Annual report

2022

Faculty of Textile Engineering
Technical University of Liberec
Approved by AS FT TUL 26 June 2023

CONTENTS

1. Basic information about the faculty

Technical University of Liberec, Faculty of Textile Engineering (FT TUL, FT) www.ft.tul.cz
Studentská 2, 461 17 Liberec https://cs-cz.facebook.com/fakultatextilni
The main activities of the Faculty of Textile Engineering of the Technical University of Liberec in 2022, especially in the field of pedagogical and creative activities, were implemented in accordance with the Strategic Plan of the Faculty of Textile Engineering of the Technical University of Liberec (which is formulated in the document Strategic Plan of the Educational and Creative Activities of the Faculty of Textile Engineering of the Technical University of Liberec for the years 2021-2030) and the Implementation Plan of the Strategic Plan of the Educational and Creative Activities of the Faculty of Textile Engineering of the Technical University for 2022.

1.1 Organisational scheme of the faculty

The basic departments of the faculty are. Their overview is given in the following table.

Table 1. Departments at FT

Locations	Abbreviation.	Location
Department of Design	KDE	Liberec, Jablonec nad Nisou
Department of Textile Evaluation	KHT	Liberec
Department of Materials Engineering	KMI	Liberec
Department of Nonwovens and Nanofibrous Materials	KNT	Liberec
Department of Clothing	KOD	Liberec
Department of Technology and Structures	KTT	Liberec

The structure of the Faculty as of 31 December 2022 is shown in the following diagram.

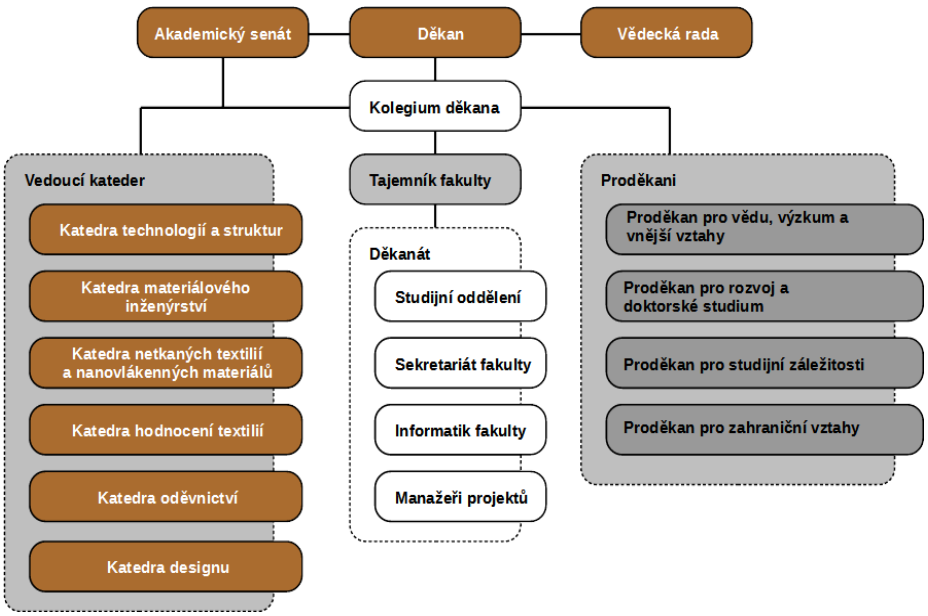

Fig. 1.: Organizational chart of the Faculty of Law of TUL as of 31 December 2022

1.2 Composition of the faculty bodies

This chapter lists the personnel composition of the faculty management, the Academic Senate, the Scientific Council and the Disciplinary Council.

Faculty Management

Dean:	doc. Ing. Vladimír Bajzík, Ph.D.	
Vice Deans:	Ing. Jana Drašarová, Ph.D.	for Science, Research and External Relations
	Ing. Jindra Porkertová	for Student Affairs
	prof. Ing. Michal Vik, Ph.D.	for Foreign Relations
	Ing. Iva Mertová, Ph.D.	for Development and Doctoral Studies
Head of Dean's Office:	Ing. Daniela Brzezinová	

Academic Senate of

The Chair:	Ing. Jiří Chaloupek, Ph.D. (KNT)
1st Vice-Chairman:	Ing. Alžbeta Samková (KMI)
2nd Vice-Chairman	Ing. Vlastimila Bergmanová (KDE)
Chamber staff:	Ing. Miroslava Pechočiaková, Ph.D. (KMI)
	prof. Ing. Jakub Wiener, Ph.D. (KMI)
	Bc. Ondřej Ludín (KDE)
	Ing. Petra Komárková, Ph.D. (KOD)
Chamber of Students:	Ing. Michal Martinka (KOD)
	Ing. Ivana Plamínková (Céeová) (KOD)
Secretary:	Ing. Daniela Brzezinová (DFT - not a member of the Senate)

Members of the Academic Senate of TUL for FT TUL

Chamber staff:	doc. Ing. Pavel Pokorný, Ph.D, *(from 10. 11. 2021)*
	Ing. Ondřej Novák, Ph.D.
Chamber of Students:	Ing. Markéta Klíčová

Scientific Council of the Faculty of Textile Engineering, TUL

Dean of FT TUL:	doc. Ing. Vladimír Bajzík, Ph.D.	FT TUL
Internal members:	prof. Ing. Luboš Hes, DrSc.	FT TUL
	prof. RNDr. Oldřich Jirsák, CSc.	FT TUL
	Prof. Dr. Ing. Zdeněk Kůs	FT TUL
	Doc. Ing. Brigita Kolčavová Sirková, Ph.D.	FT TUL
	doc. Svatoslav Krotký, ac.mal.	FT TUL
	prof. Ing. Jiří Militký, CSc.	FT TUL
	prof. Ing. Bohuslav Neckář, DrSc.	FT TUL
	doc. PhDr. Filip Suchomel, Ph.D.	FT TUL
	Prof. Ing. Michal Vik, Ph.D.	FT TUL
	prof. Ing. Jakub Wiener, Ph.D.	FT TUL

Faculty of TUL:	doc. RNDr. Miroslav Brzezina, CSc.	FP TUL
	prof. Ing. Jiří Kraft, CSc.	EF TUL
	prof. Ing. Zdeněk Plíva, Ph.D.	FM TUL
	prof. Ing. Tomáš Vít, Ph.D.	FS TUL
External members:	prof. RNDr. Jaromír Antoch, CSc.	MFF UK Prague
	prof. RNDr. Vladimír Čech, Ph.D.	FCH Brno University of Technology
	prof. Ing. Roman Čermák, Ph.D.	FT UTB Zlín
	prof. RNDr. Gejza Dohnal, CSc.	FS CTU Prague
	Ing. Libuše Fouňová	CLUTEX, o.s. Liberec
	doc. Ing. Zdeněk Horák, Ph.D.	VŠP Jihlava
	prof. Ing. Radim Hrdina, CSc.	FCHT University of Pardubice
	doc. Ing. Tomáš Novák, Ph.D.	FEI VŠB-TU Ostrava
	prof. Ing. Michal Šejnoha, Ph.D., DSc.	FSv CTU Prague

Branch Councils for Doctoral Study Programmes

Board of DSP Textile Engineering (P0723D270002), Textile Engineering (P0723D270003)

The Chair:	prof. Ing. Jiří Militký, CSc.	FT TUL
Members:	Prof. RNDr. Jaromír Antoch, CSc	IFF UK
	doc. Ing. Lukáš Čapek, Ph.D.	FT TUL
	prof. RNDr. Oldřich Jirsák, CSc.	FT TUL
	Prof. Dr. Ing. Zdeněk Kůs	FT TUL
	prof. Ing. Michal Šejnoha, Ph.D., DSc.	FSv CTU
	doc. Ing. Maroš Tunák, Ph.D.	FT TUL
	prof. Ing. Jakub Wiener, Ph.D.	FT TUL

DSP Textile Engineering (P3106) in ČJ and AJ

The Chair:	prof. Ing. Jakub Wiener, Ph.D.	FT TUL
Members:	prof. RNDr. Jaromír Antoch, CSc.	IFF UK
	doc. Ing. Lukáš Čapek, Ph.D.	FT TUL
	prof. RNDr. Oldřich Jirsák, CSc.	FT TUL
	Prof. Dr. Ing. Zdeněk Kůs	FT TUL
	prof. Ing. Jiří Militký, CSc.	FT TUL
	prof. Ing. Michal Šejnoha, Ph.D., DSc.	FSv CTU
	doc. Ing. Maroš Tunák, Ph.D.	FT TUL

DSP Industrial Engineering in Czech and English (P0723D270001)

The Chair:	doc. Ing. Maroš Tunák, Ph.D.	FT TUL
Members:	doc. Ing. Vladimír Bajzík, Ph.D.	FT TUL
	doc. RNDr. Miroslav Brzezina, CSc.	FP TUL
	Prof. RNDr. Gejza Dohnal, CSc.	FS CTU
	prof. RNDr. Oldřich Jirsák, CSc.	FT TUL
	Ing. Karel Kupka, Ph.D.	TriloByte, s.r.o.
	prof. Ing. Jiří Militký, CSc.	FT TUL

	prof. RNDr. Jan Picek, CSc.	FP TUL
	prof. Ing. Michal Vik, Ph.D.	FT TUL

College of the Dean

Dean:	doc. Ing. Vladimír Bajzík, Ph.D.	
Vice Deans:	Ing. Jana Drašarová, Ph.D.	
	prof. Ing. Michal Vik, Ph.D.	
	Ing. Iva Mertová, Ph.D.	
	Ing. Jindra Porkertová	
Chairman of AS FT:	Ing. Jiří Chaloupek, Ph.D.	
Secrets:	Ing. Daniela Brzezinová	
Heads of Departments:	Ing. Brigita Kolčavová Sirková, Ph.D.	KTT
	Ing. Jiří Chvojka, Ph.D.	CNT
	Prof. Dr. Ing. Zdeněk Kůs	CODE
	Ing. Blanka Tomková, Ph.D.	KMI
	Ing. Renata Štorová, CSc.	WHERE
	Ing. Roman Knížek, Ph.D. from 1.7.2021	KHT

FT TUL representative in the Council of Universities:

The faculty representative in the RVŠ (Working Commission for Scientific Activities and Working Commission for External and Foreign Activities) in 2022 was prof. Ing. Michal Vik, Ph.D.

1.3 Change of regulations

Directive of the Dean

TUL Dean's Directive No. 1/2022 - Achievement Scholarships in Bachelor's and Continuing Master's Degree Programmes

2. Educational activities

The chapter contains a summary of the main parameters and activities that are related to the first role of the faculty as part of the university, namely educational activities.
These are mainly performance parameters related to the implementation of teaching:

- accredited study programmes
    - students, graduates, applicants

and descriptive parameters indicating other educational activities:

- linking educational activities with creative activities
    - realization of final student theses
    - involvement of students in research projects of various external providers
    - Involvement of students in specific research projects in the form of Student Grant Competition (SGS)
    - organizing the Student Scientific and Professional Activity Competition (SVOČ)
    - Organizing the International Ph.D. Students Day Workshop
    - support for student participation in competitions and exhibitions
- linking educational activities with internationalisation
    - study programmes in a foreign language
    - lecture traineeships of foreign experts
    - participation of FT students in foreign internships, placements, conferences, summer schools
- linking educational activities with the third role of the faculty
    - cooperation with future employers
    - experts from the application sphere teaching in accredited study programmes
    - consultation and guidance of bachelor and master theses in cooperation with the corporate sector
    - professional lectures and seminars for students in cooperation with the corporate sector and graduates
    - excursions to companies
    - professional practice for students
    - motivational events for prospective students / cooperation with secondary schools.

2.1 Accredited study programmes

In 2019**, all submitted FT study programmes received NAU accreditation for a maximum period of ten years.** All study programmes are also accredited in English (with the exception of the DSP Industrial Engineering, whose accreditation in English was submitted in 2022). In 2021, accreditation was obtained for the follow-up Master's programme Design - Textiles, Clothing, Glass, Jewellery also for a period of ten years. Students in this programme are now in their second year.

A potential problem is students who have interrupted their studies (e.g. due to a recognised period of parenthood) in a programme of study on completion of their degree (the 'old accreditation', which for all disciplines ends in 2024). These students are monitored and provided with ongoing information to optimise their progression through the programme in accordance with the current regulations. They are informed in the interruption decision about the duration of the accreditation and the rules set by the Higher Education Act (§ 56, § 80).

Table 2. Accredited study programmes

Stud code. program	Name of study programme (or specialisation)		Stand. period	Form of study
B0212A270001	**Design**	Textile technology and patterning	3	P
		Textile and clothing design		
		Glass and jewellery design		
B0212A270002	**Design**	Textile Technology and Patterning	3	P-AJ
		Design of Textiles and Clothing		
		Design of Glass and Jewelry		
B0414A270001	**Textile marketing**		3	P, K
B0414A270002	**Textile Marketing**		3	P-AJ
B0723A270001	**Textile technology materials and nanomaterials**	Design and creation of textiles	3	P, K
		Nonwovens and nanofibres		
B0723A270002	**Textile Technologies, Materials and Nanomaterials**	Construction and Production of Textiles	3	P-AJ
		Nonwovens and Nanofibers		
B0723A270003	**Manufacture of clothing and technical clothing**		3	P, K
B0723A270004	**Production of Clothing and Technical Products**		3	P-AJ
N0723A270001	**Textile Engineering**	Textile technology and materials	2	P, K
		Clothing technology and materials		
		Nonwovens and nanofibrous materials		
N0723A270002	**Textile Engineering**	Textile Technology and Materials	2	P-AJ
		Clothing Technology and Materials		
		Nonwovens and Nanofiber Materials		
N0212A310012	**Design - textile, clothing, glass, jewellery**		2	P
N0723A270003	**Industrial Engineering**		2	P, K
N0723A270004	**Industrial Engineering**		2	P-AJ
P0723D270001	**Industrial Engineering**		4	P, K
P0723D270002	**Textile Engineering**		4	P, K
P0723D270003	**Textile Engineering**		4	P, K-AJ

Table 3. degree programmes for students completing their accreditation

Code s.p.	Name of study programme	KKOV	Name of field of study	Stand. period	Form of study
B3107	**Textiles**	3107R006	Textile and clothing design	3	P, A
		3107R007	Textile marketing	3	P, K, A
		3106R016	Textile technology, materials and nanomaterials	3	P, K, A
		3107R015	Garment manufacturing and garment shop management	3	P, K, A
M3106	**Textile Engineering**	3106T012	Textile Engineering	5	P, A
N3106	**Textile Engineering**	3106T017	Clothing and textile technology	2	P, K, A
		3106T008	Non-woven and nanofibrous materials	2	P, K, A
N3957	**Industrial Engineering**	3911T023	Quality control	2	P, K, A
		3901T073	Product Engineering	2	P, K, A
P3106	**Textile Engineering**	3106V015	Textile Technology and Materials Engineering	4	P, K, A

2.1.1 Students

An overview of the number of students as of 31 December 2022 in accredited study programmes is presented in the following table. This is the output from the central SIMS registry.

