Annual report
2023

Technical University of Liberec
Approved by AS FT TUL 13. 09. 2024

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 2023, 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 Educational and Creative Activities of the Faculty of Textile Engineering of the Technical University of Liberec for the years 2021-2030) and the Plan of Implementation of the Strategic Plan of Educational and Creative Activities of the Faculty of Textile Engineering of the Technical University for the year 2023.

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	Exc ept.	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 2023 is shown in the following diagram.

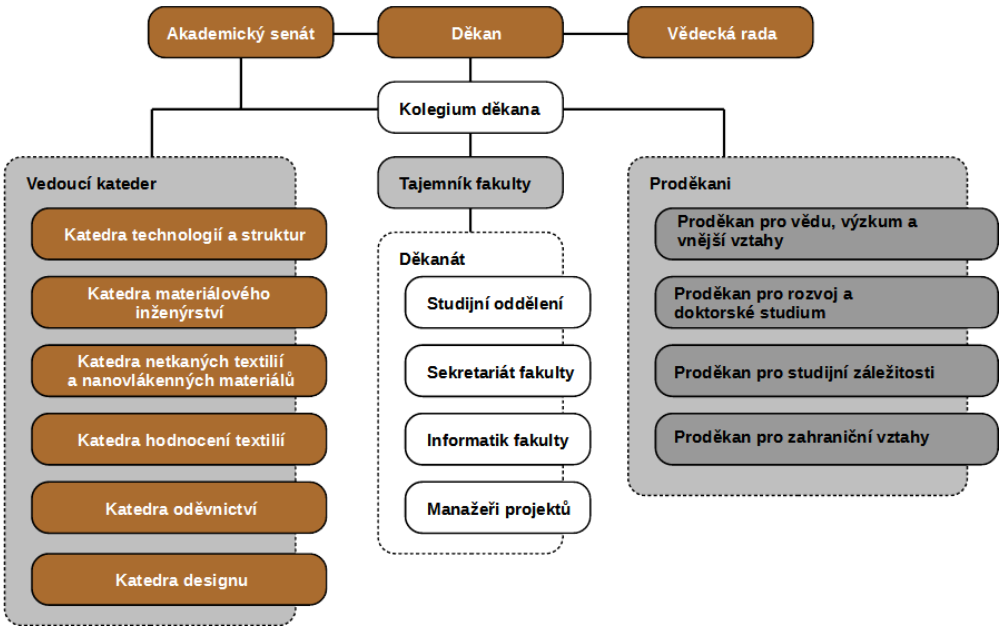

Fig. 1.: Organizational chart of the Faculty of Arts of TUL as of 31 December 2023

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 FT TUL ***from 14.9.2023***

The Chair:	Ing. Jiří Chaloupek, Ph.D. (KNT)
1st Vice-Chairman:	Ing. Kateřina Blatoňová (KNT)
2nd Vice-Chairman	Ing. Miroslava Pechočiaková (KMI)
Chamber staff:	Ing. Tomáš Kalous, Ph.D. (KNT)
	Ing. Petra Komárková, Ph.D. (KOD)
	Ing. Gabriela Krupincová, Ph.D. (KTT)
	Bc. Ondřej Ludín (KDE)
Chamber of Students:	Ing. Klára Gergelitsová (KNT)
	Ing. Senta Müllerová (KNT)
Secretary:	Ing. Daniela Brzezinová (DFT - not a member of the Senate)

Academic Senate of FT TUL ***until 14.9.***

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 from 10.10.2023

Chamber staff:	doc. Ing. Pavel Pokorný, Ph.D.
	Ing. Ondřej Novák, Ph.D.
Chamber of Students:	Ing. Jan Vinter

Members of the Academic Senate of TUL for FT TUL until 10.10.2023

Chamber staff:	doc. Ing. Pavel Pokorný, Ph.D
	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.	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 2023 was prof. Ing. Michal Vik, Ph.D.

1.3 Change of regulations

No new regulations or changes to regulations were issued in 2023.

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 a student workshop - International Ph.D. Students Day
    - 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

The FT study programmes were accredited by NAU for a maximum period of ten years in 2019**.** **The** DSP Industrial Engineering was accredited in English in 2023 and granted accreditation until June 2028
The Faculty has put in place measures to prevent potential problems for students who have interrupted their studies (e.g. due to a recognised period of parenthood) in programmes of study on completion of their degree ("old accreditation", which ends in 2024 for all programmes). These students are monitored and provided on an ongoing basis with the information necessary to successfully complete their studies in accordance with the applicable 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)		St. 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
P0723D270004	**Industrial Engineering**		4	P, K-AJ
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	St. 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 2023 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	4	2							6
B0212A270001 Design	144								144
B0414A270001 Textile marketing	93	30							123
B0723A270001 Textile technology, materials and nanomaterials	52	32							84
B0212A270002 Design	1								1
B0723A270003 Manufacture of wearing apparel and technical clothing	43	13							56
N0212A310012 Design - textile, clothing, glass, jewellery					27				27
N3106 Textile engineering						0			0
N0723A270001 Textile engineering					27	23			50
N0723A270002 Textile Engineering					15				15
N3957 Industrial engineering						1			1
N0723A270003 Industrial engineering					12	11			23
P3106 Textile engineering							11	4	15
P0723A270001 Industrial engineering							1	0	1
P0723A270002 Textile engineering							11	3	14
P0723A270003 Textile Engineering							13	0	13
Faculty total	**337**	**77**			**81**	**35**	**36**	**7**	**573**
of which number of women	267	50			57	24	18	2	418

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)	333	81
Continuing Master's Degree Programmes (NMSP)	91	25
Doctoral Study Programme (DSP)	20	23
Total FT	**444**	**129**

Traditionally, a number of foreign students study at TUL - from Russia (34), Slovakia (35), Ukraine (12), Pakistan (3), Kazakhstan (13), India (7), Turkey (5), China (8), Ethiopia (1), Belarus (1), Bangladesh (7), Republic of Moldova (1), Uzbekistan (1), Mauritius (1). The

number of students with foreign citizenship in the DSP 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.

Higher failure rates are observed among students **of the combined** form of study, whose number is traditionally high at TUL. 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 have a shortage of workers and stop supporting the qualification growth of their employees. In 2023, it was possible to reduce the failure rate in the combined form of study in continuing study programmes. For doctoral programmes, the increase in the failure rate for students in the combined form of study is due to the accumulation of students who discontinued their first year in 2022 and this year (2023), who, after the experience of previous years, were not advised to discontinue, because if a student cannot manage to study and work at the same time in the first year, it does not lead to improved work in the higher years

The failure of **full-time** students is most often due to the low level of knowledge and understanding of science that they came from secondary schools with, which is often combined with low motivation to study and low diligence of individuals. In order to get acquainted with the study environment and organisation (teaching, TUL and FT environment, academic advisor), the following events took place at the beginning of the first semester: a joint meeting of the entire first year of the BSP Design; an introductory informative lecture in the course High Function Textiles (other BSP courses).

Table 6. Unsuccessful students in accredited study programmes in %

Type of study programme	P [%]	K [%]	Total [%]
BSP (all disciplines)	44	73	50
MSP (all disciplines)	0	0	0
NMSP (all disciplines)	42	56	46
DSP (all disciplines)	17	63	43
Total			**49**

*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. In selected subjects, study materials were used in full-time teaching, and video recordings (prepared and used during the period when teaching was online) were used for revision. Courses with a high failure rate are also scheduled in the following year so that their teaching does not conflict with compulsory courses and the student can fully repeat them. All departments prepare study guides for the courses within the

university project NPO, for courses with high academic failure, study guides created in previous projects (e.g. ROLIZ) are used. All learning support materials are available to students uniformly on e-learning.

FT TUL motivates students to complete their studies in due time by, for example, ensuring that only students who are studying properly during the standard study period can receive a merit scholarship. Students of full-time and combined forms of study can receive a merit scholarship for excellent academic results. 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 2023, 19 students with specific needs (1x hearing impairment, 9x specific learning disabilities, 2x autism spectrum disorder and 7x other difficulties) and one student with socio-economic disadvantage were registered at the faculty in cooperation with the Academic Counselling Centre.

2.1.2 Alumni

In 2023 (from 1 January 2023 to 31 December 2023), a total of 104 students graduated from accredited study programmes, of whom 81 were female and 22 were foreigners.

