utility models and 2 designs.

As of 31.12.2021, the registered staff of TUZVO was 545 persons (excluding the VŠLP), of which 309 were women and 236 were men. Teachers and researchers accounted for 51.74 % of the total number of employees. The staff development and training plan was implemented as systematic training in all job categories. The employer provided support to the employees mainly by fulfilling the obligations under the Collective Agreement for 2021.

The social grant was paid to 73 full-time first- and second-level students in the amount of EUR 126,600 in AR 2020/2021. The incentive scholarship was paid to 98 students in the amount of EUR 55,800. The exceptional scholarship was paid to 69 students in the amount of EUR 14,870. A trade union scholarship was awarded to 230 students for a total of EUR 87,594 and a pregnancy scholarship was paid to 2 female students for a total of EUR 2,000.

Other organizational parts of TUZVO - ÚCJ, ÚTVaŠ, ABH, ČDV, CIT, SLDK, ŠDaJ, VTU, VDL and VŠLP - also significantly contributed to the performance of tasks in the main activity.

The amount of investment for the acquisition and technical improvement of TUZVO assets in 2021 was EUR 1.54 million. They will contribute to the reduction of operating costs, but also improve the working and learning environment in the modernised premises. The invested own resources were used for the modernisation of laboratories intended mainly for the scientific research process of the University, as well as for the technical modernisation of the infrastructure. The economic result for 2021 was planned at EUR 306,856 and was well exceeded, amounting to EUR 789,701. This result can be considered excellent despite the fact that during 2021, in particular, revenues in all three areas were significantly affected by the COVID-19 pandemic.

In 2020, there were 59 international contracts in force with partner universities and organisations in 20 countries (including 2 new contracts) and 64 domestic contracts (including 10 new contracts).

The evaluation of the quality of the educational process and research activities at TUZVO was carried out in 2021 in accordance with the principles of the *Internal Quality Assurance System at the Technical University in Zvolen*. Students of TUZVO were also involved in the evaluation.

XVI. EXECUTIVE SUMMARY

The Technical University in Zvolen (hereafter TUZVO) is a modern higher education institution, highly supporting the creative scientific research providing education at all three levels of higher education. It has a unique profile focusing on the complex of forest - wood - ecology - environment, adequately extended to other technical, natural, safety and protection, economic and artistic fields.

Despite the restrictive pandemic measures, which negatively affected the activities of all institutions in 2020, the TUZVO and its faculties and other organisational parts performed their main tasks in all spheres. By the end of the year, Minister of Education, Science, Research and Sport of the Slovak Republic Branislav Gröhling granted the highest award - The Great Medal of St. Gorazd to the Rector of the TUZVO, Dr. h. c. Prof. Ing. Rudolf Kropil, PhD., for excellent longstanding scientific research and management activities as well as for the development of higher education in Slovakia.

The second most significant event was the establishment of the Consortium of Slovak Universities U10+ with the seat at the TUZVO. The founding members - the University of Economics in Bratislava, the Catholic University in Ružomberok, the University of Prešov, the Technical University in Zvolen, Alexander Dubček University of Trenčín, the Trnava University in Trnava, J. Selye University in Komárno, Constantine the Philosopher University in Nitra, Matej Bel University in Banská Bystrica and St. Cyril and Methodius University in Trnava committed themselves to concentrate and develop creative capacities to improve the national and international position of member universities, ensure and enhance the quality of education, science, research and art, acquire and effectively use the human and financial resources, develop common education module within the frame of Erasmus+, create a joint research park of centres of scientific excellence, fulfil the social mission of universities and actively cooperate with other associations of universities and other subjects supporting educational and scientific activities in Slovakia and abroad.

The President of the Slovak Republic Zuzana Čaputová appointed five professors from the TU staff members in 2020. Newly appointed professors are Prof. Ivan Klement (field of Wood Processing Technology), Prof. Karol Ujházy (field of Forest Phytology), Prof. Elena Pivarčiová (field of Manufacturing Technology), Prof. Vladimír Kunca (field of General Ecology and Ecology of Individual and Population) and Prof. Jaroslav Ďurkovič (field of Forest Phytology).