Table 4: Students in accredited study programmes

Study programme	Students in the study programme								Total students
	BSP		MSP		NMSP		DSP		
	P	K	P	K	P	K	P	K	
B3107 Textile	15	8							23
B0212A270001 Design	138								138
B0414A270001 Textile marketing	103	41							144
B0723A270001 Textile technology, materials and nanomaterials	55	31							86
B0723A270002 Textile Technologies, Materials and Nanomaterials	1								1
B0723A270003 Manufacture of wearing apparel and technical clothing	33	19							52
N0212A310012 Design - textile, clothing, glass, jewellery					18				18
N3106 Textile engineering						1			1
N0723A270001 Textile engineering					36	21			57
N0723A270002 Textile Engineering					21				21
N3957 Industrial engineering						2			2
N0723A270003 Industrial engineering					7	11			18
P3106 Textile engineering							17	8	25
P0723A270001 Industrial engineering							2	2	4
P0723A270002 Textile engineering							10	3	13
P0723A270003 Textile Engineering							13		13
Faculty total	345	99			82	35	42	13	616
of which number of women	266	72			54	23	21	5	441

Table 5: Students in accredited study programmes by nationality

Type of study	Students with Czech citizenship	Students with foreign citizenship
Bachelor's Degree Programme (BSP)	343	101
Continuing Master's Degree Programmes (NMSP)	81	36
Doctoral Study Programme (DSP)	28	27
Total FT	**452**	**164**

The Faculty of Textile Engineering traditionally hosts a number of foreign students - from Russia (44), Slovakia (25), Ukraine (14), Greece (1), Pakistan (9), Kazakhstan (12), India (12), Poland (4), Egypt (1), South Africa (1), Turkey (14), China (7), Belarus (1), Bangladesh (7),

Palestine (7), Republic of Moldova (1), France (5), Kyrgyzstan (2), Uzbekistan (2), Romania (2), Austria (1), Republic of Mauritius (1), Netherlands (1). In the DSP, the number of students with foreign citizenship is comparable to the number of students with Czech citizenship, which is the result of the excellent international activities of the academic staff of FT TUL.

Advice and support for students in accredited study programmes

At the TUL FT, students in the first years of study mainly terminate their studies on their own initiative or due to failure to fulfil their study obligations. A higher failure rate is observed among students of the combined form of study, whose number is traditionally high at FT TUL. In 2022, the success rate of students in the combined form of study has significantly worsened. For some students in the combined form of study, it is not easy to combine their own teaching and study activities with their work and personal responsibilities, especially nowadays when companies are short of workers and no longer support the qualification growth of their employees. The failure of full-time students is most often due to the low level of knowledge and understanding of science that they come from secondary schools with, which is often combined with low motivation to study and low individual diligence. In order to familiarize the students with the environment and organization of the first semester, a joint meeting of the entire 1st year BSP Design students was held at the start of the study (teaching, TUL and FT environment, academic advisor).

Table 6. Unsuccessful students in accredited study programmes in %

Type of study programme	P [%]	K [%]	Total [%]
BSP (all disciplines)	49	73	57
MSP (all disciplines)	0	0	0
NMSP (all disciplines)	52	71	57
DSP (all disciplines)	25	0	23
Total			**55**

*Note: * = Study failure rate is the ratio of the number of studies started in a year to the sum of failed studies of this cohort in year n and n+1.*

FT TUL strives to reduce the academic failure rate of students. In agreement with the course guarantors, we try to compensate for the uneven entry knowledge of the students with a higher time allocation for exercises and seminars in core courses, where the beginning of the semester can be devoted to repetition without reducing the overall level of the course. To reduce the failure rate, a weekly mathematics course was organised for first year undergraduate students before the start of the semester. In addition, students are motivated by the possibility of receiving a merit scholarship. For the new NMSP (commencement of teaching ZS 2021) regular discussions with students are conducted. In selected courses, study materials were used in face-to-face teaching, and video recordings (prepared and used during the period when teaching was online) were used for revision. Subjects with a high failure rate are also scheduled in the following year so that their teaching does not conflict with compulsory subjects and the student can fully re-attend them. As part of the ROLIZ project, study guides for high failure courses were created in each department.

The FT motivates students to complete their studies in due time by, for example, ensuring that only a student who is studying properly during the standard period of study can receive a merit scholarship. Students in full-time and combined study may receive a merit scholarship for

outstanding academic performance. They do not apply for it; it is awarded on the basis of their study results. Exceptional scholarships can be awarded for research activities or to support study abroad. Students can receive scholarship support in the framework of the annual competition announced by the Preciosa Foundation. Talented students have the opportunity to participate in scientific work in the departments, to go abroad within the Erasmus plus programme, to participate in a number of student competitions (SVOČ, company scholarships, competitions for the best final thesis).

In order to prevent prolongation of studies, students are continuously consulted by the staff of the study departments and the vice-dean for pedagogical activities in case of difficulties (academic, health, social). Students are advised to find solutions on the basis of an individual approach. Fees for exceeding the standard period of study by more than one year are prescribed on the basis of the Dean's instruction. The Vice-Dean for Teaching and the Student Services Officers also work closely with the Academic Advice and Support Centre of TUL. All lecturers are informed about students with specific needs from the Academic Advice Centre at the beginning of the semester and are given recommendations on how to work with these students individually. In 2022, 18 students with disabilities and one student with socio-economic disadvantage were registered at the Faculty in cooperation with the Academic Counselling Centre.

2.1.2 Alumni

In 2022 (from 1 January 2022 to 31 December 2022), a total of 122 students graduated from accredited study programmes. Of these, 87 were women and 24 were foreigners.

Table 7. Graduates of accredited study programmes (from 1 January 2022 to 31 December 2022)

Study programme / field of study	Graduates in the study programme								Total Graduates
	BSP		MSP		NMSP		DSP		
	P	K	P	K	P	K	P	K	
BSP/TM	7	3							
BSP / NAV	10								
BSP / VOTK									
BSP / TTMN	2								
BSP / TEXTIL - old	15	5							
Total BSP	**34**	**8**							**42**
NMSP / TI - old					1	3			
NMSP / PI - old						1			
NMSP / TI - new					7				
NMSP / PI - new					5	4			
NMSP total					**13**	**8**			**21**
DSP							3	0	
Doctoral total							**3**	**0**	**3**
Total FT									**66**
of which women									**46**
of which foreigners									**14**

Note: Numbers of graduates without successfully completed short-term stays (data - outputs of the central SIMS registry).

Faculty cooperation with alumni

FT TUL supports cooperation with graduates at the departmental level. FT TUL organises tours of existing premises on the occasion of alumni reunions.
In 2022, the departments hosted the following activities:

- KHT: 30 years since the foundation of the Textile Marketing industry (participation of about 180 people)
- WHERE: Graduates meeting within the 30th anniversary of the start of teaching BS Design and the 20th anniversary of the start of teaching Glass and Jewellery Design in Jablonec n. N. (participation of about 150 people).

Graduates of the doctoral study programme

In 2022, four State Doctoral Examinations (SDZ) were held and successfully passed:

- Ing. Markéta Klíčová
- Muhammad Shahid, M.Sc.
- Amany Ahmed Salama Khalil, M.Eng.
- Divyabharathi Madheswaran, M.Eng

For details, see the faculty's website under the link *State Doctoral Examination.*

Defence of the dissertation

In the same year, 3 students successfully defended their dissertations and obtained the degree of Ph.D.

- Asif Elahi Mangat, M.Sc. (Topic: Thermal Absorbtivity and Other Thermal Comfort Parameters of Rib Knitted Fabrics; Supervisor: prof. Ing. Luboš Hes, DrSc., Dr.h.c.)
- Musaddaq Azeem, M.Sc. (Topic: Scientific Design of Multilayer Fog Collectors; Supervisor: prof. Ing. Jakub Wiener, Ph.D.)
- Frederick Tungshing Fung, M.A. (Topic: Derivation of evaporative resistance Ret of clothing from its thermal resistance Rct measured on dry thermal manikin and from Rct/Ret correlations determined on a vertical skin model; Supervisor: prof. Ing. Prof. Luboš Hes, DrSc., Dr.h.c.)

A PhD student who has not defended his dissertation:

- Abdur Razzaque, M.Sc. (Topic: Evaluation of Hydrostatic Resistance and Comfort Properties of Breathable Laminated Fabrics; Supervisor: Ing. Pavla Těšinová, Ph.D.)

For details, see the faculty website under the *dissertation defence* link.

2.1.3 Interest in studying

The following table provides statistical data on the number of students enrolled for studies, the number of students admitted for studies and the number of students enrolled for studies.

Table 8. Number of applications

Study programme	Applications submitted [1)]	Number of applicants (natural persons)	Acceptance [2)]	Enrolled [3)]
Total BSP	**453**	**433**	**408**	**224**
NMSP total	**93**	**97**	**81**	**54**
Total DSP	**11**	**11**	**9**	**8**
TOTAL on FT	**557**	**541**	**498**	**286**

Note: 1) Applications received by the faculty, 2) successful applications, 3) enrolled students.

Nature of the entrance examination
At FT TUL, admission examinations are provided exclusively by our own resources.
Bachelor's degree: applicants were admitted to bachelor's degree programmes on the basis of their high school results. Successful completion of the talent test was a condition for admission to the Bachelor of Design programme. The evaluation was carried out by an expert committee.
Continuing Master's studies: applicants were admitted to continuing master's study programmes without entrance examinations on the basis of an assessment of their previous university studies and the recommendation of the admissions committee until the vacant capacity was filled.
Successful completion of the talent test was a condition for admission to the Master's Design-Clothing, Textiles, Glass, Jewellery. The evaluation was carried out by an expert committee.
For foreign students who wish to study in Czech, a certificate of Czech language proficiency at B2 level is required.
Doctoral studies: the admission procedure for doctoral studies took place in two rounds last year. Applications were accepted until: 15 February 2022 and 24 June 2022. The admission committee meeting took place on 22 February 2022 and 1 July 2022 (per rollam). The assessment of the applicant's overall qualifications for this type of study is based on documented successful completion of a university degree in engineering or master's studies, a structured CV describing the applicant's skills, knowledge and competences, including a motivation letter elaborating on the expected dissertation topic. In the case of foreigners, nostrification of previous educational qualifications was also a prerequisite for admission. Summary information on the number of applicants, admitted and enrolled students is given in the following table.

Table 9. Admissions to the DSP

Admission procedure	CZECH REPUBLIC	FOREIGNERS	total/accepted/not accepted			ENTRY
Round 1	1	5	6	4	2	3
Round 2	4	1	5	5	0	5
Total	5	6	11	9	2	8

2.1.4 Development of educational activities

Teaching activities in 2022 were supported from other sources through projects: the Ministry of Education (development projects, OP projects, NPOs) and international Erasmus+ projects. In the field of education, the availability of study materials in electronic form in both Czech and English (using e-learning applications) has been and is being gradually improved.

EU operational programmes
In 2022, the Faculty of Textile Engineering continued to actively participate in university-wide projects:

- OP VVV - Development of human resources of TUL for increasing relevance, quality and access to education in the conditions of Industry 4.0
  (RoLiZ 4.0; reg. no. CZ.02.2.69/0.0/0.0/16_015/0002329)

- OP VVV - Educational infrastructure of TUL for increasing relevance, quality and access to education in the conditions of Industry 4.0
  (ERDF 1, reg. no. CZ.02.2.67/0.0/0.0/16_016/0002553)

Development programmes

In 2022, projects were co-managed under the Strategic Management Support Programme (SMSP) for 2022:

- Priority objective 1: To develop competences directly relevant for life and practice in the 21st century - principal investigator: prof. Ing. Miroslav Žižka, Ph.D.; Principal Investigators for FT: doc. Prof. Miroslav Žižka, Professor of the Department of International Relations, Miroslav M. Žižka, Professor of the Department of International Relations, Prof. Miroslav M. Žižka, Professor of the Department of International Relations, Prof. Ing. Prof. Brigita Kolčavová Sirková, Ph.D. and doc. Ing. Jiří Chvojka, Ph.D.
- Priority objective 2: Improve the availability and relevance of flexible forms of education - principal investigator: prof. Ing. Miroslav Žižka, Ph.D.; Principal Investigator for FT: MgA. Eliška Látalová
- Priority Objective 5: Build capacity for strategic management of higher education - Principal Investigator: prof. Ing. Miroslav Žižka, Ph.D.; principal investigator for FT: doc. Ing. Prof. Vladimír Bajzík, Ph.D.
- Priority objective Internationalization - principal investigator: doc. Ing. Kateřina Maršíková, Ph.D.; principal investigator for FT: doc. Ing. Brigita Kolčavová Sirková, Ph.D.

Ministry of Education and Science - National Recovery Plan

The Faculty of Textile Engineering has been involved in the co-administration of the university-wide project New Opportunities for Education at the Technical University of Liberec, reg. no. NPO_TUL_MŠMT-16598/2022 since 2022:

- A1: Digitization of educational activities and study agendas, from which computers, televisions, data projectors, microscopes and other small electronic devices for classrooms and laboratories will be purchased. Principal investigator. RNDr. Pavel Satrapa, Ph.D.; principal investigator for FT: Ing. Jana Drašarová, Ph.D.
- A2: Development in the field of distance learning, online learning and blended learning, which includes innovation of existing and creation of new learning materials. Principal Investigator: prof. Ing. Miroslav Žižka, Ph.D.; Principal Investigator for FT. Prof. Jana Drašarová, Ph.D.

Projects of the Liberec Region

Within the framework of education of primary and secondary school pupils and popularization of science, FT TUL participates in the following projects:

- Implementation of the Regional Action Plan for the Development of Education in the Liberec Region II (NAKAP2) CZ.02.3.68/0.0/0.0/19_078/0017282.
- Children's University 2021/2022; Children's University 2022/2023

2.2 Linking educational activities with creative activities

The connection between educational and creative activities is a condition for continuous curriculum innovation, where it is the duty of every academic to enrich the teaching in his/her field with new knowledge, which he/she contributes to in the framework of his/her R&D and artistic creative activities. Students (especially MSP and DSP) are involved in projects and problem solving in complementary activities. In 2021, FT TUL continued to support the involvement of students and young academic staff in the main activities based on the Strategic Plan of FT TUL. Bachelors, Masters and PhD students were involved in R&D projects, e.g. The students of FT TUL also benefit from the interconnection of R&D and artistic activities with teaching, where they have the opportunity to creatively use new materials and advanced technologies.