Table 7. Graduates of accredited study programmes (from 1 January 2023 to 31 December 2023)

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	8	10							
BSP / NAV	22								
BSP / VOTK	4	6							
BSP / TTMN	5	1							
BSP / TEXTIL - old	9	4							
Total BSP	**48**	**21**							**69**
NMSP / TI - old					0	0			
NMSP / PI - old					0	0			
NMSP / TI - new					19	6			
NMSP / PI - new					1	1			
NMSP/DES					3				
NMSP total					**23**	**7**			**30**
DSP							5	0	
Doctoral total							**5**	**0**	**5**
Total FT									**104**
of which women									**81**
of which foreigners									**22**

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 2023, the departments organized the following activities:

- cooperation in the framework of complementary activities or in the framework of BP and DP (KHT)
- cooperation with companies on the development and testing of materials within the framework of the MS and other research activities
- informal meetings within the framework of exhibition activities in Gallery N in Jablonec n. N. (KDE)
- organisation of the Přadalla Knitting Weaving Symposium (approx. 200 participants from approx. 85 companies - 11 expert lectures by representatives of domestic and foreign companies, see link https://www.ft.tul.cz/katedry/katedra-technologii-a-struktur/oslavy-65-teho-vyroci, on the occasion of the 65th anniversary of the Department and the disciplines of spinning, knitting and weaving (KTT)
- cooperation with graduates working in companies on materials development and

testing, cooperation within clusters (KMI) and projects (KMI).
All departments are active in preparing programs and implementing alumni meetings as part of the public activities of the university and faculty.

Graduates of the doctoral study programme
In 2023, 7 State Doctoral Examinations (SDZ) were held and successfully passed:

- Xiaodong Tan, M.Eng.
- Yanfeng Wang, M.Eng.
- Aamir Mahmood, M.Sc.
- Ing. Pavel Holec
- Asif Javed, M.Sc.
- Ing. Josef Vosáhlo
- Kai Yang, M.Eng.

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

Defence of the dissertation
In the same year, 5 students successfully defended their dissertations and received their Ph.D. degrees

- Amany Ahmed Salama Khalil, M.Eng. (Topic: Effect of Elastic Knitted Fabric Construction Parameters; Supervisor: Ing. Pavla Těšinová, Ph.D.)
- Sundaramoorhy Palanisamy, M.Tech. (Topic: Knitted Conductive Fabrics With Enhanced Electromagnetic Interference Shielding; Supervisor: doc. Ing. Veronika Tunáková, Ph.D.)
- Muhammad Sajid Faheem, M.Sc. (Topic: Biopolymer for Reduction of Cotton Flammability; Supervisor: prof. Ing. Jakub Wiener, Ph.D.)
- Ing. Marcela Pechová (Topic: Perception of colours in photopic and mesopic adaptation phases; Supervisor: prof. Ing. Michal Vik, Ph.D.)
- Manikandan Sivan, M.Sc. (Topic: Studies on the spinnability and surface modification of polycaprolactone nanofibers produced by AC electrospinning; Supervisor: prof. RNDr. David Lukáš, CSc.)

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	**415**	**348**	**362**	**194**
NMSP total	**151**	**135**	**131**	**71**
Total DSP	**6**	**6**	**6**	**4**
TOTAL on FT	**572**	**489**	**499**	**269**

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 programme "Design - Clothing, Textile, 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.

As of December 2023, changes to the admission system for foreign students enrolled in the STUDENT scheme (for obtaining study visas) are mandatory. The rules already officially published for the admission procedure in the current academic year 2023/24 for continuing study programmes taught in English must be changed.

Doctoral studies: the admission procedure for doctoral studies took place in two rounds last year. Applications were accepted until 15 February 2023 and 24 June 2023. The meeting of the admissions committee took place only on 14 July 2023, as no applicants were included in the first round. 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 a master's degree, 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	0	0	0	0	0	0
Round 2	4	2	6	6	0	5
Total	4	2	6	6	0	5

2.1.4 Development of educational activities

Teaching activities in 2023 were supported from other sources through projects: the Ministry of Education and Science (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.

Development programmes

In 2023, projects were co-managed under the Strategic Management Support Programme (SMSP):

- Priority objective 1: To develop competences directly relevant for life and practice in the 21st century (principal investigator: prof. Ing. Miroslav Žižka, Ph.D.) - investigators for FT: doc. Prof. Ing. Miroslav Žižka, Vice President of the Department of International Relations, Miroslav M. Žižka, Vice President of the Department of International Relations, Prof. Ing. Prof. Brigita Kolčavová Sirková, Ph.D., doc. Ing. Jiří Chvojka, Ph.D., Ing. Katarína Zelová, Ph.D., Ing. Jana Drašarová, Ph.D. and Ing. Renata Štorová, CSc.
- Priority objective 2: Improve the availability and relevance of flexible forms of education (Principal investigator: prof. Ing. Miroslav Žižka, Ph.D.) - investigator for FT: Ing. Jana Novotná, Ph.D., PI for the Faculty of Science, Prof. Jan Novotná, Ph.D.
- Priority objective Internationalization (principal investigator: doc. Ing. Kateřina Maršíková, Ph.D.) - investigator for FT: doc. Ing. Brigita Kolčavová Sirková, Ph.D.

Other priority objectives (principal investigator: PhDr. Ing. arch. Lenka Burgerová, Ph.D.) - investigators for FT: Ing. Renata Štorová, CSc. Ing. Jana Drašarová, 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 2022/2023; Children's University 2023/2024.

ERASMUS +

During the year 2023, the faculty was the principal investigator of 2 Erasmus + projects

- Sustainable Design and Process in Textiles for Higher Education, reg. no. 2021-1-PL01-KA220-HED-000032201
- European Digital Readiness Strategy for Clothing Studies, reg. no. 2021-1-DE01-KA220-HED-000023124

2.2 Linking educational activities with creative activities

The link 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 as part of his/her R&D and artistic creative activities. Students (especially NMSP and DSP) are involved in the solution of projects. FT TUL also in 2023 supported 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 participated in the solution of R&D projects, e.g. 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

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 2023, the final theses of these students were awarded:

Award of the Governor of the Liberec Region

Ing. Ondřej Novák	"Combustion of thermally bonded nonwovens under defined boundary conditions" (DP)

Preciosa Foundation Award

Bc. Hana Horáková	"Uncertainties - glass objects" (BP)
Bc. Nella Meresová	"Architecture in Jewellery" (BP)

Rector's Award

Bc. Klára Laušmanová	"Death and funeral rituals - Production of personalized candlesticks" (BP)
Ing. Adéla Kdýrová	"Development of knitted warp spacer structures for wastewater treatment" (DP)

Dean's Award

Bc. Anna Dvořáková	"Effect of retroreflective materials on physiological properties of clothing" (BP)
Bc. Maxim Gordyatskiy	"Production of woollen saddle blankets using waste raw materials" (BP)
Bc. Ivana Gurášová	"Travel - luggage set" (BP)
Ing. Monika Matějková	"Evaluation of photoluminescent textiles increasing pedestrian visibility in road traffic" (DP)
Ing. Astha Vishwakarma	"Surface study of polymer solutions by optical method under intense electric" (DP)

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, 8 SGS 2023 projects were successfully defended and solved. These were small-scale projects led by PhD students. Supervisors of PhD students were the guarantors of the substantive and formal level of the solutions and other members of the research teams were mostly students, both of the PhD and Master's degree programmes of the TUL. The outputs of the SGS 2023 projects are described in detail in the final reports, which are available on the TUL website in the SGS TUL application.

The Student Scientific Conference took place on 8 December 2023. The main researchers presented the results of the projects and answered questions from the SGS committee members and other invited guests (dean, heads of departments, members of the SGS project team, ...). At the same time, a review of the use of the allocated funds and a review of the fulfilment of the milestones in the framework of the SGS projects 2023 was carried out. The agenda and further information are available at https://www.ft.tul.cz/studenti/doktorske-studium/sgs-konference.

Most of the papers were presented and published at international conferences in hybrid format, e.g. Autex 2023, CIE 2023 and TBIS 2023.A total of 7 papers were accepted and presented as lectures and posters at international conferences. A number of researchers have also managed to actively publish in peer-reviewed journals. One paper has already been published, and six more papers are currently under review. All papers are in journals with impact factor. Two more manuscripts are being prepared for submission to the journal. One project has created a platform for visibility research in the Laboratory for Color and Appearance Measurement (LCAM) - creating simulation software and a test simulator for visual assessment. Outputs also include a chapter in a technical book. The outputs include, of course, parts of the dissertations of the students involved in the projects, as well as one defended and one in-progress (defense June 2024) master thesis.