In the academic year 2019/2020 the educational process was carried out in 47 accredited study programmes at the first level of study, in 38 study programmes at the second level of higher education and in 40 study programmes at the third level of higher education (on 31.08.2020) in the full-time and part-time study forms. The number of students at the TUZVO in the academic year 2020/2021 (on 31.10.2020) was 2,171; 1,614 (74.3 %) were students of full-time study form. The number of international students was 110. The total number of graduates at the TUZVO in the academic year 2019/2020 was 684; 553 were in the full-time (d) and 131 in the part-time study form of study (e). As for individual faculties the number of graduates was as follows - together (FT/PT). Admission examination for the academic year 2020/2021 took place at all faculties and the University study programme. 857 students were admitted for the first level of studies and 654 were enrolled. 313 students were admitted for the second level of studies and 294 were enrolled and 34 new students enrolled for the PhD. studies. Starting on 09.03.2020 the contact teaching was interrupted and exchanged for e-learning. The most widely used application for e-learning was Microsoft Teams. Exam dates, final thesis submission dates, dates of the final state examination and final theses defence were postponed by three weeks. The state examinations were held in the presence of students and members of the commissions under strict pandemic measures.

In 2020, 110 Erasmus+ mobility agreements were valid with 84 partners from 20 different European countries, (from the European Economic Area - EEA) and candidate countries (activity KA103) and 7 agreements with universities in Russia, Costa Rica, the USA, China, Belarus and Ukraine with which the TU continues to cooperate within the Erasmus+ KA107 activity. In 2020 the allocation of funds for the Erasmus+ KA107 projects was negatively affected by cancellations of mobilities and the related suspension of already awarded grants due to the COVID-19 pandemic. In the academic year

2019/2020, 23 international student mobilities took place at the TUZVO for study purposes and 6 student mobilities in enterprises. As part of the student Erasmus+ mobilities, the TU hosted 13 foreign students from Germany, Poland, Croatia and the Czech Republic. As far as teacher mobilities are concerned, only 25% of them took place from the total number planned in the Grant agreement (10 out of 40) and 40% of employee mobility (16 out of 40). The TU was involved also in network activities of the CEEPUS programme and other mobility programmes.

Scientific research projects were carried out at the TUZVO by 279 members of the academic staff and by 98 PhD. students. In 2020 their total research capacity represented 370,460 hours. They were dominated by two excellent research teams - WOODMAT lead by Prof. RNDr. František Kačík, PhD. and SylviBio lead by Prof. Ing. Dušan Gömöry, PhD.

In 2020, the TUZVO research teams participated in 18 projects of international cooperation with research institutes and universities from Poland, Austria, Germany, France, Spain, Hungary, Bulgaria, Russia, the United Kingdom, China, Greece, Portugal, the USA and Canada. In the position of coresearchers were carried out two projects financed by the European Union Structural Funds - an automatic system for fire risk assessment, ITMS 313010Q879 and the FOMON project - Research and Development of Contactless Methods for Acquisition of Geospatial Information for the Purposes of Forest Monitoring and Improvements of Forest Management and Forest Protection, ITMS 313011V465.

In 2020, the total number of 66 research projects from the Ministry grant agencies (43 VEGA projects and 23 KEGA projects) were carried out at the TUZVO. There were also 33 APVV (new and ongoing) projects carried out and 1 project within bilateral call (SK-PL).

In 2020, the 752 publications from the TUZVO authors are divided as follows - A1: 26, A2: 46, B:211, C: 118, D: 351, (2.70 per one academic employee on average). The number of recorded artistic activities was 36. The TUZVO employees applied also in 2020 for the legal protection of industrial design at the Industrial Property Office of the Slovak Republic: 1 patent, 4 utility models and 17 designs.

The total number of the TUZVO employees was 573 (on 31 December 2020, the University Forest Enterprise / VŠLP excluded). There were 328 women and 245 men. Teachers and scientific-research employees represented 50.26% of the total number of employees. The development plan and continuous education of employees were carried out as a systematic specialised education in all work positions. The provided staff support was according to the 2020 Collective Agreement.

Various scholarships paid in the academic year 2019/2020 were as follows: maintenance grant to 113 students in the amount of EUR 181,945, excellence grant to 239 students amounting to EUR 147,650, extra scholarship to 211 students amounting to EUR 89,350.

Other organisational parts of the TUZVO were fully involved and significantly contributed to the fulfilment of main tasks and responsibilities as well.

The investments for procurement and technical evaluation of property of the TUZVO in 2020 amounted to 1.049 million EUR. They will contribute to the reduction of running costs as well as to the improvement of the working and learning environment in modernized university premises. Invested resources were used to modernise the laboratories for scientific research activities of the university as well as for technical modernisation of infrastructure. Planned bottom line of 490,836 EUR was in 2020 fulfilled despite the negative impact of the COVID-19 pandemic.