2.2.1 Awards for student work

In 2022, a DSP student won the following major awards:

Award of the Minister of Education for outstanding achievements in scientific activities- Jakub Erben

The bachelor's and master's theses are always linked to creative activities carried out by R&D teams or artistic personalities of the faculty. In 2022, the final theses of these students were awarded:

The Verner von Siemens Prize for the Best Master's Thesis

Ing. Senta Müllerová

Dean's Award:

Bc. Barbora Bajerová	Marketing communication of an internet shop with specific goods
Bc. Martin Dašek	Tubular polycaprolactone samples produced by needle-free electrostatic softening

Award of the Governor of the Liberec Region:

Ing. Kateřina Blatoňová	Study of the use of polydioxanone surgical monofilament for 3D printing of absorbable orthopaedic implants

The Rector's Award:

Bc. Denisa Marková	Jewellery and objects inspired by lace
Ing. Jan Vinter	Image analysis of the electrical softening process of PVB solution using high-speed camera recordings

Preciosa Foundation Award:

Bc. Marie Svobodová	Glass objects on the theme of "soft tension"
Bc. Josefína Váchová	Glass-ceramic objects inspired by fossil phytoliths in soil sediment

Award of the Minister of Education Youth and Sports for outstanding students - Ing. Jakub Erben

2.2.2 Involvement of students in research projects of external providers

FT TUL continued to take advantage of the possibilities of financing students' scientific research activities from scholarship funds. At the same time, FT enabled students to partially participate in externally funded projects (see Chapter 4.1 Projects).

2.2.3 Involvement of students in Student Grant Competition (SGS) projects

In this year, 9 SGS 2022 projects were successfully defended. These were small-scale projects led by PhD students. Supervisors of doctoral students were the guarantors of the substantive and formal level of the solutions and other members of the teams were mostly students, both of the doctoral study programme and master's study programmes of the TUL.

The outputs of the SGS 2022 projects are described in detail in the final reports, which are available on the TUL website in the SGS TUL application. The principal investigators presented the results of the projects at the Student Scientific Conference on 8 December 2022 and answered questions from the SGS committee members and guests (dean, heads of departments, other members of the SGS project team, ...). Based on the vote of the evaluation committee composed of the SGS FT TUL committee members for 2022, it was decided to award the three best presentations with a special scholarship (Karolína Boňková, Shi Hu and Utkarshsinh Solanki). For details, see

Most of the project results were further presented and published at international conferences in hybrid format, e.g. Autex 2022, TBIS 2022 and CLOTECH 2022. 16 papers were accepted and presented in the form of lectures and posters. A number of researchers were also able to actively publish. A total of 3 papers have already been published, and another four are now under review. All papers are in journals with impact factor. Three more manuscripts are being prepared for submission to the journal. During the course of the projects, the *Apparatus for measuring the response of textiles to small flame under controlled airflow* and a unique technical output - the *Irradiation Chamber, used for defined irradiation of photochromic samples with selected monochromatic and polychromatic light sources,* were developed. Unlike standard chambers used for light intensity assessment, the chamber allows for variable spectral composition of light simulating day phases. Outputs include a chapter in a technical book. The outputs include, of course, parts of dissertations and also three master theses.

Specific Research Projects Student Grant Competition to be solved in 2022

1. *Nonwovens with copper coating processed by parylene encapsulation technology with sufficient air permeability and fastness in repeated washing, Shi Hu, M.Sc. (21499);*
2. *Carbon particle doping for the preparation of conductive composites with improved mechanical properties, Qingyan Peng, M.Eng. (21500);*
3. *Effect of chromium tetilia preparation technology on its stability, Utkarshsinh Solanki, M.Eng. (21501);*
4. *Development and testing of nanofibrous materials as cell carriers during electrical stimulation, Ing. Senta Műllerová (21502);*
5. *Textile substitutes for strengthening of the chest wall after bone defect, Ing. Karolína Boňková (21503);*
6. *Structural analysis of polyethylene glycol casting into expanded graphite under different*

relative humidity, Xiuling Zhang, M.Eng. (21504);

7. *Membrane non-porous systems for textile applications, Ing. Tereza Šubrová (21505);*
8. *Study of air flow through burning non-woven fabric under defined boundary conditions, Ing. Klára Gergelitsová, (née Masnicová) (21506);*
9. *Hybrid 3D coverage of skin wounds - creation of hybrid surface structure, Ing. Jana Ornstová (21507).*

2.2.4 Organisation of the Student Scientific and Professional Activity Competition (SVOČ)

The Faculty of Textile Engineering, Faculty of Mechanical Engineering, Faculty of Mechatronics, Informatics and Interdisciplinary Studies and Faculty of Economics of the Technical University of Liberec regularly organize the Student Scientific and Professional Activity Competition (SVOČ) in order to find creative types of students at the technical faculties of TUL. One of the main goals of the competition is to financially support creative types of students who have the prerequisites for scientific and development activities and to motivate them to further work in this field.

The 14th edition of the SVOČ competition at the technical faculties of TUL was announced in four sections (Textile, Mechanical Engineering, Mechatronics, Economics). The actual competition took place in the form of a student conference on 30 May 2022 in the premises of Building G of the Technical University of Liberec. A total of 30 students participated in all sections. Each of the registered students gave a short presentation of their competition work in front of the evaluation committee. After all the presentations, the individual committees announced the 3 best works from each section. The winners were awarded diplomas, financial and in-kind prizes.

In the Textile section, the first prize went to Ema CHUDOBOVÁ (BSP) for her work "Softening of biodegradable materials by blowing polymer solutions". The second place in the section went to Kateřina BLATOŇOVÁ (NMSP) for her work Study of the use of surgical monofilament made of polydioxanone for 3D printing of absorbable orthopaedic implants. Third place was not awarded. For competition results and more information, see http://svoc.tul.cz/.

2.2.5 International Ph.D. Students Day

This year's International Ph.D. Students Day took place within the framework of the international conference STRUTEX 2022 on 29 November 2022. Students of Ph.D. programmes of the Faculty of Textile Engineering presented the results of their research work and answered questions of the members of the departmental board and other textile experts from the Faculty of Textile Engineering and foreign guests. The set of student presentations started with an invited lecture by Dr. hab. Ing. Marcin Barburski from Lodz University of Technology on the topic "Sustainable development in the aspects of technical textiles". For more information see
Students who were unable to present at the Ph.D. Students Day due to time constraints attended the DSP 2022 Student Workshop. This workshop is held annually as part of the regular curriculum review. Student presentations were given from February 15, 2023 to February 17, 2023. For the detailed workshop agenda, see https://www.ft.tul.cz/studenti/doktorske-studium/workshop-studentu-dsp-2022

2.2.6 Support for student participation in competitions and exhibitions

BSP Design students have actively participated in a number of important activities:

- *Mercedes-Benz Prague Fashion Week SS22 2022*. Fashion show, Prague-Holešovice, 2022.
- *Mercedes-Benz Prague Fashion Week 2022*. Fashion show, Mystic Skatepark Štvanice, Prague, 2022.
- *BAKALAUREATS 2022.* Exhibition of student work from the final year of BSP Design. Gallery N, Jablonec n. N., 2022.
- *SEMESTRALS 2022*. Exhibition of student work BSP Design (Textile, Clothing). Gallery N, Jablonec n. N., 2022.
- SEMESTRALS glass/jewellery. Exhibition of student work BSP Design. Gallery N, Jablonec n. N., 2022.
- Museum Night under Ještěd 2022. Exhibition of BSP Design students and fashion show. Gallery N, Jablonec n. N., 2022.
- STUPKOVÁ, A., Stanislav Libensky Award 2022. Exhibition and competition. Special Award of the Chairman of the Jury Ben Wright. Prague, 2022.
- NISHCHAIA, A.: Young Textile Art Triennial 2022. Exhibition. Lodz, Poland, 2022.
- PARIS DESIGN WEEK 2022. Presentation and fashion show. Paris, France, 2022.
- VOJTÍŠKOVÁ, P., CHERESHNEVA,O., HOT HOT. Exhibition. National Technical Museum in Prague, Prague, 2022.

2.3 Linking educational activities with internationalisation

The extent of internationalisation and international excellence of TUL is described in detail in Chapter 5 Internationalisation. In addition, the following activities were organised as part of the education and promotion of the study programmes of FT TUL

- study programmes in a foreign language (chapter 2.3.1)
- lectureships of foreign experts (chapter 2.3.2)
- participation of FT students in foreign internships, placements, conferences, summer schools (chapters 2.3.3 and 5)
- organising conferences, summer schools and seminars (chapters 2.3.3 and 5).

2.3.1 Study programmes in a foreign language

The faculty has accredited most of its study programmes (bachelor's, master's and doctoral programmes) in both Czech and English. The study in English is conducted in the doctoral study programmes "Textile Engineering (in the ending and current accreditation). In the follow-up Master's programmes - students of the first and second years study the accredited programme "Textile Engineering", specialization "Nonwovens and Nanofiber Materials" and Clothing Technology and Materials. In the Bachelor's degree programme we have one student, in the Textile Technologies, Materials and Nanomaterials programme, specialization Nonwovens and Nanofibers. While there is interest in studying in English, applicants have difficulty in getting their previous education recognized and in obtaining visas. The faculty cooperates with the Rector's Office of International Relations in recruiting self-paying students for selected courses of study. In 2022, an application was submitted to extend accreditation to the AJ PhD program in Industrial Engineering.

Table 10. Self-paying students

	Bachelor's Degree		Master's studies		Continuing Master's studies		Doctoral studies		TOTAL
	P	K	P	K	P	K	P	K	
Self-replicators	1	0	0	0	17	0	15	0	33

2.3.2 Lectureships of foreign experts

In 2022, 5 visits of foreign experts took place:

1. Ilda Kazani, Polytechnic University of Tirana, Albania, March 13-19, 2022 - lecture on "Smart textiles, related research at the department of textile and fashion" at KOD;
2. Ermira Shehi, Polytechnic University of Tirana, Albania, March 13-19, 2022 - lecture on "Key performance inducators as a method for production measurement and increase" at KOD.
   In both cases, these were teaching stays of academic staff within the Erasmus+ Credit Mobility/Mobility between Programme and Partner Countries project KA 107 - applications from 2020, for students and staff of TUL.
3. Kenan Yildirim, Bursa Technical University, Turkïye, 8 - 13 May 2022, lectures on "Mask and fabric mask for using in pandemic; Definition of the quality and quality control; Technical textiles; Classification of the tests applied to fabric" at KHT, for students and staff of FT TUL, Erasmus+ teaching stay KA103.
4. Blerina Kolgjini, Polytechnic University of Tirana, Albania, 11 - 16 July 2022 - lecture on "Introduction of manufacturing sector in Albania and possibilities of cooperation" at KOD;
5. Elmira Fejzo, Polytechnic University of Tirana, Albania, 11 - 16 July 2022 - lecture on "Selection of fabric to be sewn through optimisation software" at KOD.
   In the cases (4 and 5), these were teaching stays of academic staff within the Erasmus+ Credit Mobility/Mobility between Programme and Partner Countries KA 107 project for students and staff of the TUL.

2.3.3 Participation of students in foreign work experience, internships, conferences, summer schools

This participation is mostly covered by the Erasmus+ mobility programme KA103, six practical placements were funded from faculty resources. In 2022, there were 8 study or work placements abroad during the summer semester of the academic year 2021-22: 5 students under Erasmus+, 3 students under self-funded scheme, for a total of 31.27 months in 2022. In addition, 23 study or work placements abroad in the winter semester of the academic year 2022-23: 20 students under Erasmus+, 3 students in self-pay mode, for a total of 54.23 months in 2022. 9 students under Erasmus+ continue their stay in 2023. In total, 31 students travelled for 85.5 person-months in 2022.

2.3.4 Linking educational activities to the third role of the faculty

The main mission of the activities is to increase the field employment of graduates of TUL. The most important goal is to set up interdisciplinary cooperation. This goal is gradually achieved by innovations in the subject curriculum of accredited programmes with regard to the needs of practice, support for student mobility within the study, diversification of professional practice

and soft- skills competences of students, based on feedback from students, graduates and employers. A great benefit for students is the possibility of excursions, study internships or work placements and thesis or bachelor thesis solutions, where the topics are based directly on the companies. Every year, FT TUL gives space to representatives of textile companies to present job opportunities in their companies, either in the framework of workshops in the companies associated with excursions or specialized seminars and job fairs. Job offers are advertised in front of the study department and on the faculty website or directly on departmental websites.

2.3.5 Collaboration in the development of study programmes

FT TUL in cooperation with industrial partners strives to ensure that experts from practice participate in the education of students. The cooperation with companies associated under the Clutex z.s. cluster, or ATOK, ČTPT is based on a long-standing basis, but these companies have also appreciated the more open approach of the faculty, the offer of joint research and development projects and also, for example, the opportunity to comment on newly emerging study programmes and fields of study so that the graduate better meets the requirements of the labour market and to participate in the possible revision of existing study programmes or professional courses in cooperation with FT TUL (involvement in the ROLIZ project). The link is implemented by staff. Further professional discussions take place at other forums convened for this purpose by regional governments or directly initiated by companies and secondary school management in the textile sector. The discussions are held in accordance with the Sectoral Agreements already signed or under preparation.

2.3.6 Experts from the application sphere teaching in accredited study programmes

In 2022, a number of experts from practice participated in teaching in the accredited study programmes by leading and guaranteeing selected courses focused on project-based learning and the transfer of knowledge and R&D results into practice:

- Prof. RNDr. Gejza Dohnal, CSc., Planning of industrial experiments
- Ing. Jiří Koucký, Csc., Glass and jewellery manufacture
- Zdeněk Kindl, Computer Graphics 1, 2
- Mgr. Denisa Smetanová, Interior Design
- Mgr. Oldřich Palata, Aesthetics, Contemporary Art and Design 2
- MgA. Martin Hlubuček, Atelier 1, Atelier 2, Atelier 3
- Mgr. Lenka Patková, Contemporary Art and Design 1
- Mgr. Adéla Pomothy, Contemporary Art and Design 3
- Ing. arch. MgA. Aleš Novák, Spatial study
- MgA. Karel Matouš Zavadil, Ph.D., Gallery Practice.

2.3.7 Consultation and guidance for bachelor and master theses

Most of the cooperation is not formalized, it is necessary to add consultants from companies to the assignment of the final works. The current best practice, in the case of final student theses solved with a specific industrial enterprise, is the management of the thesis by an academic employee of the TUL FT with the cooperation of an expert from the company as a consultant or opponent of the thesis.