Specific Research Projects Student Grant Competitions to be solved in 2023

1. Membrane non-porous systems for textile applications, Ing.Tereza Šubrová (21505)
2. Analyses of DC and AC electric softening of aliphatic polyamide solutions by Ing.Pavel Holec (21544)
3. Enhanced Side Luminous Property of Polymer Optical Fiber-Incorporated Woven PET Fabrics By using Acetone/Methanol by Xiuling Zhang, M.Eng. (21545)
4. Development and preparation of supercapacitors and ohmic heating composites with conductive particles-based polymers by Xiaodong Tan, M.Eng (21546)
5. Impact of different matrix system on selected properties of carbon filaments reinforced composites by Dan Wang, M.Sc. (21547)
6. Special carbon fillers for fibrous composites, Ing. Divan Coetzee, B.Sc. (21548)
7. Increasing pedestrian visibility in complex visual scenes in day and night traffic space by Dominik Dušek (21549)
8. Understanding the Aerodynamic Behavior of Stretchable Fabrics for Sportswear, Eng.Deepali Dhruvanshi, B.Tech. (21550)

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) to support talented students at the technical faculties of TUL. One of the main objectives of the competition is to financially support creative students who have the prerequisites for scientific and development activities and to motivate them to further work in this field.

The 15th edition of the SVOČ competition at the Technical Faculties and Faculty of Economics 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 6 June 2023 in the premises of Building G of the Technical University of Liberec. A total of 24 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.

Due to the low number of registered competitors in the Textile and Mechatronics sections, students were allowed to compete in the joint Textile/Mechatronics section. In this section, the first two places were taken by students from the Faculty of Mechatronics, Informatics and Interdisciplinary Studies and the third place went to the student of the Faculty of Mechatronics, Informatics and Interdisciplinary Studies Monika MATĚJKOVÁ (NMSP) for her work *Evaluation of photoluminescent textiles increasing pedestrian visibility in road traffic*.

For competition results and more information, see http://svoc.tul.cz/.

2.2.5 International Ph.D. Students Day

Students presented a summary of their work for the year 2023 at the International Ph.D. Students Day event. This event was organized on 15 and 16 February 2024, but its focus falls within the activities of the year 2023. Students of PhD programmes of the Faculty of Textile Engineering presented the results of their research work and answered questions from the members of the faculty board, supervisors and other textile experts present during the discussion. As part of these presentations, the annual regular review of the curriculum was conducted. The detailed programme is given on

https://www.ft.tul.cz/studenti/doktorske-studium/workshop-studentu-dsp-2023

2.2.6 Support for student participation in competitions and exhibitions

Students of BSP Design and NMSP Design-Textile, Clothing, Glass, Jewellery actively participated in a number of important activities in 2023:

- *Mercedes-Benz Prague Fashion Week SS23*. Fashion show, Historical Holešovice Power Plant, Prague-Holešovice, 2023.
- *Mercedes-Benz Prague Fashion Week FW23*. Fashion show, Chuchle Arena, Prague, 2023.
- *BACALAUREATES and FIRST MASTERS 2023.* Exhibition of student work from the final year of BSP Design. Gallery N, Jablonec n. N., 2023.
- *SEMESTRALS 2023*. Exhibition of student work from BSP Design and NMSP Design - textiles, clothing, glass, jewellery. Gallery N, Jablonec n. N., 2023.
- KÁBELE, O., Stanislav Libensky Award 2022. Exhibition and competition. Awarded: 1st place. Prague, 2023.
- KUŽNIAROVÁ, H., International Biennale of glass Bulgaria 2023. Exhibition, Quadrant 500, Sofia, Bulgaria, 2023.
- EICHNEROVÁ, N., Student Fashion Show. Fashion show. Pragovka art district, Prague, 2023.
- KOTKOVÁ, A., National Prize for Student Design 2023, Winner of the Good Student Design Award, Dean of the Faculty of Design and Art Ladislav Sutnar Award, Ecology Award, Prague, 2023.
- *SIMBIOSIS.* Exhibition of glass and jewellery as part of the international show Munich Jewellery Week 2023, Czech Centre in Munich. Germany, 2023.
- *Student work.* Presentation of BSP Design student works. Residence RoSa, Liberec, 2023.
- ŠRÁMKOVÁ, S., IMPRINT OF ANTIQUITY. Exhibition. Museum of Decorative Arts, Prague, Prague, 2023.
- VÁCHOVÁ, J., Master of Crystal 2023. Competition and exhibition. Awarded 1st place, Museum of Glass and Jewellery in Jablonec n. N., Jablonec n. N., 2023.
- VÁCHOVÁ, J., WEED FEST. Exhibition. National Museum of Agriculture. Prague, 2023.
- VEDRALOVÁ, V. J., Festival Czech Design Week, Presentation of student work. Prague, 2023.
- HARTMANOVÁ, L., MAČKOVÁ, L., Fashion Event Dotek. Fashion show. Zlín, 2023.

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 FT TUL study programmes

- 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". We have one student in the Bachelor's degree programme, in the programme "Design". Although there is interest in studying in English, applicants have problems both in getting their previous education recognised 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.

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	14	0	15	0	30

2.3.2 Lectureships of foreign experts

In 2023, 5 visits of foreign experts took place:

1. Prof. Amit Rawal - Department of Textile and Fibre Engineering IIT Dehli, 22.6.2023, lecture on Geometrical Modelling, Simulation of Braided Preforms at KNT
2. Ilda Kazani - Polytechnic University of Tirana, Albania, 25.6.2023-30.6.2023, lecture at "How to do Ph.D. research" at KOD
3. Monica Gomez and Jose Solis - Science Faculty, Universidad Nacional de Ingenieria, Lima, Peru, 4.4.2023, lecture on: Textiles functionalized with metal oxides at KMI
4. Prof. Yasunaga and Prof. Taniguchi - Kyoto Institute of Technology, 6.6.2023, lectures on Dyeing and functional finishing by using biobased materials and Environmentally benign polymeric materials at KMI
5. Seminar on scientific cooperation with Zhejijang Provincial Department of Science and Technology, 16.11.2023 at KMI

2.3.3 Participation of students in international work placements, internships, conferences, summer schools

This participation is mostly covered by the Erasmus+ mobility programme KA103, nine practical placements were funded from faculty sources. There were 13 study or work placements abroad in the summer semester of the academic year 2022/23: 9 Erasmus+ students, 4 self-funded, for a total of 40.1 months in 2023. In addition, there were 28 study or work placements abroad in the winter semester of the academic year 2023/24: 23 Erasmus+ students, 5 self-funded students, for a total of 83.07 months in 2023. 15 Erasmus+ students continue their stay in 2024. In total, 41 students travelled for 123.17 person-months in 2023.

Within the Erasmus+ project KA 220 Greentex, 5 students participated in a summer school organized by the University of Aveiro in Portugal.

2.4 Linking educational activities to the third role of the faculty

The main mission of the activities is to increase the sectoral employability of TUL FT graduates. The most important goal is to set up interdisciplinary cooperation and intersectoral mobility. This goal is gradually achieved by innovating the subject curriculum of accredited programmes with regard to the needs of practice, supporting 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.

2.4.1 Collaboration in the development of study programmes

FT TUL actively collaborates with industry partners to provide relevant educational content for students. This collaboration involves practitioners who contribute their knowledge and experience to improve study programmes. This cooperation is based on a long-term partnership with companies associated under the Clutex z.s. or ATOK cluster, which allows close cooperation and mutual exchange of know-how. Businesses also have the opportunity to actively participate in the development of new study programmes by providing feedback and comments. This cooperation ensures that graduates better match the requirements and needs of the current labour market. The link between the university and practice is implemented through personal contact and other discussion forums organised with the participation of relevant institutions and industry representatives. This ensures that training programmes are relevant to current trends and the needs of the sector.

2.4.2 Experts from the application sphere teaching in accredited degree programmes

In 2023, 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:

- Ing. Karel Boněk, Rieter CZ s.r.o. - expert lecture focusing on Spinning;
- Ing. Jiří Koucký, Csc., Glass and jewellery art;
- 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. Markéta Vinglerová , Contemporary Art and Design 2;
- Mgr. Adéla Mende, Contemporary Art and Design 3;
- Ing. arch. MgA. Aleš Novák, Spatial study;
- MgA. Karel Matouš Zavadil, Ph.D., Gallery Practice;
- Doc. Ing. Václav Klička, Ph.D., teaching the subject Project.