In 2020, there were 62 international ongoing agreements with partner universities and organisations (5 of them were new agreements) and 56 ongoing agreements with national institutions (9 of them were new agreements).

The quality assessment of educational process and research activities at the TUZVO were carried out in 2020 in accordance with the principles of *The Internal Quality Assurance System at the TU in Zvolen*. The students of the TUZVO were also involved in the evaluation process.

XVII. ANNEXES

Annex 1: Overview of changes in the internal regulations of the Technical University in Zvolen

In 2021, organisational guidelines were developed and approved at TUZVO:

- OS No. 1/2021 - on the establishment of spin off, start up and incubator at TU in Zvolen, in force from 11.02.2021, approved by the management on 11.02.2021;
- OS No. 2/2021 - STATUTE and Rules of Procedure of the Internal Project Agency of TU in Zvolen, in force from from 11.02.2021, approved by the management on 11.02.2021;
- OS No. 3/2021 - on postdoctoral positions at TU in Zvolen, in force from from 27.10.2021, approved by the management on 27.10.2021;
- OS No. 4/2021 - Internal Quality Assurance System of Higher Education at TU in Zvolen, in force from 14.12.2021, approved by the CoR on 14.12.2021;
- OS No. 5/2021 - on the acquisition of rights, harmonization of rights, modification and cancellation of rights for habilitation and inauguration proceedings at TU in Zvolen, in force from 14.12.2021, approved by the CoR on 14.12.2021 ;
- OS No. 6/2021 - Implementing Regulations of the TU in Zvolen to the Decree of the Ministry of Education, Science, Research and Sport of the Slovak Republic No. 246/2019 Coll. on the procedure for obtaining scientific-pedagogical titles and artistic-pedagogical titles of associate professor and professor, in force from 14.12.2021, approved by the Council of Ministers on 14.12.2021;
- OS No. 7/2021 - Minimum threshold values of criteria for the commencement of habilitation and inauguration proceedings at the faculties of TU in Zvolen, in force from 14.12.2021, approved in the CoR on 14.12.2021;
- OS No. 8/2021 - Code of Ethics and Academic Integrity at TU in Zvolen, in force from 14 December 2021, approved by the CoR on 14 December 2021;
- OS No. 9/2021 - on the evaluation of creative activities at TU in Zvolen, in force from: 14.12.2021, approved in the CoR on 14.12.2021;
- OS No. 10/2021 - Criteria for the evaluation of the quality level of outputs of creative activity for study fields at individual faculties of TU in Zvolen, in force from 14.12.2021, approved in the CoR on 14.12.2021;
- OS No. 11/2021 - General criteria for filling the positions of professors and associate professors and specific conditions for filling the positions of professors and associate professors at individual faculties of TU in Zvolen, in force from 14.12.2021, approved by the CoR on 14.12.2021.

Annex 2: Tabular annex to the Annual Report on the Activities of the TUZVO for 2021 (Tables 1 to 21)

ABBREVIATIONS

ABH	Borova Hora Arboretum
APVV	Agency For The Promotion of Research And Development
AR	Academic Year
ARL	Library and Information System Advanced Rapid Library
AS	Academic Senate
AZ	Academic Staff
BOZP	Occupational Health And Safety
BSK	Bratislava Self-Governing Region
CA	Computer-Aided
CAD	Computer-Aided Design
CCC	Current Contents Connect
CĎV	Centre for Continuing Education
CEEPUS	Central European Exchange Programme
CEEV	Centre for Environmental And Ethical Education
CIT	Centre of Information Technology
CNC	Computer Numerical Control
COST	European Framework for Cooperation in Science and Technology
CREPČ	Central Register of Publication Activity
CREUČ	Central Register of Artistic Activity
CRZP	Central Register of Final Theses
CSPV	Centre for Social and Psychological Sciences
CVTI	Centre for Scientific and Technical Information
ČR	Czech Republic
ČZU	Czech Agricultural University Prague
D	Full-Time Form of Study
DAAD	German Grant Agency Deutscher Akademischer Austauschdienst
DF	Faculty of Wood Sciences and Technology
DPŠ	Additional Pedagogical Studies
DZ	Long-Term Plan
E	External Form of Study
EBSCO	Database
ECTS	European Credit Transfer System
EFI	European Forest Institute
EHP	European Economic Area
EP	Editorial Plan
EPCA	Database of Publications and Reports of TUZVO staff
EÚ	European Union
FEE	Faculty of Ecology and Environmental Sciences
FDAAS	Fire Danger Assessment Automated System
FMM	Forest Management Model
FT	Faculty of Technology
GAUG	Georg-August-University of Göttingen
GR SL	Directorate General State Forests
H2020	Horizont 2020
HV	Economic Result
IF	Impact Factor
IFSA	International Forestry Students' Association
IKT	Information and Communication Technologies
INRO	Intramural Radio
IPA	Internal Project Agency