2.3.8 Professional lectures and seminars for students

Experts working in the application sphere (or distinguished graduates) or in other scientific research organisations in the Czech Republic or abroad (see Chapter 3.2.3) were involved in the educational activities of the TUL FT in the form of specialised seminars focused on selected topics in accordance with the main objectives of the TUL SZ and the TUL FT SZ. Lectures are held both in the teaching of individual subjects and for different groups of listeners across the disciplines studied

- Owner and managing director of SaYu, Ing. Pavel Hník, presented his business within the subject of Sales Strategy of Textile Goods
- Lecture by the TUL Ombudsman Ing. Petr Pavlík, Ph.D. for students on the topic of gender equality

In addition to regular teaching, seminars were held for TUL students:

- Seminar for PhD students "Presentation and discussion of R&D results" (once a week, Militký, Křemenáková)

2.3.9 Excursions to companies

Excursions to companies in 2022

- Diakonie Broumov (teachers and students of KHT)
- JUTA Turnov (teachers and students of KNT)
- Schindlerova pletárna s.r.o. (teachers and students of the course Processes and systems in knitting)
- Mileta a.s. (teachers and students of the subject Weaving)
- Kümpers Textil s.r.o. Plavy - (teachers and students of the subject Spinning)
- continuous excursions of students to various cultural institutions as part of the Contemporary Art and Design course.

2.3.10 Professional practice for students

At FT TUL, the DSP includes a compulsory internship for 6 months. A total of 17 students completed the mandatory internship or at least part of it in 2022. Four students completed the final presentation and exam. Some DSP students have worked at foreign institutions in partial fulfilment of this obligation in accordance with the Individual Study Plan and completion is planned during the next year of study

Professional practice is compulsory in all newly accredited bachelor's degree programmes. In each of the three years of study, students must complete a minimum of 80 hours of work experience. FT actively supports the placement of internships. The web interface related to the offer of internships, traineeships and employment is constantly updated (http://www.ft.tul.cz/studenti/praxe/praxe). In the first year, 58 students participated in internships.

Table 11. BSP student internships in 2022

	Number of students
Total number of practices	171
Work experience in professional firms	171
Practice outside the field	0
Internships in the form of volunteering	0
Practice in written form (alternative)	0

2.4 Motivational events for prospective students / Cooperation with secondary schools

An important activity is the search for and long-term work with gifted individuals in primary and tertiary education, especially those who are likely to become researchers in the fields developed at TUL. In 2022, the following activities were implemented to motivate secondary school students to further their studies:

Directly contacting study applicants

- TUL Open Days, FT (FT TUL organized Open Days (DOD) for prospective students in February and November 2022 in full-time mode (November DOD is organized university-wide).
- virtual promotion - facebook, instagram, etc. (FB campaigns for DOD and 1st and 2nd round of admissions)
- presentation of the faculty in the form of advertising (portal vysokeskoly.cz)
- FT presentation at Gaudeam (in 2022 it was online)

Work with pupils of secondary and primary schools

- Project days (NAKAP2 project)
  Construction and design of textile structures 4x (KTT)
  Textile design 2x (KDE)
  Textile Materials Engineering 3x(KMI
- project days (project CPR)
  Project Holiday Days Taste Textile (KTT
  See https://www.ft.tul.cz/uchazeci/projektove-dny-ochutnejte-textil - 1 week ago
- Children's University
  Comfort Textiles (KHT) 12.11.2022
  Children's University 2022/2023 (KMI) 2x practice sessions in the composite lab at the T building
- Courses for secondary schools - 3 courses for secondary school students from the Liberec Region at the FT during the winter semester - visits with laboratory demonstrations
- excursion for primary schools - demonstration in laboratory B3 for children from the 4th grade of KMI
- popularization lectures at secondary schools
  SPŠT Liberec (Sanetrník, Chvojka), Gymnasium Mimoň (Erben, Klíčová), Gymnasium Frýdlant (Pokorný), Promotion of FT-TUL in the Liberec Region (Erben, Klíčová), Maker Faire - festival of innovators (Pokorný, Vinter),

Presentations at events

- Educa Kids at TUL (KTT)
- TULfest 2021 (KTT)
- European Cultural Heritage Day (KMI - Laboratory T, KDE - Gallery N)
- Organized International Summer Festival 2022, Collaboration with TUL & KSK (KMI)
- 14.9.2021 was held regular competition Clothing and Textile (competition for young talents in several categories, where thematic designs and collections prepared by primary and secondary school students are selected), Liberec 2022 (9th year). The competition is

organized by the Association for Organizing the Clothing and Textile Competition, Liberec in cooperation with the Secondary School of Textile Industry under the auspices of FT TUL, Clutex z.s.

Promotion of R&D results

- 6 articles for Technicky tydenik
- Presentation of student awards (Minister of Education Award - Jakub Erben, Verner von Siemens Award - Senta Müllerová)
- Filming of the programme Tours of the Czech Future, Friday 29.7.2022, 10:00, topic: cooperation with Nilmore (KMI - prof. Wiener)

Further promotion

- activities of the University Gallery N, Jablonec n.N.
- ŠTOROVÁ, R.: Z historie GALERIE N Jablonec nad Nisou, Fontes Nissae, No. 2 2022, ISBN 80-7083-666-0
- participation in Mercedes Benz Fashion week.

3. Academics, staff

In 2022, 118 employees worked at TUL FT, of which 80 were academic staff, including staff for science and research. There were 7 professors, 13 associate professors, 34 assistant professors, 4 assistant professors and 14 lecturers employed at TUL. An overview of the number of staff is given in the following tables. There were 6 academic staff with foreign citizenship working at TUL FT in the year (number of natural persons).

Table 12. Academic, scientific and other staff (average headcount)

	Academic staff								Scientific and professional staff			Other employees	TOTAL staff
	TOTAL academic staff	Professors	Associate Professors	Professional assistants	Assistants	Lecturers	V and V staff involved in [illegible]	Extraordinary [illegible]	Postdocs ("postdoc")	Researchers not falling into other categories	Other scientific, research and development personnel		
Total	66,75	5,25	11,84	31,74	2,85	15,07			0,58	4,17	18,75	20,67	110,92
Of which women	43,76		5,00	25,34	1,35	12,07			0,38	2,49	11,00	17,49	75,12

Table 13: Age structure of academic, scientific and other staff (natural persons)

years	Total academic staff		Academic staff										Scientific and professional staff						Other staff		TOTAL	of which women
			Professors		Associate Professors		Professional assistants		Assistants		Lecturers		Postdocs ("postdoc")		Researchers not falling into other categories		Other scientific, research and development personnel					
	TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women		
up to 29 years old	**1**	**0**							1								4	4			**5**	**4**
30-39 years old	**10**	**4**					7	3	2	1	1		2		3	1	5	4	1	1	**21**	**10**
40-49 years old	**28**	**22**			4	1	18	16	1	1	5	4			3	2	1		6	4	**38**	**28**
50-59 years old	**16**	**13**	2		3	2	6	6			5	5					4	3	9	8	**29**	**24**
60-69 years old	**11**	**7**	1		4	2	3	3			3	2					3	2	3	3	**17**	**12**
over 70 years old	**6**	**0**	4		2												2	1			**8**	**1**

TOTAL	**72**	**46**	**7**	**0**	**13**	**5**	**34**	**28**	**4**	**2**	**14**	**11**	**2**	**0**	**6**	**3**	**19**	**14**	**19**	**16**	**118**	**79**

Table 14. Number of academic staff by range of full-time positions and highest qualification attained

	Academic staff										Researchers			
			prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.		Other					
Time ranges	**TOTAL**	**Women**	**TOTAL**	**Women**	**TOTAL**	**Women**	**TOTAL**	**Women**	**TOTAL**	**Women**	**TOTAL**	**Women**	**TOTAL**	**of which women**
up to 0.3	**6**	**3**	2		1		3	3			1		**7**	**3**
0,31-0,5	**7**	**5**			1		2	2	4	3	2	1	**9**	**6**
0,51-0,7	**2**	**1**	1				1	1			1		**3**	**1**
0,71-1	**57**	**37**	4		11	5	28	22	14	10	4	2	**61**	**39**
TOTAL	**72**	**46**	**7**	**0**	**13**	**5**	**34**	**28**	**18**	**13**	**8**	**3**	**80**	**49**

In 2022 she was appointed Associate Professor in Textile Technology and Materials Engineering Mgr. Veronika Máková, Ph.D.

In 2022, there were no competitions for academic and other staff positions at TUL.

Table 15: Number of staff by department as of 31 December 2022 - natural persons

Work.	Prof.	Doc.	OA	assistant.	lect.	TOTAL ac. work.	Sciences. work.	TOTAL ac.+sci. work.	OT	HSP	I mean.	Total	of which women
KTT	1	2	6	1	1	**11**	0	11	2	1	0	14	10
KMI	3	2	8	0	3	**16**	5	21	7	1	1	30	22
KHT	1	2	6	0	0	**9**	1	10	0	1	0	11	8
CODE	1	1	6	0	2	**10**	2	12	3	1	1	17	11
CNT	1	2	5	3	0	**11**	0	11	3	1	0	15	5
WHERE	0	3	3	0	8	**14**	0	14	4	1	0	19	12
DFT	0	1	0	0	0	**1**	0	1	1	5	0	7	5
SFT	0	0	0	0	0	**0**	0	0	0	5	0	5	5
Total	**7**	**13**	**34**	**4**	**14**	**72**	**8**	**80**	**20**	**16**	**2**	**118**	**78**

Table 16: Academic and scientific staff with foreign citizenship (average numbers)

	Academic staff							Scientific and professional staff			Other employees	TOTAL staff
	Total academic staff	Professors	Associate Professors	Professional assistants	Assistants	Lecturers	V and V staff involved	Postdocs ("postdoc")	Researchers not falling into other categories	Other scientific, research and		
	4,66	***0***	***1***	***3,66***	***0***	***0***	***0***	***0,58***	***2,07***	***0***	***1,7***	***9,01***
Slovakia	***2***		***1***	***1***								***2***
other EU countries	***0***											***0***
other non-EU countries	***2,66***			***2,66***				***0,58***	***2,07***		***1,7***	***7,01***
Women out of total (regardless of nationality)	***1,66***			***1,66***				***0,38***	***1,49***		***0,72***	***4,25***

3.1 Education and training activities for employees

During the year, educational and training activities for employees were carried out at TUL.

- extensive individual participation in training events within the framework of Roliz projects - training aimed at improving teaching skills (internal language school, e-learning, video production, tests, etc.).
- Teambuilding - training for KHT members
- Safety training for laser operators (Wiener, Šašková, Frajová, Čimburová, Průšová, Šubrová)
- SEM training (microscope operation, image preparation) - Blatoňová, Müllerová, Tomková, Pechočiaková
- NIS elements training (Müllerova, Hodková, Klíčová, Honzíková)
- Training Contact angle measurement equipment (Hodková, Honzíková)
- course English medium instruction, British council (Chvojka).

3.2 Motivational tools for rewarding employees

FT TUL does not have a Career Code for its academic staff, but there are Framework Criteria for Habilitation and Appointment to Professor Procedures, which were amended by the Scientific Council in 2022. The presented criteria can be considered as general recommendations representing the framework requirements for candidates for the habilitation procedure and the procedure for the appointment to professor at the Faculty of Science of the TUL. The opinion of the habilitation or evaluation committee is considered to be the decisive element in the procedures.

Publication activities of individual faculty members are of great importance in the scientific research and innovation activities of the faculty and are a reflection of its scientific and pedagogical potential. This activity is an important criterion for evaluating the quality and effectiveness of R&D&I activities in general. The evaluation of publication activity serves as a criterion for the allocation of funds to faculty, for accreditation procedures, for the career development of individual staff, etc. Therefore, academic staff are also evaluated on the basis of publication activities in journals and on the basis of patents received over a certain period. The evaluation takes into account interruptions due to parenthood and long-term illness - interruptions are not counted in the evaluation period, the evaluation period is extended by one year.

As of 2021, full-time associate professors and professors will have part of their personal evaluation derived from their publication activities. The personal evaluation (according to performance, per project, monthly, semi-annually) is determined by the head of the department (or faculty unit) depending on the achievements of individual staff members.

FT TUL employees take advantage of the opportunities offered by TUL, such as: the possibility of placing a child in the university kindergarten ŠKATULKA and in the children's corner of TUL, accommodation in accommodation facilities (dormitories, hostels, start-up apartments), use of sports and rehabilitation offers of TUL.

3.3 Support for DSP students and young academics

Young researchers and, as prospective future colleagues, DSP students are especially supported. The following activities are financially supported:

- R&D activities from scholarship funds and specific research carried out in the form of Student Grant Competition (SGS);
- workshop for students of the doctoral programme of the Faculty of Textile and Mechanical Engineering of TUL;
- participation in competitions and exhibitions;
- participation in student scientific and professional activities (SVOČ);
- professional practice;
- Publication grants;
- International mobility (internships, placements, summer schools, conferences, teaching stays) is supported under the Erasmus+ university mobility programme.

Motivational tools for rewarding students

FT TUL pays merit scholarships to successful BSP and NMSP students. In 2022, scholarships in the total amount of 566 thousand CZK were paid. The total number of scholarships paid was 566 out of the total scholarships paid, including red diploma scholarships. To support students in doctoral study programmes, FT TUL pays scholarships from the contribution of the Ministry of Education and Science, which amounted to CZK 2 565 thousand in 2022. CZK. In 2022, the faculty paid accommodation scholarship in the amount of CZK 1,522.9 thousand. CZK and social scholarship for Ukrainian students in the amount of 476.3 thousand CZK. CZK

4. Scientific research, development, innovation, artistic and other creative activities

FT TUL carries out creative activities according to §1 of Act No. 111/1998 Coll., on higher education in the following areas:

- basic research (funded by a grant, from GAČR funds)
- Applied research (funded by a contribution, TAČR funds, projects of ministries of the Czech Republic, collective research, contract research
- innovation activities (in the framework of complementary activities, in the form of contracts)
- artistic creative activity.

The creative activities of the Faculty of Textile Engineering are based on the document *STRATEGIC INTENT OF EDUCATIONAL AND CREATIVE ACTIVITIES OF THE FACULTY OF TEXTILE TECHNICAL UNIVERSITY OF LIBERIA FOR 2021-2030*. Support is given in particular to those research activities that are in line with rapidly developing research trends. The scientific and research work is mainly related to those directions in which the faculty has traditionally had a high level and quality personnel background and where there is a high probability of obtaining financial support from various grant competitions.
In 2022, the Faculty prepared the *STRATEGY VVI+2030 OF THE FACULTY OF TEXTILE ENGINEERING OF TUL, WHERE* a detailed analysis and prediction of directions is made and strategic areas of research are defined.