2.4.3 Consultation and guidance for bachelor and master theses

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

2.4.4 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 3.2.2) 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

- Ing. Petr Pavlík, Ph.D., TUL Ombudsman; topic Gender issues, students and employees of TUL;
- David Pařízek, co-owner of KWAK, the topic of Starting a business, within the subject Sales Strategy of Textile Goods;
- MgA. Mgr. Tereza Vernerová Volná, VŠUP Prague, topic Communication, students of BSP Design
- Ing. Jana Matoušová and Marek Šmakal, representatives of the company 4camping, the topics Options for designing outdoor clothing and Development and properties of tents and sleeping bags, within the subjects Clothing Production and Automotive and Technical Clothing;
- Ing. Jitka Chaloupková, technologist and designer at Milpex, on the topic Designing underwear in outsourcing production for students of the courses Construction of garment cutting and Modelling of garment cutting;
- Ing. Josef Večerník, CSc., owner and managing director of the company Večerník s.r.o., topic Chemical coating of textile structures and cooperation on the preparation of student works, DSP students;
- doc. Ing. Antonín Potěšil, CSc., company LENAM, s.r.o., topic FEM analysis of composite structures, DSP students;
- Ing. Karel Kupka, Ph.D., TriloByte Statistical Software, s.r.o., topic Advanced Interactive Data Analysis in Technology and Research, TriloByte Statistical Software. DSP students.

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

- Seminar for DSP students Presentation and discussion of R&D results (once a week, prof. Ing. J.Militký, CSc., doc, Dr. Ing. D. Křemenáková).

2.4.5 Excursions to companies

In 2023, field trips were conducted with students accompanied by teachers. These were visits to the following companies and institutions:

- Retex - Stráž nad Nisou, KNT
- Juta - Turnov, KNT
- Grund - Mladé Buky, KNT

- Chromservis - Prague, KNT
- NanoSpace - Kralupy nad Vltavou, KNT
- Škoda Auto,a.s. - Mladá Boleslav, KHT
- North Bohemian Museum Liberec, WHERE
- Liberec Regional Gallery, WHERE
- Museum of Glass and Costume Jewellery in Jablonec n. Nisou, WHERE
- Benedikt Rejt Gallery Louny, curatorial interpretation of the exhibition Beauty, WHERE
- Museum of Decorative Arts Prague, WHERE
- Schindler's Knitting Factory s.r.o., KTT
- Saint-Gobain ADFORS CZ s.r.o., KTT
- Kümpers Textil s.r.o. Plavy, KTT
- SCHOELLER Křešice s.r.o., KTT
- Bernhardt Fashion CZ, s.r.o., KOD
- Koutný spol. s r.o., KOD
- Adient Czech Republik s.r.o., branch plant Česká Lípa, KOD
- continuous excursions of students to various cultural institutions as part of the Contemporary Art and Design course.

2.4.6 Professional practice for students

At FT TUL, the DSP includes a compulsory internship for 6 months. A total of 17 students completed the compulsory internship or at least part of it in 2023. 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, 59 students participated in internships.

Table 11. BSP student internships in 2023

	Number of students
Total number of practices	174
Work experience in professional firms	174
Practice outside the field	0
Internships in the form of volunteering	0
Practice in written form (alternative)	0

2.4.7 Motivational events for prospective students / Promotional activities

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 2023, the following activities were implemented to motivate secondary school students to further their studies:

Directly contacting applicants for study

- FT TUL Open Days. FT TUL organized Open Days (DOD) for prospective students in January and November 2023 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 Prague (at the university stand).

Work with pupils of secondary and primary schools

Project days

- Taste Textiles (KTT - 250 pupils)
- Textile testing (KMI - 60 pupils)
- How can my T-shirt glow in the dark, Photoluminescent materials as an additional element increasing visibility of people in the dark, Possibilities of using CAD systems in clothing production, Design of textile structure for 3D printing, Learn about new materials and new technologies (KOD 377 students)
- Pattern design and textile printing (KDE 60 pupils)
- Evaluation of textiles (KHT - 140 pupils)

Children's University

- Composites, Textile finishing (KMI)
- Courses for secondary schools

14-day Project Holiday Days Taste Textiles Course (20 pupils)
Summer clothing design week one week KOD course (approx. 11 pupils)
Excursions for primary schools
Practice of students from the Secondary School of Textile and Kateřinek (KMI, KDE, KOD)
Consultation of student theses (KTT)
Popularization lectures at secondary schools

- SUPŠS Kamenický Šenov, SŠPaU Opava (KDE)
- SPŠT Liberec, Gymnasium Mimoň, Gymnasium Frýdlant (KNT).

Presentations at events

- Lecture Girls belong at TUL (Klíčová, Kolčavová)
- Maker Faire - Festival of Innovators (KNT)
- European Heritage Day (WHERE - Gallery N)
- Clothing and Textile Competition (competition for young talents in several categories, where thematic designs and collections prepared by primary and secondary school students are selected), 8.9.2021 Liberec 2023 (10th year). The competition is organized by the Association for organizing the competition Clothing and Textile, Liberec in cooperation with the Secondary Industrial School of Textile under the auspices of FT TUL, Clutex z.s.

Further promotion

- activities of the University Gallery N, Jablonec n.N (chapter 4.4)
- participation in Mercedes Benz Fashion week (2x a year, September, March)
- 6 articles for Technicky tydenik
- media presentation, which was carried out in cooperation with the university spokesperson. With the spokesperson, an evaluation of the impact of the activities was carried out as follows: in 2023, the FT TUL was presented 271 times in the media, the AVE (Advertising Value Equivalent) of these topics is 48.68 million. The most covered topics by the media were: textile recyclate board, Markéta Klíčová advisor to the Minister; Nanofibre sorbents by Jakub Erben; TUL = cradle of nanofibres / celebrating 70 years; Students' participation in MBPF 2023.

3. Academics, staff

In 2023, 115 employees worked at the TUL Faculty of Science, 79 of whom were academic staff, including staff for science and research. There were 7 professors, 14 associate professors, 30 assistant professors, 4 assistant professors and 17 lecturers. An overview of the number of staff is given in the following tables. There were 5 academic staff with foreign citizenship working at TUL in the current 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 pedagogical activities	Extraordinary	Postdocs ("postdoc")	Researchers not falling into other categories	Other scientific, research and development personnel		
Total	63,6	5,1	12,3	27,8	3,0	15,4			1,5	4,5	18,9	18,7	107,2
Of which women	40,4		5,4	21,5	1,5	11,9				2,8	11,2	16,1	70,5

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

	Academic staff														Scientific and professional staff						Other employees		TOTAL	of which women
	Professors		Associate Professors		Professional assistants		Assistants		Lecturers		Scientific, research and development staff involved in teaching activities		Extraordinary professors		Postdocs ("postdoc")		Researchers not falling into other categories		Other scientific, research and development personnel					
Faculty of Textile Engineering	TOTAL	Women	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										4	4			5	4
30-39 years old			1	1	3		4	2	1						2		4	1	5	4	1	1	21	9
40-49 years old			3		18	15			7	6							1	1	2		5	4	36	26
50-59 years old	1		3	2	8	8			5	5									5	3	7	7	29	25
60-69 years old	2		5	3	1	1			3	2									2	1	2	2	15	9
over 70 years old	4		2																3	1			9	1
TOTAL	7	0	14	6	30	24	4	2	17	13	0	0	0	0	2	0	5	2	21	13	15	14	115	74

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

	Academic staff										Researchers			
	TOTAL	Women	prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.		Other		TOTAL	Women	TOTAL	of which women
Time ranges			TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women				
up to 0.3	**5**	**2**	2	0	1	0	1	1	1	1	1	0	**6**	**2**
0,31-0,5	**10**	**8**	1	0	0	0	4	4	5	4	2	1	**12**	**9**
0,51-0,7	**1**	**0**	0	0	1	0	0	0	0	0	0	0	**1**	**0**
0,71-1	**56**	**35**	4	0	13	7	24	18	15	10	4	1	**60**	**36**
TOTAL	**72**	**45**	**7**	**0**	**15**	**7**	**29**	**23**	**21**	**15**	**7**	**2**	**79**	**47**

From 1.1.2023, RNDr. Jana Horáková, Ph.D. was appointed Associate Professor in Textile Technology and Materials Engineering.

In 2023, 8 selection procedures were held for academic staff and other FT TUL staff.

- On February 17, 2023, the selection committee recommended 1 candidate for admission to the position of assistant for KNT FT TUL (1 position).
- On 22 March 2023, the selection committee could not recommend any candidate for the post of associate professor for KDE FT TUL (1 post). No one applied for the selection procedure.
- On April 3, 2023, the selection committee recommended 4 candidates for admission to the position of lecturer or assistant for KDE FT TUL (1-2 positions with reduced time).
- On 30 May 2023, the selection committee recommended 2 candidates for admission to the position of assistant professor for KHT FT TUL (1 position).
- On 11 September 2023, the selection committee recommended 1 candidate for admission to the position of lecturer or assistant for KDE FT TUL (1 position) and 1 candidate for admission to the position of associate professor or assistant professor for KDE FT TUL (1 position).
- On 14/11/2023, the selection committee recommended 1 candidate for admission as a lecturer/lecturer for KHT FT TUL (1 position).
- On 18 December 2023, the selection committee recommended 1 candidate for admission to the position of Knowledge Transfer Assistant for the project for the KOD FT TUL (1 position).