IQAS	Internal Quality Assurance System
IS	Information System
ITMS	Central Information System For Operational Programmes
IVF	International Visegrad Fund
JCR	Journal Citation Reports
JRC EC	Joint Research Centre of the European Commission
JSTOR	Multidisciplinary Online Archive Journal Storage
KAZMZ	Department of Applied Zoology and Wildlife Management
KEGA	Cultural And Educational Grant Agency
KERLH	Department of Economics and Management of Forestry
KLĽLM	Department of Forest Harvesting, Logistics and Soil/Land Ameliorations
KPLZI	Department of Forest Resource Planning And Informatics
KVAT	Department of Manufacturing and Automation Technology
LF	Faculty of Forestry
LIFE	Environment and Climate Action Programme
LS	Summer Semester
LSDV	Local Centre for Distance Learning
MPaRV SR	Ministry of Agriculture and Rural Development SR
MŠVVaŠ SR	Ministry of Education, Research, Science and Sport of the Slovak Republic
MVP	Young Scientists Support Project
MŽP	Ministry of The Environment
NERM	North European Regional Meeting
NFP	Non-Repayable Financial Contribution
NGO	Non-Profit Organisation
NISPEZ	National Information System for Research and Development Support in Slovakia
NLC	National Forestry Centre
NŠP SR	National Scholarship Programme of The Slovak Republic
OOS	Other Organisational Parts
OP	Operational Programme
OPP	Fire Protection
OPVaI	Operational Programme Research and Innovation
OS	Organisational Directive
OZ	Civil Association
OZ PŠaV	Trade Union of Education and Science Workers in Slovakia
PAZ	Number of Academic Staff
PD	Application for Designs
PN	Sick Leave
POZ	Trademark Application
PP	Patent Application
PPV	Industrial Property Objects
PSL	Forest Management Programme
PŠ	Number of Students
PÚV	Application for Utility Models
RISE	Swedish Research Institute
RK	Board for Internal Quality Assessment System
RTT	Department for Technology Transfer
RÚSES	Regional Territorial Ecological Stability System
RVV	Department of International Relationships
RVVČ	Department of Science And Research
SAIA	Slovak Academic Information Agency
SAV	Slovak Academy of Sciences
SAŽP	Slovak Environmental Agency

SERR	Common European Framework of Reference for Languages
SKVH	Slovak Commission for Scientific Ranks
SLDK	Slovak Forestry and Wood Sciences Library
SOŠ	Vocational Secondary School
SPU	Slovak University of Agriculture In Nitra
SR	Slovak Republic
SUNG	Society of German Language Teachers And Germanists of Slovakia
ŠD	Student Dormitory
ŠDaJ	Student Dormitories And Canteen
ŠJ	Student Canteen
ŠOP	State Nature Preservation
ŠVOČ	Student Scientific Activity
TUZVO	Technical University In Zvolen
ÚCJ	Institute of Foreign Languages
ÚEL SAV	Institute of Forest Ecology, Slovak Academy Of Sciences
UIS	University Information System
UKF	University of Constantine The Philosopher
UMB	University of Matej Bel Banská Bystrica
UNIVNET	University And Industry Research and Education platform for a recycling society
ÚSES	Territorial System Of Ecological Stability
USO	Full Secondary Vocational Education
UŠP	University Study Programme
UTV	University of The Third Age
ÚTVaŠ	Institute of Physical Education And Sport
UVLF	University of Veterinary Medicine and Pharmacy
VČ	Amount Paid
VDL	Development Workshops and Laboratories
VEGA	Scientific Grant Agency
VH	Scientific Rank
VO	Public Procurement
VSK	Internal Quality Assessment System
VŠLP	University Forestry Enterprise
VŠP	Weighted Study Average
VŠVz	Higher Education
VTU	Publishing House Of The Technical University In Zvolen
VÚC	Higher Territorial Unit
VVz	Scientific Research Staff
V4	Visegrad Four
WOS	Web of Science
ZC	Staff
ZS	Winter Semester
ŽP	Environment