- **Progressive fibre materials**
- **Innovative products**
- **Advanced and Circular Technologies**
- **Nanomaterials and nanotechnology**
- **Metrology and quality assessment**
- **Artistic creative activity**

and research programmes of the TUL.

- Functionalised fibres and surfaces
- Fibrous microplastics
- Highly functional 2D and 3D woven and knitted structures
- Combined non-woven fibre structures
- Nanofibre materials
- Structures for tissue engineering and healthcare
- Composite materials
- Activation of fibrous surfaces and membranes
- Smart materials and products
- Design of textiles, clothing, glass, jewellery
- Use value and lifetime of circular products.

The following are monitored as the main performance parameters of creative activities:

- projects solved
- publishing activity
- exhibition activities.

4.1 Solved projects

Scientific research projects focused on basic and applied research including experimental development are an integral part of the Faculty's activities. Funded projects enable extensive development of R&D activities and form a significant part of the Faculty of Science budget. In 2022, the projects of the following providers were addressed: MIT 3, TAČR 4, MoH 1, MoE (SGS 2, PURE 2) 9, GAČR 2, MoI 1. (excluding SGS and PURE).

4.1.1 EU Operational Programme Projects - Science and Research

In the period of sustainability are the following projects of OP PIK: project CZ.01.1.02/0.0/0.0/15_019/0004528 SENIOR - Special clothing and textile products of high utility properties based on a new generation of intelligent materials that will increase the efficiency of health and social care for the elderly and project CZ.01.1.02/0.0/0.0/15_019/0004588 Sky Paragliders a.s. - research and development of new technical fabric for air rescue systems. The projects were completed in 2019, the sustainability of OP PIK projects is monitored for 3 years.

The Faculty actively participated in the project OP VVV Educational infrastructure of TUL for increasing relevance, quality and access to education in the conditions of Industry 4.0, reg. no. CZ.02.2.67/0.0/0.0/16_016/0002553, thanks to which a number of new devices were purchased. The activities of the faculty were implemented mainly within the framework of KA03 - Material and technical equipment.

The implementation of the project Hybrid materials for hierarchical structures, reg. no. CZ.02.1.01/0.0/0.0/16_019/000843 continued. The project was carried out in cooperation with the Faculty of Engineering and the Institute for Nanomaterials, Advanced Technologies and Innovations. The aim of the project was interdisciplinary research that will help to achieve excellent results.

4.1.2 MIT projects

The following MIT TRIO projects were addressed in 2022:

1. FV40323 - Vidtex - smart textiles and garments with high performance properties to increase safety in transport, especially visibility. Principal investigator: the Faculty of Textile Engineering, doc. Ing. Antonín Havelka, CSc.
2. FV40025 - Processing of waste and recycled textile fibres - Principal investigator: Rieter CZ s.r.o., co-principal investigator: the Faculty of Textile Engineering, Ing. Gabriela Krupincová, Ph.D.

Furthermore, the OP PIK project was addressed in 2022:

3. VIRATEX - Textile structures combining virus protection and comfort, reg. no. CZ.01.1.02/0.0/0.0/20_321/0024467. Principal investigator: SINTEX, a.s., co-investigator: Faculty of Textile Engineering, Assoc. Dr. Ing. Dana Křemenáková, Ph.D., INOTEX spol. s r.o. and Research Institute of Veterinary Medicine, v.v.i.

4.1.3 TAČR projects

1. TH04030390 - Complete removal of nitrogen and phosphorus from wastewater using purpose-made textile biomass carriers. Principal investigator: TUL - Faculty of Textile Engineering, Ing. Brigita Kolčavová Sirková, Ph.D., Institute for Nanomaterials, Advanced Technologies and Innovations, co-investigator.
2. TH04010031 - Hollow polymer fibre heat exchangers for the automotive industry. Principal investigator: Brno University of Technology, co-principal investigator: TUL - Faculty of Textile Engineering, Ing. Brigita Kolčavová Sirková, Ph.D.
3. TL04000150 - R-DETI - Improving the care of children with skin problems from an ethical, social and health care perspective in times of pandemic crises. TUL - Faculty of Textile Engineering, doc. Ing. Antonín Havelka, CSc., co-supervisor.
4. FW03010095 - MultiTex - Advanced smart textiles with multifunctional effects to improve professional and functional clothing in hazardous environments. Principal investigator. Ing. Antonín Havelka, CSc., University of West Bohemia in Pilsen

4.1.4 Projects of the Ministry of Health

1. NU20J-08-00009 - Prevention of intestinal anastomotic leak and postoperative adhesions using nanofibrous biodegradable materials. TUL - Faculty of Textile Engineering (RNDr. Jana Horáková, Ph.D./Ing. Jiří Chvojka, Ph.D.) Other participants: Charles University, Faculty of Medicine in Pilsen.

4.1.5 Projects of the Grant Agency of the Czech Republic

1. 20-19297S - Nanofibrous polymers with restricted access material functionality for on-line chromatographic extraction of complex matrices. Researcher: Charles University, Faculty of Pharmacy in Hradec Kralove. Other participants: TUL - Faculty of Textile Engineering (Ing. Jiří Chvojka, Ph.D.).
2. 21-32510M - Advanced structures for thermal insulation in extreme conditions. TUL - Faculty of Textile Engineering (Mohanapriya Venkataraman, M.Tech., Ph.D.)

4.1.6 Ministry of the Interior projects

1. VJ02010031 - Modular multisensory professional clothing for risk management, health and safety of members of the IZS using artificial intelligence methods. Researcher. Other participants: TUL - Faculty of Textile Engineering (doc. Ing. Antonín Havelka, CSc.)

4.1.7 Visegrad Fund

1. 52210227 - Visegrad fund - Arsenii Arabuli. TUL - Faculty of Textile Engineering (doc. Ing. Vladimír Bajzík, Ph.D.)

4.2 Project applications prepared and submitted

Table 17: Project applications ready in 2022

Provider	Beneficiary and co-beneficiaries	Name	Solver
Ministry of Culture	[P] Technical University of Liberec [D] North Bohemian Museum in Liberec, contributory organization	Topography of the textile industry in North Bohemia in the 20th century as the most endangered aspect of national cultural identity: documentation, digitization and presentation	doc. PhDr. Filip Suchomel, Ph.D.
GACR - Standard	[P] Technical University of Liberec	Hybrid Functionalized 3D Fiber	prof. Ing. Jakub Wiener, Ph.D.
GACR - Standard	[P] Charles University [D] Technical University of Liberec	Nanofibers as advanced extraction materials in chromatographic analysis	doc. Ing Jiří Chvojka, Ph.D.
GACR - Junior Star	[P] Technical University of	The genesis of fibrous microplastics, reduction and capture options	Ing. Jana Novotná, Ph.D.
-TAČR - TREND	[P] -TryMee Clothing s.r.o. [D] Technical University of Liberec	Eco-friendly leather replacement - use, recycling and biotechnology	prof. Ing. Jakub Wiener, Ph.D.
TAČR - TREND	[P] Chromservis s.r.o. [D] Technical University of Liberec [D] Charles University	Nanofibre extraction sorbets for chromatographic analysis	doc. Ing Jiří Chvojka, Ph.D.
TAČR - TREND	[P] Clinitex s.r.o. [D] Technical University of Liberec	Fabric with barrier properties and high user comfort for reusable use in healthcare according to EN 13795-2 for a minimum of 100 cycles	doc. Ing. Antonín Havelka, CSc.
TAČR - TREND	[P] VUB a.s. [D] Technical University of Liberec [D] Charles University	Research and development of special textiles for protection in emergency and crisis situations "TexPrevent"	doc. Ing. Antonín Havelka, CSc.
TAČR - DELTA	[P] Elmarco s.r.o. [D] Technical University of Liberec [D] Saipu Filtration Technology Co., LtD. [D] Zhejiang Sci-Tech University	Key technologies and industrialization of cellulose-based membranes for separation and filtration	prof. Ing. Jiří Militký, CSc.
Min. Healthcare	[P] Charles University [D] Technical University of Liberec	Antifibrotic fibre material for lowering intraocular pressure in glaucoma	doc. Ing Jiří Chvojka, Ph.D.
Min. Healthcare	[P] Charles University [D] Technical University of Liberec	Nanofibrous drug-delivery systems reducing the activity of bacterial and endogenous collagenases for the prevention of infection-induced colorectal anastomotic leak	Ing. Markéta Klíčová.
Ministry of Education - Inter Excellence	[P] Technical University of Liberec [D] North Carolina State University	Advanced nano-modified non-woven fibre structures	Ing. Ondřej Novák, Ph.D.
TAČR - SIGMA	[P] Technical University of Liberec	Eco-clothing collection	Ing. Jana Drašarová, Ph.D.
HORIZON Europe	[P] AALTO KORKEAKOULUSAATIO SR [D] Technical University of Liberec [D] UNIVERSIDAD DEL PAIS VASCO/ EUSKAL HERRIKO UNIBERTSITATEA [D] UNIVERSITEIT GENT [D] HOEGSKOLAN AND BORAS [D] UNIVERSITAET INNSBRUCK	Sustainable textiles - recyclable design	Prof. Ing. Michal Vik, Ph.D.
GACR - LA projects	[P] Technical University of Lodz [D] Technical University of Liberec	Research on functionalized expanded graphite and its use for selected applications	prof. Ing. Jiří Militký, CSc.
VISEGRAD FUND	[P] Technical University of Liberec	Visegrad Fund - Arsenii Arabuli	Doc. Ing. Vladimír Bajzík, Ph.D.
2022 TOTAL		**16 ready project proposals**	

4.3 Publication activity - R&D outputs

Publication activities of individual faculty members are of great importance in the scientific research and innovation activities of the faculty and are a reflection of its scientific and pedagogical potential. This activity is an important criterion for evaluating the quality and effectiveness of R&D&I activities in general. The evaluation of publication activity serves as a criterion for the allocation of funds to the faculty, for accreditation procedures, for the career development of individual staff members, etc. The publication activity of the staff is reported annually in CEP, the RIV database.

Materials Science - Textiles is one of the research subareas of the Web of Science, in which FT TUL is active and is a key area for the faculty in the field of R&DaI. There are 29 journals indexed in Journal Citation Reports for 2022 in the Materials Science - Textiles subfield. In seven journals FT TUL has representation on the editorial board (according to JIF 2×Q1, 4×Q2, 2×Q3), i.e. the faculty has representation of academic staff on the editorial boards of prestigious international textile journals covering the whole breadth of the textile field.

The evaluation of selected outputs by the Council's Research, Development and Innovation Department through Expert Panels using remote reviews is one of the bases for the evaluation of research organisations according to the M17+ Methodology under **Module 1**. The published reports summarising the findings of this evaluation on a sectoral basis are complemented by detailed comments from the chairs of the Expert Panels and an accompanying list of results.

Authors or co-authors from the Faculty of Textile Engineering at TUL were involved in the evaluation of selected results in the evaluation period H18+H19+H20+H21 for 17 submitted results (15 in Engineering and Technology and 2 in Natural Sciences; of these 9 results in the criterion "Social relevance" and 8 in "Contribution to knowledge"). 4 results were rated at level 2 (excellent result), 5 results at level 3 (very good result), 4 results at level 4 (average result), 4 results at level 5 (below average result).

Publications (as of 21 February 2023)
FT TUL proceeded to a detailed evaluation of the results in international rankings. Thomson Reuters' InCites analytical tool (https://incites.clarivate.com), based on citations of publications indexed in the Web of Science (WoS), enables advanced analysis of publication activities and the impact of research work at the level of individuals, teams, departments, institutions and individual disciplines.

Year 2022
TUL has 243 outputs recorded in the Web of Science database for 2022. Figure 2 shows the top 10 fields in which it publishes. Materials Science - Textiles is one of the WoS research sub-areas in which TUL and especially the Faculty of Textile Engineering of TUL is active. InCites offers the opportunity to compare the scientific outputs of the Faculty of Textile Engineering of the Technical University of Liberec in this research sub-area with organisations not only in the Czech Republic, but also in Europe and the world. In 2022, 17 documents (all authored or co-authored by FT TUL) are recorded for TUL in this sub-area, which ranks FT TUL 53rd in the number of documents compared to other (approx. 1823) organizations in the world.

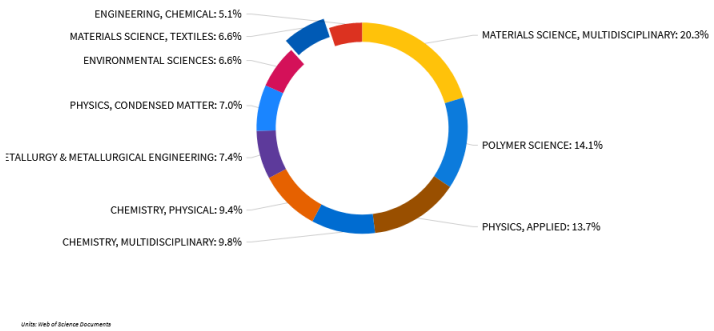

Fig. 2: Share of documents in WoS fields in 2022 of the TUL organization (top 10).

2018-2022

The Technical University of Liberec has 1706 outputs recorded in the Web of Science database in 2018-2022. Figure 3 shows the share of the top 10 fields in which it publishes. In 2018-2022, TUL (FT TUL) with a total number of 229 documents in the research subfield Materials Science - Textiles ranks 17th compared to other (approx. 3731) organizations in the world (33.5% of documents in Q1 and 38.8% in Q2 according to JIF).

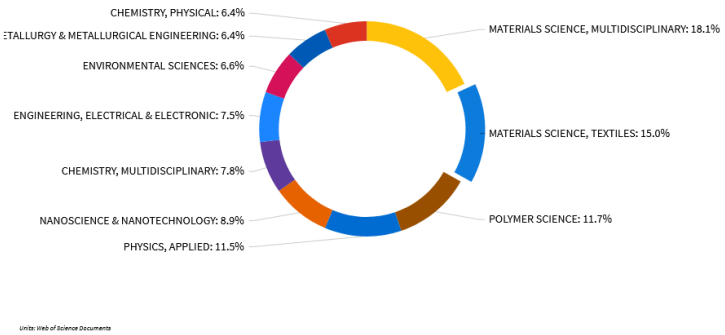

Fig. 3: Share of documents in WoS fields in 2018-2022 TUL (top 10).

The Technical University of Liberec has 5358 outputs recorded in the Web of Science database between 1980 and 2022. Fig. 4 shows the share of the 10 most important fields in which it publishes. The total number of papers in Materials Science - Textiles for the Technical University of Liberec in the period 1980-2022 is 663, ranking the university 22nd out of 4908 organizations (30.6% of papers in Q1 and 33.4% in Q2).