Table 15: Number of staff by department as of 31 December 2023 - natural persons

Positions	Professors	Associate Professors	Professional assistants	Assistants	Lecturers	TOTAL academic staff	Scientists Staff	TOTAL Academic + scientific staff	OT	HSP	Artisans	Total	of which women
KTT	1	2	6	0	2	**11**	0	11	2	1	0	14	10
KMI	3	2	8	0	3	**16**	5	21	6	1	1	29	22
KHT	1	2	4	0	1	**8**	1	9	0	1	0	10	6
CODE	1	1	4	0	2	**8**	2	10	3	1	1	15	9
CNT	1	3	4	4	0	**12**	3	15	0	1	0	16	6
WHERE	0	3	4	0	9	**16**	0	16	4	1	0	21	13
DFT	0	1	0	0	0	**1**	0	1	1	4	0	6	4
SFT	0	0	0	0	0	**0**	0	0	0	4	0	4	4
Total	**7**	**14**	**30**	**4**	**17**	**72**	**11**	**83**	**16**	**14**	**2**	**115**	**74**

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

	Academic staff							Scientific and professional staff				
	Total academic staff	Professors	Associate Professors	Professional assistants	Assistants	Lecturers	V and V staff involved in pedagogical activities	Postdocs ("postdoc")	Researchers not falling into other categories	Other scientific, research and development personnel	Other employees	TOTAL employees
	4,5	**0,0**	**1,0**	**2,0**	**1,0**	**0,5**	**0,0**	**1,5**	**0,8**	**0,0**	**0,0**	**6,8**
Slovakia	**2,5**		**1,0**		**1,0**	**0,5**						**2,5**
other EU countries	**0,0**											**0,0**
other non-EU countries	**2,0**			**2,0**				**1,5**	**0,8**			**4,3**
Women out of total (regardless of nationality)	**2,0**			**2,0**								**2,0**

3.1 Education and training activities for employees

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

- teambuilding - training for KHT members
- NIS elements training (Müllerova, Hodková, Klíčová, Honzíková)
- training Contact angle measurement equipment (Hodková, Honzíková)
- course English medium instruction, British council (Chvojka).
- Safety training for KNT employees
- professional competence to work on electrical equipment, KNT employees
- Amendment to the Labour Code for managers (Chvojka)
- training CAD systems for SHIMA SEIKI knitting (Ornstová, Lenfeldová)
- training in CAD systems for jacquard weaving EAT (Kolčavová, Mertová, Krula)
- Erasmus Internship (J. Novotná), 7-10 March 2023 TU Lodz, Faculty of Material Technologies and Textile Design
- seminar Q-Lab Weathering 101 (M. Pechová), 16.5.2023 Prague, Labimex company
- Lighting Technology Course XXXVII (M. Pechová), 9.10. -11.10. 2023, Kouty nad Desnou, lecture and contribution in the proceedings
- LOI training - operation, maintenance and measurement of the limiting oxygen number on the FTT Oxygen Index device (B. Tomková, M. Pechočiaková, A. Samková, K. Gergelitsova), 22 November 2023, L. Fiedler, ANAMET s.r.o.
- English medium instruction course, British council (Goat)
- University English course (Komárková)
- training of thermal imaging camera operators (Kůs, Havelka, Martinka, Chotěbor, Nemčoková, Glombíková, Komárková)
- participation of selected staff from all departments and the DFT in Seduo professional courses and seminars

Training organized within TUL:

- Electrical equipment - qualification in electrical engineering §6 - J. Zusková, M. Pechočiaková, M. Vik, J. Porkertová, V. Tunáková, J. Nováková, J. Wiener, M. Viková, J. Stánská, K. Nohýnková, K. Blatoňová (1.12.2023)
- Driving vehicles and handling machines - Driver training - D. Křemenáková (28.8.2023), M. Pechočiaková (6.11.2023), V. Tunáková (10.8.2023), M. Pechová (3.2.2023), K. Nohýnková (20.9.2023)
- Management of chemical substances - J. Zusková, M. Pechočiaková, B. Tomková, V. Tunáková, M. Průšová, M. Čimburová, J. Wiener, J. Šašková, M. Kašparová, J. Novotná, A. Samková, S. Müllerová, M. Khan, M. Venkataraman (21.9.2023).

3.2 Motivational tools for rewarding employees

Academic staff of the Faculty of Arts of TUL are governed by the TUL Career Regulations. The Framework Criteria for Habilitation and Appointment to Professor Procedures have been established and 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 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 financial resources to faculty and departments, 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 also supported under the Erasmus+ university mobility programme.

Motivational tools for rewarding students

FT TUL pays merit scholarships to successful BSP and NMSP students. The merit scholarships for academic performance are paid in a regular monthly amount. By the end of 2023, merit scholarships in the total amount of 308 thousand EUR were paid. Out of the total scholarships paid, the total number of scholarships paid was CZK 308,000, including red diploma scholarships. To support students in doctoral study programmes, the FT TUL pays scholarships from the contribution of the Ministry of Education and Science, which amounted to CZK 1 462.5 thousand in 2023. CZK. In 2023, the faculty paid accommodation scholarship in the amount of CZK 1,447.8 thousand. The social and extraordinary scholarship for Ukrainian students amounted to CZK 301 thousand. 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 institutions in the areas of: basic research, applied research, experimental research and development and artistic creative activities.
The creative activities of FT TUL are developed in accordance with the priorities listed in the *Strategic Plan of Educational and Creative Activities of FT TUL for the years 2021-2030*. In particular, research activities that are in line with rapidly developing research trends are supported. The scientific and research work is mainly related to those directions in which the Faculty has traditionally had a high level and quality staff background and where there is a high probability of obtaining financial support from various grant competitions. A detailed analysis and prediction of the directions is made in the document *Strategy VVI+2030 FT TUL*.
Strategic research areas are identified:

- 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 2023, the projects of the following providers were addressed: MIT 1, TAČR 4, MoH 2, MoE (SGS 8, PURE 1) 9, GAČR 2, MoI 1, Visegrad Fund 1. (excluding SGS and PURE).

4.1.1 EU Operational Programme Projects - Science and Research

The projects are in the sustainability period:

Hybrid materials for hierarchical structures, reg. no. CZ.02.1.01/0.0/0.0/16_019/000843. 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. The work on the project was completed in 2022, the sustainability period is monitored for 5 years.

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 project was completed in 2022.

4.1.2 MIT projects

In 2023, the OP PIK project was addressed:

VIRATEX - Textile structures combining virus protection and comfort, reg. no. CZ.01.1.02/0.0/0.0/20_321/0024467. SINTEX, a.s., co-supervisor: Faculty of Textile Engineering (doc. 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

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

TQ01000450 - Eco-wear collection. Solver: TUL, Faculty of Textile Engineering (Ing. Jana Drašarová, Ph.D.).

FW06010021 - Research and development of special textiles for protection in emergency and crisis situations "TexPrevent". Principal Investigator: a.s. VÚB, Co-investigator: the Faculty of Textile Engineering (doc. Ing. Antonín Havelka, CSc.), Charles University.

FW06010698 - Nanofibrous extraction sorbents for chromatographic analysis. Principal investigator: Chromservis s.r.o., co-investigator: Faculty of Textile Engineering (doc. Ing. Jiří Chvojka, Ph.D.), Charles University

4.1.4 Projects of the Ministry of Health

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

NU23-08-00586 - Antifibrotic fiber material for lowering intraocular pressure in glaucoma disease. Principal investigator: Charles University, co-investigator: Faculty of Textile Engineering (doc. RNDr. Jana Horáková, Ph.D./doc. Ing. Jiří Chvojka, Ph.D.).

4.1.5 Projects of the Grant Agency of the Czech Republic

21-32510M - Advanced structures for thermal insulation in extreme conditions. TUL - Faculty of Textile Engineering (Mohanapriya Venkataraman, M.Tech., Ph.D.)

23-05586S - Nanofibers as advanced extraction materials in chromatographic analysis. Principal investigator: the Charles University, co-investigator: the Faculty of Textile Engineering (doc. Ing. Jiří Chvojka, Ph.D.).