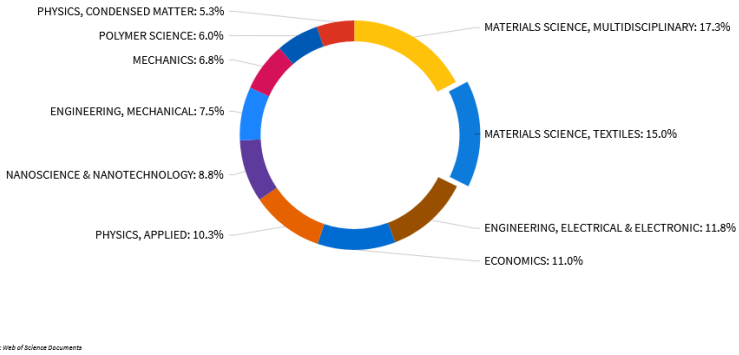

Fig. 4: Share of documents in WoS fields in 1980-2022 TUL (top 10).

4.4 Exhibition activities - artistic outputs

The success of the TUL Faculty of Arts and the staff of the Department of Design is obtaining the status of an acceding faculty with the possibility of applying the results of artistic creative activity in the RUV (register of results of creative artistic activity). For the period 2022, 23 artistic outputs in two segments have been submitted for certification for FT TUL: Design (sub-segments: fashion, textiles, jewellery and glass, porcelain, ceramics) and Fine Arts (sub-segment: visual arts). The faculty, thanks to the broad disciplinary focus of the study programmes of the Department of Design, can apply its outputs in multiple sub-segments. Information on the outcomes of the various institutions involved in this project is available from www.iruv.cz. The artistic activities of academic staff are both original, collective, or act as guarantors of more extensive collective student activities.

Within the framework of artistic creative activities, the Faculty of Design of the Technical University of Ljubljana guarantees the activities of the university's Gallery N in Jablonec nad Nisou, where it organizes exhibitions of its own work, student work and many invited guests. Design Department staff also participate as exhibitors in other exhibition activities. The programme of Gallery N includes various artistic directions (design, graphics, painting, etc.), Czech and foreign works and presentation of well-known authors as well as student works of other art colleges.

Within the framework of the activities of **Gallery N**, the Department of Design of the Faculty of Design of TUL (in 2022) held 10 exhibitions in the field of design, applied arts and crafts and a presentation within the Festival of Museum Nights in the Liberec Region and the European Heritage Days 2022. Gallery N presented:

- January - SEMESTRALS 2022, Exhibition of student work BSP Design (Textile/Clothing)
- February - Garden- Exhibition of original glass and drawings by a glass artist and teacher Josef Divín
- March - Analog. Exhibition of graduates of VŠUP Prague
- April - Images ...a. Svatoslav Krotký
- May - SEMESTRALS 2022 Glass and Jewellery, exhibition of student work BSP Design and NMSP Design
- June - Museum Night under Jested 2022
- June - Baccalaureates 2022. Exhibition of the final year of BSP Design
- September - Pavel Werner/Sklo. Exhibition of author's works
- September - Euroro Heritage Days
- October - Schmuck Wander. International Jewellery Exhibition
- November - OPEN. Exhibition of original works by KDE TUL art teachers
- December - TOGETHER AGAIN. Exhibition of glassmaker Martin Hlubuček and his students.

Creations from the fields of design and visual arts were applied by KDE academic staff and BSP Design students as outputs of RUV for the year 2022. These are 15 activities in the Czech Republic and 8 abroad, namely:

- ŠIKOLOVÁ, L., *In Corona Times.* Collective exhibition. Czech Centre Munich, Germany. 2022.

- ŠIKOLOVÁ, L., *Schmuckwander.* Collective exhibition. Gallery N., Jablonec n. N., 2022.
- ŠIKOLOVÁ, L., *RÝNOVICKÉ MÁRNĚNÍ 2022.* Collective exhibition. Rýnovice, 2022.
- KADLECOVÁ, Z., Painters of *Pojizeří 2021*, Collective exhibition. Museum and Pojizerská galerie Semily, Semily, 2022.
- KADLECOVÁ, Z., *War is an ox*. Collective exhibition. Gallery MY, Jablonec n.N., 2022.
- ŘEZÁČ, V., *The International Exhibition of Glass Kanazawa 2022..* Collective exhibition. Kanazawa*,* Japan*.* 2022.
- ŘEZÁČ, V., ŠIKOLOVÁ, L., VÁLKOVÁ STŘÍLKOVÁ, J*., Vesmír.* Collective exhibition. Museum of Glass and Jewellery in Jablonec n. N., Jablonec n. N., 2022.
- ŘEZÁČ, V*., L'Ame du verre 2022*. Collective exhibition. Paris, France, 2022.
- ŘEZÁČ, V., ŠIKOLOVÁ, L., VÁLKOVÁ STŘÍLKOVÁ, J*., Open.* Collective exhibition of all teachers of the Department of Design. Gallery N., Jablonec n. N., 2022.
- VÁLKOVÁ STŘÍLKOVÁ, J., *Perdus et trouvés*. Collective exhibition. Bratislava, 2022.
- VÁLKOVÁ STŘÍLKOVÁ, J., 28th International Symposium of Art Jewellery Kremnica 2022. Symposium and exhibition. Kremnica,2022.
- KROTKÝ, S., PAINTINGS. Author's exhibition. Gallery N., Jablonec n. N., 2022.
- KROTKÝ, S., *YTAT 2022_MENTORS*. Collective exhibition. Lodz, Poland, 2022.
- *Mercedes-Benz Prague Fashion Week SS22 2022*. Fashion show, Prague-Holešovice, 2022.
- *Mercedes-Benz Prague Fashion Week 2022*. Fashion show, Mystic Skatepark Štvanice, Prague, 2022.
- *BAKALAUREATS 2022.* Exhibition of student work from the final year of BSP Design. Gallery N, Jablonec n. N., 2022.
- *SEMESTRALS 2022*. Exhibition of student work BSP Design (Textile, Clothing). Gallery N, Jablonec n. N., 2022.
- SEMESTRALS glass/jewellery. Exhibition of student work BSP Design. Gallery N, Jablonec n. N., 2022.
- Museum Night under Ještěd 2022. Exhibition of BSP Design students and fashion show. Gallery N, Jablonec n. N., 2022.
- STUPKOVÁ, A., Stanislav Libensky Award 2022. Exhibition and competition. Special Award of the Chairman of the Jury Ben Wright. Prague, 2022.
- NISHCHAIA, A.: Young Textile Art Triennial 2022. Exhibition. Lodz, Poland, 2022.
- PARIS DESIGN WEEK 2022. Presentation and fashion show. Paris, France, 2022.
- VOJTÍŠKOVÁ, P., CHERESHNEVA,O., HOT HOT. Exhibition. National Technical Museum in Prague, Prague, 2022

5. Internationalisation

FT TUL in 2022 continued its internationalisation, which is based on the long-term supported activities anchored in the Strategic Plan. The Faculty has developed long-term cooperation with most of the foreign universities dealing with textile issues from all over the world. International contacts are deepened by solving joint projects, preparing and organizing mutual meetings, seminars and conferences, preparing joint publications, exchange of students and teachers. Long-term cooperation exists with practically all major textile universities in the world. The following are monitored as the main performance parameters of creative activities:

- international excellence
- cooperation agreements (MOUs)
- organisation of international seminars and conferences
- mobility - departures, arrivals (according to funding - Erasmus+ KA103, Erasmus+ KA107, CEEPUS, Vysegrad funds, bilateral agreements between universities and interstate agreements)
- joint scientific research projects.

At FT, the guidance system has been developed so that students have information about the recognition of their activities in advance when they choose their trip.

5.1 International Excellence FT TUL

The Faculty of Textile Engineering is a full member of the International Association of Textile Faculties "AUTEX". A representative of the Faculty of Textile Engineering is a member of the committee for the revision of the accreditation of the joint study programme of the association Autex called E-Team NMSP "Textile Engineering" accredited in Ghent, Belgium.
As a member of the Association of Textile - Clothing - Leather (ATOK), it participates in the meetings of EURATEX (European Apparel and Textile Confederation). FT TUL participates in activities related to international cooperation with the EU "European Technology Platform - Fibers Textiles Clothing".
Through the Department of Design, TUL has been accepted into the New European Bauhaus - a European initiative that aims to build a creative interdisciplinary movement that connects science with technology, art, culture and social inclusion while contributing to the goals of the Green Deal for Europe.

Involvement in editorial boards of journals

Materials Science - Textiles is one of the research subareas of Web of Science, in which FT TUL is active and is a key area for the faculty in the field of R&DaI. There are 24 journals indexed in Journal Citation Reports for 2021 in the Materials Science - Textiles subfield. In eight journals FT TUL has representation on the editorial board (according to AIS 2×Q1, 4×Q2, 2×Q3), i.e. the faculty has representation of academic staff on the editorial boards of prestigious international textile journals covering the whole breadth of the textile field.
FT TUL has been a **co-publisher of the professional journal** *Fibres and Textiles* (Slovakia), ISSN: 1335-0617 (http://vat.ft.tul.cz) indexed in the SCOPUS database (https://www.scopus.com/sourceid/17198) since 1994. Members of the editorial board - doc. Ing. Maroš Tunák, Ph.D., Ing. Veronika Tunáková, Ph.D., and honorary members of the editorial board - Ing. Jana Drašarová, Ph.D., prof. Ing. Jiří Militký, CSc.

Faculty members are **members of a number of scientific committees of various journals and conferences, professional organizations, administrative committees, invited lectures, etc**:

doc. Ing. Lukáš Čapek, Ph.D.
- Vice-President of the Czech Society for Biomechanics

Ing. Klára
- FT representative via ATOK in EURATEX

prof. Ing. Luboš Hes, DrSc.
- Member of editorial boards of journals (Journal of Industrial Textiles (USA), Textile Research Journal (USA), Journal of Natural Fibers (USA), Fibers and Textiles in Eastern Europe (Poland), Journal of Engineered Fibers and Fabrics (GB), INDUSTRIA TEXTILA (Romania), Research Journal of Textile and Apparel (HK), Journal of Textile Engineering & Fashion Technology, Textilna Industria (Serbia), Journal of Leather and Footwear (Croatia)).
- Member of the Fiber Society, Princeton, (USA)
- Member of the Textile Institute, Machester (UK)

doc. Ing. Jiří Chvojka, Ph.D.
- FT representative in ATOK

Prof. Dr. Ing. Zdeněk Kůs
- Engineering Association of the Czech Republic
- Member of the Council of the IAČR until 2022
- FT representative in SV CTPT

Ing. Petra Komárková, Ph.D.
- member of the editorial board of Tekstilec (Slovenia)

Ing. Roman Knížek, Ph.D.
- Court-appointed expert in Textiles and Engineering

Ing. Gabriela Krupincová, Ph.D.
- Vice President of the Administrative Committee CLUTEX - Cluster of Technical Textiles, o.s.

doc. Dr. Ing. Dana Křemenáková
- Member of the committee of the expert advisory body of the Ministry of Education and Science for mobility within bilateral and multiratelar scientific and technical cooperation
- Textile industry and the excellence of the Czech Republic in the field of textile engineering, for the CSVT and the World Engineering Convention 2024
- Teaching students in the WE-TEAM programme

Ing. Irena Lenfeldová, Ph.D.
- President of the national Czech section of The International Federation of Knitting and Warp Knitting Professionals

Ing. Adnan Ahmed Mazari, Ph.D.
- Editorial Board member for journal Industria Textila, ISSN 12225347, http://revistaindustriatextila.ro/editorialboard.html
- Editorial Board member for journal Fiber and Textiles in Eastern Europe,ISSN2300-7354, http://www.fibtex.lodz.pl/en3,editorial_committee.html
- COST ACTION CA17107- Smart Textile (Management member) https://www.cost.eu/actions/CA17107/
- COST ACTION CA19131 - Europe Through Textiles: Network for an integrated and interdisciplinary Humanities (Management member) https://www.cost.eu/actions/CA19131/
- Invited member at Annual IAB Meeting - The Nonwovens Institute 2022, North Carolina

State University, USA

prof. Ing. Jiří Militký, CSc.

- president of Czech Monitoring Committee of FEANI Brussels, Belgium
- Honorary Lifetime Contribution Award (TBIS) member
- Vice-Chairman of International Executive Committee, (TBIS)
- Member of the Scientific Council - Fibers and Textiles in Eastern Europe (Poland),
- scientific commettee member - AUTEX 2022, Clotech 2022, Magic world of Textiles 2022
- Member of editorial boards of journals (Journal of the Textile Institute, Sevent Sense Research Group, Hong Kong Institution of Textile and Apparel, Textiles; Research Journal of Textiles and Clothing (Hong Kong); Fibers and Textiles (Slovakia, FT TUL); Journal of Textile Engineering (Hindawi))
- Teaching students in the WE-TEAM programme
- Student Teaching - Seminar Design/light/technical textiles Chennai India (online 4-day seminar)

Ing. Jana Ornstová

- Member of The International Federation of Knitting and Warp Knitting Professionals

Ing. Miroslava Pechočiaková, Ph.D.

- Organisation of the TBIS 2022 Conference

Ing. Jana Šašková, Ph.D.

- Member of the Board of the Society of Textile Chemists and Colourists
- section leadership at the Clotech 2022 conference

Ing. Renata Štorová, CSc

- Member of The International Federation of Knitting and Warp Knitting Professionals

Ing. Pavla Těšinová, Ph.D.

- Member of the Scientific Committee at the AUTEX 2022 conference, Poland
- Member of the Editorial Advisory Board of Textile & Leather Review

Ing. Blanka Tomková, Ph.D.

- Editor of Journal of Testing and Evaluation, Construction and Building Materials, Journal of Engineered Fibers and Fabrics

doc. Ing. Maroš Tunák, Ph.D.

- Member of the Editorial Board of the journal Fibres and Textiles (ISSN: 1335-0617) - Editor in Chief
- Member of the Scientific Committee at Strutex conference

Ing. Veronika Tunáková

- Executive Editor, Fibres and Textiles (published quarterly)
- Evaluator for TAČR (from 2022)

Mohanapriya Venkataraman, M.Tech., M.F.Tech., Ph.D.

- Guest Editor - Coatings, Special Issue "Functional Coatings of Porous Materials" https://www.mdpi.com/journal/coatings/special_issues/coatings_porous_materials
- Associate Editor - Journal of Fiber Bioengineering and Informatics (JFBI), https://www.global-sci.org/jfbi
- Organized Design, Light and Technical Textiles Seminar, TUL, CZ & NIFT, (India), Coordinator of MoU (signed TUL, CZ and KCT, India)
- Invited lectures Keynote medal lecture, Outstanding Reviewer Award (TBIS 2022),
- Invited lectures Keynote speaker - The 2nd China-CEECs Symposium on Advanced Fiber Material

prof. Ing. Michal Vik, Ph.D.

- Member of the Programme Committee of the LUX EUROPA 2022 Conference
- TBIS 2022 - scientific committee member

- Member of the Czech Society for Illumination - CSO
- Member of the Czech National Committee of the International Commission on Illumination
- Representative of the Czech Republic to the International Commission on Illumination - Division 1
- Member of Technical Committee TC1-95 The Validity of the CIE Whiteness and Tint Equations
- Member of Technical Committee TC1-101 To recommend CAM16-UCS as the CIE Uniform Colour Space
- Expert assessor of the Czech Institute for Accreditation, o.p.s
- member of the editorial board of the magazine Světlo

doc. Ing. Martina Viková, Ph.D.

- Vice-Chairman of the Czech Society for Illumination - CSO
- Member of the Royal Society of Chemistry - RSC (UK)
- Member of the International Association for Colour - AIC (Australia)
- member of the editorial board of the magazine Světlo

prof. Ing. Jakub Wiener, Ph.D.

- Scientific committee member - Strutex 2022
- Teaching students in the WE-TEAM programme

International evaluation of the university or its unit, including foreign accreditation

All study programmes of FT TUL are accredited by the European Federation of Engineering National Associations "FEANI" (graduates can obtain the EURING degree after fulfilling other conditions (engineering practice). The professional organisation "The Textile Institute Manchester" accredits the BSP "Textile", NMSP "Textile Engineering" and DSP "Textile Engineering" study programmes until 2026.

5.2 Cooperation agreements

Long-term cooperation exists with virtually all major textile universities in Europe and cooperation with major universities around the world is developing. The following table includes contracts exclusively with FT.

Table 18: International cooperation agreements in force in 2022

The Continent	America	Europe	Asia	Africa	New Zealand
Contracting partners in the EU	-	53	-	-	-
Contracting partners worldwide	1	22	23	6	1

Contracting partners in the EU

1. Pädagogische Hochschule Wien, Austria
2. Universiteit Gent, Gent, Belgium
3. KU Leuven, Faculty of Engineering Technology, Belgium
4. Technical University of Gabrovo, Gabrovo, Bulgaria
5. Trakia University, Stara Zagora, Bulgaria
6. University of Zagreb, Croatia
7. VIA University College, Denmark
8. TTK University of Applied Sciences, Estonia

9. Tampere University of Technology, Tampere, Finland
10. ENSISA, Mulhouse, France
11. ENSAIT, Roubaix,
12. Ecole Natinale d'Ingenieurs de Tarbes, France
13. Ecole Des Mines D'Ales, France
14. ESMOD Ecole Superieure des Arts de la Mode, Paris, France
15. RWTH Aachen University, Aachen, Germany
16. Albstadt-Sigmaringen University, Albstadt, Germany
17. Technical University of Dresden, Insitut for Textilengineering, Dresden, Germany
18. University of Applied Sciences, Zwickau, Germany
19. University of Applied Sciences, Monchengladbach, Germany
20. Fachhochschule Bielefeld University of Applied Sciences, Germany
21. Hochschule Hof, Germany
22. Hochschule Reutlingen, Germany
23. Kaiserslautern University of Applied Sciences, Germany
24. University of West Attica, Egaleo, Greece
25. Budapest University of Technology and Economics, Budapest, Hungary
26. Galway-Mayo Institute of Technology, Ireland
27. Kaunas University of Technology, Kaunas, Luthiania
28. Academy of Fine Arts in Warsaw, Poland
29. The E. Geppert Academy of Art and Design in Wroclaw, Poland
30. Strzemiński Academy of Fine Arts, Lodz,
31. Lodz University of Technology, Lodz, Poland
32. Kazimerz Pulaski University of Technology nd Humanities in Radom, Poland
33. Katowice School of Technology, Poland
34. University of Beira Interior, Covilha, Portugal
35. University of Minho, Guimaraes, Portugal
36. ESAD, Senhora da Hora, Portugal
37. Universidade da Madeira, Portugal
38. Gheorthe Asachi Technical University of Iasi, Iasi, Romania
39. Aurel Vlaicu University of Arad, Romania
40. Alexander Dubcek University of Trencin, Trencin, Slovakia
41. Academy of Fine Arts and Design Bratislava, Slovakia
42. University of Maribor, Maribor, Slovenia
43. University of Ljublajana, Slovenia
44. Universitat Politecnica De Catalunya, Spain
45. Escola Massana,
46. Universitat Politècnica de València, Spain
47. Barreira Arte y Diseño, S.L., València, Spain
48. Escuela de Arte y Superior de Diseno de Burgos, Spain
49. San Thelmo School of Art, Malaga, Spain
50. Universitat Autonoma de Barcelona, Spain
51. Textilhogskolan, Hogskolan I Boras, Sweden
52. Accademia di Belle Arti e Design Poliarte, Ancona, Italy

New:

53. Escuela de Arte y Superior de Diseño Fernando Estévez (EASD), Santa Cruz de Tenerife, Spain

Contracting partners worldwide

1. Polytechnic University of Tirana, Albania
2. Vitebsk State Technological University, Belarus
3. University of Science and Technology of China (USTC), Hefei, China
4. University of Science and Technology of China, Zhejiang, China
5. Zhejiang Sci-Tech University (ZSTU), Zhejiang, China
6. Textile School, Wuhan Textile University, Wuhan, China

7. National Research Institure, Giza, Egypt
8. Bahir Dar University Institute of Technology for Textile, Garment and Fashion Design, Bahir Dar, Ethiopia
9. Indian Institute of Technology Delhi, India
10. Sardar Vallabhbhai Patel Insitute of Textile Management, Coimbatore, India
11. Anna University, Chennai, India
12. The Technological Institute of Textile and Sciences, Bhiwani, India
13. NIT Jalandhar, Jalandhar, India
14. Defence Bioengineerign and Electromedical Laboratory, Bangalore, India
15. DKTE Society´s Textile and Engineering Institute, Ichalkaranji, India
16. Kumaraguru College of Technology, Coimbatore, India
17. Department of Textile Technology, MLV Textile Engineering College, Bhilwara, India
18. Governmental College of Engineering and Technology, Serampore, West Bengal, India
19. Faculty of Textile Science and Technology, Shinshu University, Shinshu, Japan
20. Kyoto Institute of Technology, Japan
21. Auezov South Kazakhstan State University, Kazakhstan
22. University of Mauritius, Réduit, Mauritius
23. Waikato Institute of Technology, New Zealand
24. University of Bergen, Norway
25. National Textile University, Faisalabad, Pakistan
26. Balochistan University of Information Technology, Engineering and Management Sciences, Quetta, Pakistan
27. Durban University of Technology, Durban, South Africa
28. Rajamangala University of Technology, Krungthep, Thailand
29. Rajamangala Universtiy of Technology Thanyaburi, Thailand
30. Faculty of Science, Chulalongkorn University, Thailand
31. National Taipei University of Technology, Taiwan
32. National Engineering School of Monastir, Tunis
33. Hacettepe University, Ankara, Turkey
34. Istanbul Aydin University, Istanbul, Turkey
35. Uludag University, Bursa, Turkey
36. Cukurova University, Adana, Turkey
37. Dokuz Eylül University, Izmir, Turkey
38. Ege University, Izmir, Turkey
39. Erciyes Universtiy, Kayseri, Turkey
40. Mimar Sinan Fine Arts University, Guzel, Turkey
41. Gaziantep University, Sehitkamil/Geziantep, Turkey
42. Pamukkale University, Denizli, Turkey
43. Istanbul Technical University, Istanbul, Turkey
44. Atilim University, Turkey
45. Bursa Technical University,
46. Suleyman Demirel University, Turkey
47. Faculty of Engineering, Busitema University, Uganda
48. Birmingham City University, United Kingdom
49. The Scottish College of Textiles, Edinburgh, United Kindgom
50. Ukrainian Engineering and Pedagogical Academy, Kharkov, Ukraine
51. Kyiv National University of Technologies and Design, Kiev, Ukraine
52. The University of Alabama at Birmingham, Birmingham, USA
53. ZHAW Zurich University of Applied Sciences, Winterthur, Switzerland

5.3 Scientific conferences and seminars

Organisation of conferences
FT organized 2 international conferences

15th International Conference on Textile Bioengineering and Information (TBIS 2022) (online 5 September 2022,
https://tbisociety.org/index.php?thispage=subpage&c=news&s=news&p=2022news1)

23rd International Conference STRUTEX (Structure and Structural Mechanics of Textiles) focused on the presentation of textile structures and structural mechanics in the modules: fibre layer, linear formations, 2D and 3D textile structures, description of special experimental methods for analysis of textile properties and textile structure, research and development of new 2D and 3D textile structures in the field of clothing and technical textiles. (30.11-2.10. 2022 in Liberec, with physical participation, http://strutex.ft.tul.cz)

Organisation of summer schools and courses
International Summer Schools: (funded by the PPSD)
Summer School Fabric Patterning 2022 - fifth year, www.ft.tul.cz/fabric_patterning
Summer School of Textile Structures - first year, https://www.ft.tul.cz/veda-design/summer-school-of-textile-structures
International Course: (funded by the PPSD)
Course on Finite Element Method in textile Engineering - third year.

5.4 Mobility

The following activities are meant by international mobility: arrivals/departures of students/staff. These are mainly teaching stays, internships, placements, summer schools, conferences. These activities are supported under the programmes

- Erasmus+ University mobility KA103,
- Erasmus+ KA107 faculty projects outside the European Union
- CEEPUS
- mobility under interinstitutional agreements and interstate
- from FT's own resources.

For all **incoming** foreign students, a total of 32 courses were opened with teaching in English, mainly for Erasmus+ students in the field of Textile Engineering, and a new course in Design with 11 courses including studio work was also prepared. Short-term foreign students with teaching or training in English are mainly involved in projects in the existing working groups in the departments and are also included in the study within the courses taught in English for Czech students. The university and the faculty provide administrative services throughout the study period and the ESN student club helps to provide leisure activities outside the classroom.

Erasmus+ KA103, Erasmus+ KA107 rules
Students can study abroad for one or two semesters under the Erasmus+ programme. Credits awarded for successfully completed courses, i.e. successfully completed by examination, are counted towards the students' programme of study at FT. Information is provided in

accordance with the organisational structure of FT (faculty management - departmental management) and coordinated with the University. Requests **for trips** are dealt with on an individual basis. All departing students are recognized for the full number of credits they will fulfill at the visiting institution abroad. It is an established practice of FT to consult on recognition with the supervisors of majors, courses, and appropriate vice deans. In particular, compulsory courses, compulsory electives and exceptional courses that are not compatible are recognised under their original designation as electives.
FT allows all staff, both academic and non-academic, to leave. A staff member may leave for a position that the program allows
The numbers of departures and arrivals are shown in the following tables.

Erasmus+ KA107 in 2022
The mobility with the Polytechnic of Tirana was completed in 2022 and all planned mobilities were implemented, both outgoing and incoming mobility of academics. This destination was even reinforced with two more 14-day trips, and this was also implemented on time. The outbound part of the mobility with Japan to Shinshu University for 24 days was fulfilled. The mobility with KIT is planned for 2023, when it is scheduled to end at the end of June 2023. Two arrivals and two departures of one week each remain to be implemented. The numbers of departures and arrivals are shown in the following tables.

CEEPUS
Another mobility programme that was valid in 2022 is CEEPUS, which is a Central European University Exchange Programme aimed at regional cooperation within university networks. FT TUL is involved in the network "Ars-Techne: Design and Development of Multifunctional Products" CIII-SI-0217, which is sponsored by the University of Maribor. Other countries involved are Slovakia, Austria, Serbia, Croatia and Poland. In total, there are 13 universities. There were no placements in 2022

Teaching students in the WE-TEAM programme
FT participates in regular teaching in the Master in Textile Engineering program sponsored by Ghent University, Belgium within the activities of the Autex Association (see individual employee activities).

Table 19a: Student outgoing

Provider of financial support	Number of months - request for support	Number of students	Number of months implemented
Erasmus+ KA103	120	19	72,3
Erasmus+ KA107	1	1	1
CEEPUS CIII-SI-0217-00	-	-	-
Other scholarship support, summer schools (SGS, PGS, departments, etc.)	-	6	12,2
Total	-	26	85,5

Table 19b: Student incoming

Provider of financial support	Number of months - request for support	Number of students	Number of months implemented
Erasmus+ KA103	-	37	150,7
Erasmus+ KA107	-	-	-
CEEPUS CIII-SI-0217-00	-	-	-
Freemover mobility (without specific scholarship support)	-	6	12,93
Total	-	43	163,63

Table 19c: Staff outgoing

Provider of financial support	Number of days - request for support	Number of employees	Total number of days
Erasmus+ KA103	70	9	46
Erasmus+ KA107 No.2020	80	5	70
CEEPUS	-	-	-
Total	150	13	116

Table 19d: Staff incoming

Provider of financial support	Number of days - request for support	Number of employees	Total number of days
Erasmus+ KA103	-	1	6
Erasmus+ KA107 No. 2020	42	4	28
CEEPUS CIII-SI-0217-00	-	-	-
Total	42	5	34

Erasmus+ KA220 programmes

FT TUL participates in international network projects.

- Sustainable Design and Process in Textiles for Higher Education (reg. no. 2021-1-PL01-KA220-HED-000032201) - main coordinator: POLITECHNIKA LODZKA; principal investigator for FT: Ing. Pavla Těšinová, Ph.D. (2022-2023)
- European Digital Readiness Strategy for Clothing Studies (reg. no. 2021-1-DE01-KA220-HED-000023124) - main coordinator: the TECHNISCHE UNIVERSITAET DRESDEN; principal investigator for FT: Ing. Adnan Ahmed Mazari, Ph.D. (2022-2023)

6. The third role of the university / External cooperation processes

We understand the third role of the university as the intersection of the university world into the external world. The importance of the third role lies in the inseparability of science and education from the third role of the university. It's being monitored:

- the supra-regional and national nature of cooperation
- cooperation with regional governments
- cooperation in R&D
- cooperation in education
- transfer of knowledge into practice
  - concluded contracts, implemented cooperation
  - professional training for companies
  - popularisation and information events (see chapter 2.4).

6.1 Supra-regional and national nature of cooperation

The Faculty of Textile Engineering of the Technical University of Liberec is the only one in the Czech Republic that provides higher education across the entire textile field. The faculty cooperates extensively with industrial enterprises and deals with a number of projects funded by various types of grants. In the long term, it creates conditions for successful cooperation with many universities and institutions oriented towards textile and material engineering.