4.1.6 Ministry of the Interior projects

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

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
GACR - Junior Star	[P] Technical University of	Long-term sustainable and environmentally friendly synthesis of nanostructures for the functionalization of fibrous structures	Zaman Muhhamad Khan, Ph.D.
GACR - Junior Star	[P] Technical University of	Research on multifunctional bioactive nanolayers for wound healing	Azam Ali, 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] LAVARIS RS s.r.o. [D] Technical University of Liberec	Utilization of cigarette waste to produce special Agro textiles	Ing. Ondřej Novák, Ph.D.
Ministry of Education - Inter -Action	[P] Technical University of Liberec [D] North Carolina State University	Advanced nano-modified non-woven fibre structures	Ing. Ondřej Novák, Ph.D.
Erasmus KA2	[P] Universite Paul Sabatier Toulouse [D] Technical University of Liberec [D] ETHNICON METSOVION POLYTECHNION [D] AALTO KORKEAKOULUSAATIO SR [D] UN. ABDELMALEK ESSAADI [D] UNIVERSITE HASSAN II DE CASABLANCA [D] UNIVERSITE DE SIDI BEL-ABBES* [D] DJILLALI LIABES UNIVER.	Mastering Efficient Lighting In North Africa	Prof. Ing. Michal Vik, Ph.D.

	[D] Ecole Nationale Polytechnique Alger		
Erasmus KA3	[P] EURATEX [D] Technical University of Liberec [D] Confederation Europeenne de L´Industrie de la Chaussure ASBL [D] Confederation des Associations nationales de Tanneurs E|t De Maggissiersde La Communaute Europeenne [D] Tekstiili-Ja Vaatetusteollisuus Finatex RY [D] MODINT b.v. [D] Lithuabian apparel and texlile industry association [D] Association of the Textile, Clothing and Leather Industry [D] Association of Textile Designers and Technicians Slovenia [D] Croatian Chamber of Economy CCE [D] Private Chamber of Serbia [D] Tampereen Ammattikorkeakoulu OY [D] Stichtig Hogeschool van Amsterodam [D] Klaipeda Technology Training Centre [D] Tomas Bata University in Zlín [D] Solski Center Celje Sveucilists in Zagreb [D] University of Kragujevac [D] Obrtnicko Uciliste - Ustanova za Obrazovanie Odraslih	Addressing Skills Gaps in the European Textile, Clothing, Leather and Footwear Industries, Emphasizing Equality, Innovation, and Resilience	Ing. Gabriela Krupincová, Ph.D.
Horizon Europe	[P] Universidad Carlos III de Madrid [D] Technical University of Liberec [D] ESNE - ESTUDIOS SUPERIORES [D] INTERNACIONALES [D] UNIVERSITE COTE D'AZUR [D] UNIVERSIDAD COMPLUTENSE DE [D] MADRID [D] UNIVERSITA DEGLI STUDI DI NAPOLI FEDERICO II [D] UNIVERSITE JEAN MONNET SAINT-ETIENNE [D] HELSINGIN YLIOPISTO [D] MIOPIA EFECTOS VISUALES S.L.	Advanced DigitAl Multimodal Modelling and Storytelling System for Cultural Heritage	Prof. Ing. Michal Vik, Ph.D.
Ministry of Education - Mobility	[P] Technical University of Liberec [D] Technical University of Munich	Special corrugated fibre structures with improved functional properties	Mohanapriya Venkataraman Ph.D.
GACR - LA projects	[P] Technical University of Lodz [D] Technical University of Liberec	New techniques for the preparation and application of functionalized expanded graphite for porous conductive flexible structures - EXPGRAF	prof. Ing. Jiří Militký, CSc.
Ministry of Education - Visegrad grants	[P] Ulsan National Institute of Science and Technology [D] Technical University of Liberec	Visegrad Fund: design of a smart panel to reduce noise from rail transport	Ing. Roman Knížek Ph.D. MBA

Ministry of Education - Visegrad grants	[P] Inha University [D] Technical University of Liberec [D] Budapest University of Technology and Economics [D] Adam Mickiewicz University Foundation [D] Polymer Institute [D] Slovak Academy of Scientes	Multifunctional biocomposites containing ionic liquids and ionogels reinforced with nanocellulose with reduced flammability	prof. Ing. Jakub Wiener, Ph.D.
MIT - OP YES	[P] SINTEX, a.s. [D] I N O T E X spol. s r.o. [D] Technical University of Liberec	MUTIR Multifunctional fabrics reflecting IR radiation produced by the human body	prof. Ing. Jiří Militký CSc.
MIT - OP YES	[P] Nanopharma a.s. [D] Technical University of Liberec	Fibre composite filters for advanced industrial oil filtration methods	Doc. Ing. Jiří Chvojka, Ph.D.
MIT - OP YES	[P] GoodPRO s.r.o. [D] Technical University of Liberec	Development of innovative protective firefighting clothing for technical interventions with emphasis on ergonomic and sensory comfort	doc. Ing. Antonín Havelka, CSc.
KÚLK - Liberec Region	[P] Technical University of Liberec	Use of image analysis tools to monitor moisture distribution on the surface of highly sorptive textile materials	Ing. Roman Knížek Ph.D. MBA
MIT - Innovation Voucher	[P] benaSONET, s.r.o. [D] Technical University of Liberec	Testing and analysis of the effect of detergents on the properties of functional textiles - INNOVATIVE VOUCHER	prof. Ing. Jakub Wiener, Ph.D.
Bauhaus	[P] Technical University of Liberec	Czech eco-design in textile, fashion, glass, jewelry - education of experts	Ing. Jana Drašarová, Ph.D.
National Institute of Health	[P] Michigan Technological University [D] Technical University of Liberec	Development of matrix-engineered vascular grafts	Doc. RNDr. Jana Horáková, Ph.D.
Qatar National Research Fund	[P] Qatar University [D] Technical University of Liberec	Passive Atmospheric Water Harvesting Systems for Water Recovery in Greenhouses in Qatar	Doc. Ing. Jiří Chvojka, Ph.D.
MEST - Inter-Eureka-Eurostars	[P] DigInnoCent s.r.o. [D] Technical University of Liberec [D] Kiya San Kiwanis. Ve Tic. A.S.. [D] Mimar Sinan Fine Art University	Firefighter Thermal Ergonomic Comfort Technology	Ing. Adnan Ahmed Mazari, Ph.D.
MZ	[P] Technical University of Liberec [D] Regional Hospital Liberec, a.s.	Fibre microplastics in hospital interiors	prof. Ing. Jakub Wiener, Ph.D.
MZ	[P] Charles University [D] Technical University of Liberec	Development and application of functional nanofibrous drug delivery patches introducing tissue metalloprotease blockers in the prevention of anastomotic leak in gastrointestinal surgery	Ing. Markéta Klíčová
Horizon Europe	[P] Institute for Energy Technology [D] Technical University of Liberec [D] CENTRE NATIONAL DE LA [D] RECHERCHE SCIENTIFIQUE CNRS [D] STIFTELSEN NILU [D] KEEMILISE JA BIOLOOGILISE [D] FUUSIKA INSTITUUT [D] THE UNIVERSITY OF MANCHESTER [D] ARISTOTLE'S PANEPISTIMIO THESSALONIKIS [D] UNIVERSIDADE NOVA DE	Photochromic materials doctoral training network	Doc. Ing. Martina Viková, Ph.D.
EEA and Norway Grants	[P] Technical University of Liberec	Norway-Czech Jewerly in Norway	MgA. Václav Řezáč
2023 TOTAL		**25 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 the portal for recording the results of science and research at TUL (https://publikace.tul.cz/) and subsequently in 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 30 journals indexed in Journal Citation Reports for 2023 in the Materials Science - Textiles subfield. FT TUL has representation on the editorial board of eight journals (according to JIF 2×Q1 2×Q2 1×Q3 1×Q4 2× N/A), i.e. the faculty has representation of academic staff on the editorial boards of prestigious international textile journals covering the full breadth of the textile field.

In the evaluation of research organisations according to the M17+ Methodology, authors or co-authors from TUL were included:

- under **Module 1 of** the selected results in the last 5 years (H18-H22) for 19 submitted results (16 in Engineering and Technology and 3 in Natural Sciences; of which 9 results in the criterion "Societal relevance" and 10 in "Contribution to knowledge") with the following rating:
  - 4 results were rated as grade 2 (excellent),
  - 7 results with a grade 3 (very good result),
  - 4 results rated 4 (average level of performance),
  - 4 results rated 5 (below average). In the last H22 evaluation, the faculty submitted 2 results that were rated grade 3 (very good level result).
- in **Module 2** in the H22 assessment (for 2021) for a total of 84 Jimp results (8×Q1, 37×Q2, 28×Q3, 11×Q4)

The published reports summarising the findings of this evaluation by industry group are complemented by detailed comments from the chairs of the Expert Panels and an accompanying list of results (see https://hodnoceni.rvvi.cz/).