In cooperation with Clutex, z.s., FT TUL tries to support and develop cooperation in the field of textile education also at the level of secondary schools and vocational schools through active participation in the meetings of working educational regional committees and in meetings of the management of secondary schools and vocational schools focused on textile and clothing issues.

6.2 Cooperation with regional governments

FT TUL together with Clutex z.s. participated and participates in updating the documents of the regional strategy RIS 3 in the Liberec, Hradec Kralove and Pardubice regions. FT TUL is involved in the implementation of the Sectoral Agreement for the textile, clothing, leather and footwear industry in the Hradec Králové, Liberec and Moravian-Silesian regions and together with other actors is seeking to expand activities to other regions.

6.3 Cooperation in R&D

R&D cooperation focuses on searching for topics of possible cooperation in order to obtain joint projects, share research and development capacities, provide consultations, announce joint themes for bachelor and master theses, search for opportunities for internships and student placements, etc. (see chapter 4.1 Projects in progress).

Cooperation with companies associated under the cluster Clutex z.s., ATOK and ČTPT z.s. is based on a long-term basis, these companies appreciate the offer of joint research and development projects, internships for students, etc. The result is a positive perception of the faculty by the application sphere, more joint R&D projects and better use of R&D results in

practice. The information and advisory service is focused on active meetings with potential cooperation partners from the application sphere.

6.4 Cooperation in education

The preparation and direction of the focus of the existing fields of study and study programmes accredited within the bachelor, master and doctoral study programmes implemented at TUL FT is regularly discussed not only with the members of Clutex z.s., but also with ATOK and ČTPT z.s. TUL FT in cooperation with industrial partners strives to ensure that experts from practice participate in the education of students. A great benefit for students is the possibility of excursions, study placements or internships and the solution of diploma or bachelor theses, where the topics are based directly on textile companies. FT actively supports the mediation of internships. The web interface related to the offer of internships, traineeships and jobs is constantly being updated (http://www.ft.tul.cz/studenti/praxe/praxe).

6.5 Putting knowledge into practice

The faculty staff actively develops mutual cooperation with the application sphere with the awareness of the necessity to comply with the implemented standards, especially with regard to intellectual property (hereinafter referred to as IP) and its commercialization. Methodological guidance is provided by the Rector's Office, which, in addition to advice, also provides legal services and interpretation of internal standards governing this issue. At the same time, FT TUL has been and is actively involved in TAČR Gama-type projects with professional sub-projects and the management of FT TUL has actively discussed the commercialisation potential of know-how created at FT TUL with a representative of the spin-off The University Company TUL.

Within the framework of cooperation with industrial partners and R&D&I institutions from the Czech Republic and abroad, contractual cooperation is established related to the solution of contract research according to the partner's requirements, providing consultations and advice with regard to the partner's requirements and efforts to transfer knowledge and experience into practice, transfer of know-how and IP according to the partner's needs and requirements, solving specific tasks related to expertise and laboratory analyses according to the partner's current needs. For contract research, most companies prefer to use subsidy support instruments, e.g. in the form of innovation vouchers, TAČR projects. Funding from own resources is limited.

Table 20. Transfer of knowledge and research results into practice

	CZECH REPUBLIC	Abroad	TOTAL	Income/CZK
Number of new spin-off/start-ups*	0	0	0	
Patent applications filed	4	0	4	0
Granted patents**	3	0	3	
Registered utility models	6	0	6	
Licence agreements valid as of 31.12.	3	0	3	
Newly concluded licence agreements	0	0	0	
Contract research, consulting and services			3+	506 756
Paid training courses for employees of application entities	2	0	2	50 820

Technology and know-how transfer

In the framework of cooperation with industrial partners and R&D&I institutions from the Czech Republic and abroad, contractual cooperation is established related to the solution of contract research according to the partner's requirements, providing consultations and advice with regard to the partner's requirements and efforts to transfer knowledge and experience into practice, transfer of know-how and IP according to the needs and requirements of the partner, solving specific tasks related to expertise and laboratory analyses according to the current needs of the partner. Contract research is in most cases financed from the sponsors' own funds, only to a limited extent are instruments allowing the use of subsidy support, e.g. in the form of innovation vouchers, used.

The TUL FT prefers to conclude framework cooperation agreements, which allow to cover generally all possible forms of cooperation and then other agreements that correspond to the specific form of cooperation (work contracts, service contracts, contracts for the provision of contract research, co-ownership agreements on joint IP, licensing agreements, lease agreements, agreements on joint project solutions, advertising and joint promotion agreements)

In 2022, 15 framework agreements for cooperation or for the provision of services and consultancy, work contracts, 1 contract research agreement, 2 co-research agreements, several operating agreements and 3 agreements for the exploitation of R&D results were newly concluded.

Another indicator of the success of the cooperation with the application sphere is the volume of income from complementary activities (implementation of expert consultations, processing of laboratory tests including evaluation, provision of expert services, expert market research and innovations in selected areas) in the total amount of CZK 2 385 thousand. CZK.

Contract research

The societal contribution of the TUL FT has an impact across a wide range of fields of companies and institutions with which the cooperation is implemented. FT TUL, in accordance with its mission and vision, focuses on cooperation with textile and clothing manufacturers as well as on cooperation with entities that apply fibre structures (e.g. healthcare, automotive, hygiene, security segments). The benefits of contract research collaboration for FT TUL are:

- expanding opportunities for collaboration in new application areas;
- growth of opportunities to connect with companies on applied research projects (which companies prefer based on the strategy of the Czech Republic within the framework of the calls of TAČR and MIT);
- thanks to the prestige gained, FT TUL is actively involved in the creation of national strategies for the textile and clothing industry (see Cooperation with associations and platforms of manufacturers ATOK, Clutex, CTPT).
- From the point of view of the mission of the TUL Faculty of Arts, a significant benefit is the expansion of cooperation with future employers (innovation of the subject curriculum of accredited programmes with regard to the needs of practice, support for student mobility within the study, diversification of professional practice and soft-skills competences of

students, the possibility of excursions, study internships or work experience and the solution of diploma or bachelor theses, where the topics are based directly on companies.

The scope of contract research is limited by the capacity of the faculty. The volume of funding is increasing slightly. In accordance with the TUL FT strategy, the capacity is divided between activities ordered by the Czech sponsor (TUL FT carries out on average 5 contract research activities per year). Due to its uniqueness within the global scientific community, FT TUL also has a long-term cooperation on activities commissioned by a foreign sponsor. The volume of resources is comparable to national activities and in accordance with the strategy and capacity of FT TUL, both directions of cooperation are coordinated with respect to the staff capacity of FT TUL.

Opportunities are sought on the basis of contacts of individual FT TUL staff in the national and international professional community. The administration of the TUL FT provides consultations and advice (support) for the creation of contracts and negotiation of contractual conditions (legal department, technology transfer department, vice-dean for R&D). The activities are recorded in the annual reports of the TUL FT and also in the central records of the TUL (Human Resources Department, Accounts Department). Profits are accumulated and used to finance the non-economic activities of the TUL FT.

Additional activities

As revenues from non-public sources (other than grants or contract research), the TUL FT records revenues from the following activities (in order of frequency): expert analyses, consultations, testing, royalties and donations for R&D. The total amount of funds received is constant in order of magnitude and, in line with the TUL FT development strategy, proportionate to the size and capacity of the unit under evaluation. The most important benefit of this cooperation is the possibility of establishing new contacts with potential sponsors of contract research and subsequently planning joint projects.

Opportunities are sought on the basis of contacts of individual FT TUL staff in the national and international professional community. The administration of the TUL FT provides consultation and advice (support) for the drafting of contracts and negotiation of contractual terms and conditions (legal department, technology transfer department, vice-dean for R&D). The activities are recorded in the annual reports of the TUL FT and in the central records of the TUL (Human Resources Department, Accounts Department). Profit is accumulated and used to finance the non-economic activities of the TUL FT.

Professional training for companies

In case of interest of industrial partners, tailor-made trainings are prepared as a part of the knowledge transfer, where the emphasis is placed on the needs of the target group, the priorities of the client and the capabilities of TUL's experts. The concept is prepared so that the interpretation can be supplemented with a practical part. The training takes place on the premises of FT TUL and the practical part is implemented in specialized laboratories and semi-processes of the faculty. Alternatively, the training is carried out at the partner's premises and the practical part is directed to the partner's own premises, taking into account the limitations associated with this. The aim is to refresh or supplement the professional terminology and

selected technologies, to familiarize the trainees with new developments in the field and possibilities of mutual cooperation, and to obtain feedback related to selected activities of FT TUL. In 2022, the training was implemented:

- materials and technologies - Malfini.
- Training for the multinational company Lohmann&Rauscher.

Professional and expert opinions

In 2022, work continued on an expert opinion for the Brno City Council on the suitability of the materials used in the reconstruction of the municipal boiler room

7. Quality assurance and evaluation of implemented activities

The Faculty strives to evaluate all its activities and uses established procedures and methodologies partially implemented in the internal regulations of TUL. Feedback is evaluated at all levels of management. To ensure the quality of the faculty's activities, internal audit has been used in part (specific research, management level and external audit, evaluation of state final examinations, bachelor's and master's thesis defences, and dissertation defences for all programmes accredited in English). Issues related to the use of funds, compliance with management rules and related problems were discussed at meetings of the management, departmental representatives and the Dean's College. The impact of the covid on the quality of teaching was regularly assessed. The Faculty Senate was actively involved in activities related to the evaluation of the level of relations between the faculty units, quality control of the website and compliance with collegial relations between teachers or students.

FT TUL annually carries out a detailed evaluation of results in international rankings. Thomson Reuters' InCites analytical tool (https://incites.clarivate.com), based on citations of publications indexed in the Web of Science (WoS), enables advanced analysis of publication activities and the impact of research work at the level of individuals, teams, departments, institutions and individual disciplines.

7.1 Management and College meetings

The closer management of the TUL FT (dean, vice-deans, secretary) usually met once every 14 days and the dean's college usually met once a month, more often if necessary. The legal norms of TUL are demonstrably posted on the intranet of TUL. Minutes of all meetings of the colleges were taken. When necessary and when dealing with urgent tasks, the Dean convened operational meetings directly with stakeholders.

7.2 Meeting of the Faculty Scientific Council

The 3rd meeting of the VR FT TUL was held on 18 May 2022:

- Habilitation proceedings of Mgr. Veronika Máková, Ph.D.
- Opening of the habilitation proceedings of RNDr. Jana Horáková, Ph.D.
- commencement of habilitation proceedings Ing. Adnan Mazari, Ph.D.
- DSP - Industrial Engineering accreditation
- experts with the right to examine at the SZZ
- Different.

The 4th meeting of the VR FT TUL was held on 16 November 2022:

- Habilitation proceedings of RNDr. Jana Horáková, Ph.D.
- commencement of habilitation proceedings Ing. Jaromír Marek, Ph.D.
- Plan for the implementation of the Strategic Plan of Educational and Creative Activities of the Faculty of Arts of TUL in 2023
- Proposal for institutional accreditation for the field of education Engineering, Technology and Materials
- expert with the right to examine at the SDZ and dissertation defences
- Different

The agendas of the meetings including resolutions are published on the website of the Faculty of Arts of the TUL.

7.3 Session of the Academic Senate

During the year 2022, there were 8 meetings of the AS FT TUL and 1 electronic voting. The topics and resolutions discussed by the Senate are a result of the activities of the Faculty.

AS FT TUL approved:

- FT investment plan for 2022
- FT TUL budget for 2022
- Annual report on the activities of the Faculty of Law of the TUL for the year 2021
- Proposal for a new Disciplinary Committee
- FT Annual Report 2021
- FT Annual Report 2021
- Proposal for additional FT investment for 2022
- Conditions of the FT TUL admission procedure for the academic year 2023/2024
- Request for change of investment
- Appendix 1 of the FY 2022 budget

7.4 Branch Council

The branch council for the doctoral study programme Textile Engineering P3106, P0723D270002 and P0723D270003 and Industrial Engineering P0723D270001 carried out basic conceptual, control and evaluation activities for doctoral study programmes, usually using the per rollam voting procedure.
Joint meetings of the Doctoral Study Programmes Textile Engineering P3106, P0723D270002, P0723D270003 and Industrial Engineering P0723D270001 were held on 27 April 2022 and 26 October 2022.
The disciplinary councils consistently dealt with the status of the doctoral study programme, the overview of supervisors and experts with the right to examine at PhD theses and dissertation defences, the conditions and organisation of doctoral studies, the admission procedure, and the proposals of committees for dissertation defences and PhD theses. Annual evaluations and individual study plans of students were also discussed.

8. Evaluation and conclusion

On the basis of the above information, it can be concluded that in 2022 the Faculty of Textile Engineering of the Technical University of Liberec worked in accordance with the Strategic Plan of the Faculty of Textile Engineering of the Technical University of Liberec for the years 2021-2030 and the Implementation Plan of the Strategic Plan of the Faculty of Textile Engineering of the Technical University for the year 2022.

Educational activities
As of 31 December 2021, 616 students (462 BSP, 99 NMSP, 55 DSP) were studying at TUL. 286 applicants entered the first year. In 2022 (in the period from 1 January to 31 December), a total of 122 students graduated from accredited study programmes.

Creative activities
The scientific and research work is based mainly on those directions in which the faculty has traditionally had a high level and quality staff background.
MIT 3, TAČR 4, MoH 1, MoE (SGS 2, PURE 2) 9, GAČR 2, MoI 1. (excluding SGS and PURE), 15 project applications were prepared. FT TUL evaluates the quality of the outputs of its R&D activities using both the M17+ Methodology within Module 1 and the international analytical tool InCites of Thomson Reuters (https://incites.clarivate.com) based on citations of publications indexed on Web of Science. The outputs of the artistic part of the FT's creative activity are evaluated through the RUV certification

Academics, staff
In 2022, 118 employees worked at TUL FT, of which 80 were academic staff, including staff for science and research. There were 7 professors, 13 associate professors, 34 assistant professors, 4 assistant professors and 14 lecturers employed at TUL. 6 academic staff with foreign citizenship worked at TUL FT in the year (number of natural persons).

Internationalisation
FT TUL has long been actively developing a number of international relationships and has an excellent prestige. New in 2022, TUL has been accepted into the New European Bauhaus through the Department of Design.

The third role of the university
FT TUL is the only one in the Czech Republic to provide higher education across the entire textile industry and in 2022 it developed aspects of cooperation with companies and regional governments.

In Liberec on 16. 6. 2023

doc. Ing. Vladimír Bajzík, Ph.D.,
Dean