Publications (as of 27 March 2024)
FT TUL proceeded to a detailed evaluation of the results in international rankings. Clarivate's InCites analytical tool (https://incites.clarivate.com), based on citations of publications indexed in the Web of Science (WoS), allows advanced analysis of publication activities and the impact of research work at the level of individuals, teams, departments, institutions and individual disciplines.

Year 2023

TUL has 314 outputs recorded in the Web of Science database for the year 2023. 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 FT TUL is active. InCites offers the possibility to compare the scientific outputs of FT TUL in this research sub-area with organisations not only in the Czech Republic, but also in Europe and the world. In 2023, 21 papers (all authored or co-authored by FT TUL) are recorded for TUL in this sub-area, which puts FT TUL in 37th place in the number of papers compared to other (c. 2008) organizations in the world.

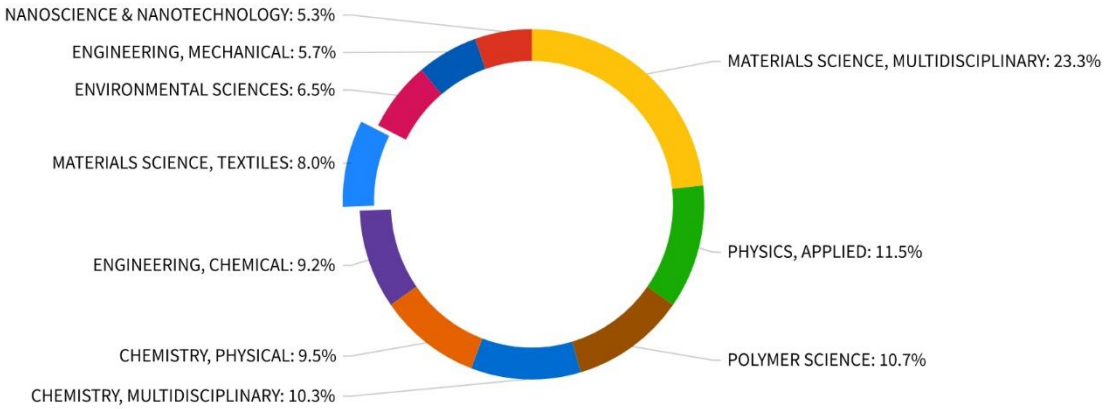

Fig. 2: Share of documents in WoS fields in 2023 by TUL organisation (top 10)

2019-2023

TUL has 1907 outputs recorded in the Web of Science database in 2019-2023. Figure 3 shows the proportion of the top 10 fields in which it publishes. In 2019-2023, TUL (FT TUL) with a total of 203 papers in the Materials Science - Textiles research subfield ranks 20th compared to other (c. 3978) organizations in the world (of which 32.0% of papers in Q1 and 45.1% in Q2 according to JIF).

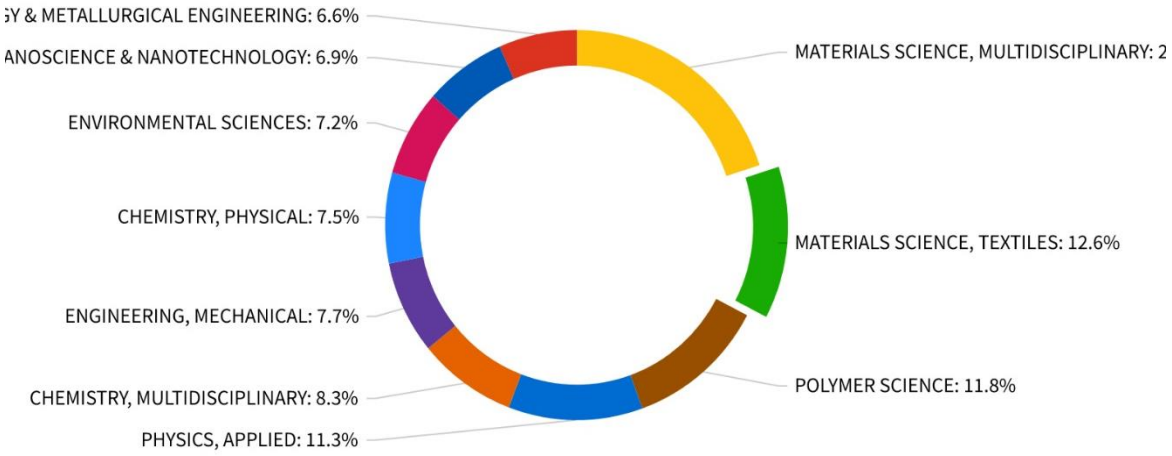

Fig. 3: Share of documents in WoS fields in 2019-2023 TUL (top 10)

The Technical University of Liberec has 6062 outputs recorded in the Web of Science database between 1980 and 2023. Figure 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 1980-2023 is 706, ranking the university 21st out of 5250 organizations (30.7% of papers in Q1 and 34.3% in Q2 according to JIF).

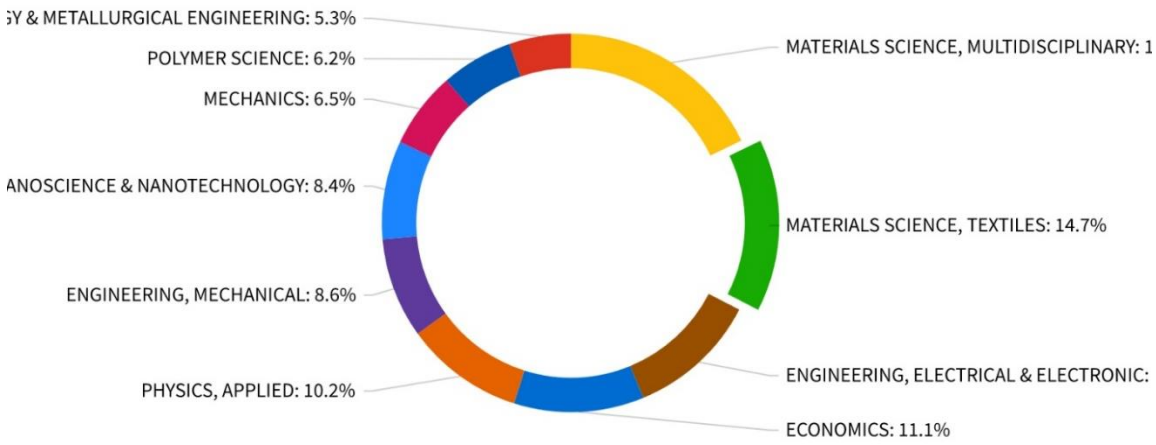

Fig. 4: Share of documents in WoS fields in 1980-2023 TUL (top 10).

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 2023, 31 artistic outputs in two segments were submitted for certification: Design (sub-segments: fashion, textiles, jewellery and glass, porcelain, ceramics) and Fine Arts (sub-segment: visual arts). Thanks to the broad disciplinary focus of the study programmes of the Department of Design, the faculty 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 Arts of the Technical University of Ljubljana guarantees the activities of the university's Gallery N in Jablonec nad Nisou, where it organizes exhibitions of invited personalities of the artistic platform, as well as its own work by the staff of the Department of Design, student work and presentations of other 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 universities.

Within the framework of the activities of **Gallery N**, the Department of Design of the Faculty of Design of TUL (in 2023) held 11 exhibitions or presentations in the field of design, applied art

and artistic craft. Gallery N is registered with the National Information and Consultancy Centre for Culture (abbreviated NIPOS, Ministry of culture), where it shows exhibition activities in the field of professional art. The programme of Gallery N 2023:

- January - TOGETHER AGAIN. Exhibition of the glass artist and former teacher of SUPŠ Železný Brod.
- February - TIME OF HAPPENING. A selection of works by glass artist and teacher Václav Řezáč.
- April - FIBER SK. The work of eight Slovak textile artists from the Academy of Fine Arts in Bratislava.
- May - NORTH CZECH COLLECTION OF ROMAN KARPAŠ. Presentation of personalities of the art scene in Jablonec.
- June - SEMESTRALS 2023. Exhibition of semester works of BSP Design and NMSP Design-textile, clothing, glass, jewellery
- June - Baccalaureates 2022. Exhibition of the final year of BSP Design and NMSP Design-textile, clothing, glass, jewellery
- September - ZARAKA/SYMPORA. Two exhibitions, one gallery. This is the subtitle of the double exhibition of the ZARAKA project and a selection from five years of SYMPORA intermedia symposia in Raspenava.
- September - Euroro Heritage Days
- November - FASCINATION WITH SANTINI. Exhibition
- December - Master of Crystal 2023. Exhibition of nine finalists of the competition.
- December - Blackfish. Exhibition from the estate of textile artist Marta Nymsová.

The staff of the Department of Design also participate as exhibitors in other exhibitions, competitions or presentation activities. Creations from the fields of design and fine arts were applied by KDE academic staff and students of BSP Design and NMSP Design - Textile, Clothing, Glass, Jewellery as artistic outputs of RUV for the year 2023. These are 31 activities (21 in the Czech Republic and 10 abroad), namely:

Academic staff

- ŠIKOLOVÁ, L., *Kreativ Sachsen*.Glassmuseum in Weiss wasser, Germany, 2023.
- ŠIKOLOVÁ, L., Legnica International Jewellery Competition. Legnica, Poland, 2023.
- ŠIKOLOVÁ, L., VÁLKOVÁ STŘÍLKOVÁ, J., *Computer_Jewellery.* Collective exhibition. Museum of Glass and Jewellery in Jablonec n.Nisou, 2023.
- ŠIKOLOVÁ, L., VÁLKOVÁ STŘÍLKOVÁ, J., *SYMPORA/ZARAKA*. Collective exhibition. Gallery N, Jablonec n. N., 2023.
- ŠIKOLOVÁ, L., *TRUE TO FORM.* Collective exhibition. Ilias Lalaounis Jewelry Museum, Athens, Greece, 2023.
- ŠIKOLOVÁ, L., *TRUE TO FORM.* Collective exhibition. Museum of Bohemian Paradise, Turnov, 2023.
- ŠIKOLOVÁ, L., *JEWEL-CONTENT-FORM. Collective exhibition.* Museum of Decorative Arts in Prague, 2023.
- KADLECOVÁ, Z., *THE OTHERS.* Collective exhibition. Museum and Gallery Detesk, Železný Brod, 2023.
- ŘEZÁČ, V., International Biennale of glass Bulgaria 2023. Collective exhibition, Kvadrant 500, Sofia, Bulgaria, 2023.
- ŘEZÁČ, V*., TIME OF HAPPENING*. Author's exhibition. 2022. Gallery N., Jablonec n. N., 2023.

- ŘEZÁČ, V., ŠIKOLOVÁ, L., VÁLKOVÁ STŘÍLKOVÁ, J., *SIMBIOSIS.* Collective exhibition of glass and jewellery as part of the international Munich Jewellery Week 2023, Czech Centre in Munich. Germany, 2023.
- VÁLKOVÁ STŘÍLKOVÁ, J., *RADICAL NATURE.* Author's exhibition. Czech Centre in Munich, Germany, 2023.
- VÁLKOVÁ STŘÍLKOVÁ, J., *Rýnovické vanity 2023*. Multimedia meeting. Rýnovice Church, 2023.
- VÁLKOVÁ STŘÍLKOVÁ, J., Symposium Sympora. Intermedia Symposium. Raspenava, 2023.
- VÁLKOVÁ STŘÍLKOVÁ, J., *TRUE TO FORM.* Collective exhibition. Ilias Lalaounis Jewelry Museum, Athens, Greece, 2023.
- VÁLKOVÁ STŘÍLKOVÁ, J., *TRUE TO FORM.* Collective exhibition. Museum of Bohemian Paradise, Turnov, 2023.
- KROTKÝ, S., *DENUDARE FEMINAS VESTIS/MINIARTTEXTIL 32*. Collective exhibition. San Pietro in Atrio, Como, Italy, 2023.

Students

- *Mercedes-Benz Prague Fashion Week SS23*. Fashion show, Historical Holešovice Power Plant, Prague-Holešovice, 2023.
- *Mercedes-Benz Prague Fashion Week FW23*. Fashion show, Chuchle Arena, Prague, 2023.
- *BACALAUREATES and FIRST MASTERS 2023.* Exhibition of student work from the final year of BSP Design. Gallery N, Jablonec n. N., 2023.
- *SEMESTRALS 2023*. Exhibition of student work from BSP Design and NMSP Design - textiles, clothing, glass, jewellery. Gallery N, Jablonec n. N., 2023.
- KÁBELE,O., Stanislav Libensky Award 2022. Exhibition and competition. Awarded. Prague, 2023.
- KUŽNIAROVÁ, H., International Biennale of glass Bulgaria 2023. Exhibition, Quadrant 500, Sofia, Bulgaria, 2023.
- EICHLEROVÁ, N., Student Fashion Show. Fashion show. Pragovka art district, Prague, 2023.
- KOTKOVÁ, A.,. National Prize for Student Design 2023, She won the Good Student Design Award, Dean of the Faculty of Design and Art Ladislav Sutnar Award, Ecology Award, Prague, 2023.
- *SIMBIOSIS.* Exhibition of glass and jewellery as part of the international show Munich Jewellery Week 2023, Czech Centre in Munich. Germany, 2023.
- ŠRÁMKOVÁ, S., IMPRINT OF ANTIQUITY. Exhibition. Museum of Decorative Arts, Prague, Prague, 2023.
- VÁCHOVÁ, J., Master of Crystal 2023. Competition and exhibition. Awarded 1st place, Museum of Glass and Jewellery in Jablonec n. N., Jablonec n. N., 2023.
- VÁCHOVÁ, J., WEED FEST. Exhibition. National Museum of Agriculture. Prague, 2023.
- VEDRALOVÁ, V. J., Festival Czech Design Week, Presentation of student work. Prague, 2023.
- HARTMANOVÁ, L., MAČKOVÁ, L., Fashion Event Dotek. Fashion show. Zlín, 2023.

5. Internationalisation

In 2023, FT TUL 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.

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 EURATEX (European Apparel and Textile Confederation) meetings. 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 journal editorial boards (see chapter 4.3)
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 30 journals indexed in Journal Citation Reports for 2023 in the Materials Science - Textiles subfield. FT TUL has representation on the editorial board of eight journals (according to JIF 2×Q1 2×Q2 1×Q3 1×Q4 2× N/A), i.e. the faculty has representation of academic staff on the editorial boards of prestigious international textile journals covering the full 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 for FT are doc. Ing. Maroš Tunák, Ph.D., Ing. Veronika Tunáková, Ph.D., and the honorary members of the editorial board are 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

Ing. Jiří Chaloupek
- member of the editorial board of ACC magazine

Ing. Markéta Klíčová
- Member of the Minister's advisory body on R&D

doc. Ing. Brigita Kolčavová sirková
- Member of the Scientific Committee of the STRUTEX International Conference
- Member of Scientific Committee - International Congress of Sustainability and Technological Developments in Textiles (TESTEG 2023) Turkey
- organizer of the international conference STRUTEX
- Member of the Board of Grant Programmes of TUL

Prof. Dr. Ing. Zdeněk Kůs
- member of the Engineering Association of the Czech Republic
- FT representative in SV CTPT
- Member of the Control Board of the Technology Agency of the Czech Republic

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
- evaluator for the CzechInvest agency

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
- Member of the Textile Industry and Excellence in Textile Engineering, for the CSVT and the World Ing. 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 1222-5347, http://revistaindustriatextila.ro/editorialboard.html
- editorial board member for journal Fiber and Textiles in Eastern Europe, ISSN 2300-7354, http://www.fibtex.lodz.pl/en3,editorial_committee.html
- 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

Ing. Iva Mertová, Ph.D.
- organizer of the international conference STRUTEX

prof. Ing. Bohuslav NECKÁŘ, DrSc.
- president of the international conference STRUTEX

Ing. Jana Ornstová
- Member of The International Federation of Knitting and Warp Knitting Professionals

Ing. Miroslava Pechočiaková, Ph.D.
- main organizer of the AUTEX 2024 conference

Ing. Jana Šašková, Ph.D.
- Member of the Board of the Society of Textile Chemists and Colourists

Ing. Renata Štorová, CSc
- Member of The International Federation of Knitting and Warp Knitting Professionals

Ing. Pavla Těšinová, Ph.D.
- 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
- Member of the International Association of Advanced Materials (IAAM)

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 of 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
- senior member - ICAFPM International Advanced Fiber Materials Society (IAFMS)
- keynote speaker & Co-organizer - MRSS2023, organizer KMI FT TUL
- keynote medal lecture of TBIS 2023 conference, paper: Advanced Fibrous Structures for Enhanced Thermal Insulation (ONLINE)
- keynote speaker - 2023 International Conference on Advanced Fibers and Polymer Materials (ICAFPM), Shanghai, China (ONLINE)
- Organizer of the Design, Light, and Technical Textiles Seminar TUL, CZ & RMUTT, Thailand
- Organizer of Design, Light, and Technical Textiles Seminar TIT&S Bhiwani, Haryana, India (ONLINE)
- invited faculty guest lecture, presentation, and collaboration RMUTT, Thailand
- Invited speaker and collaboration presentation at the 2023 China-Czech Green Textile Science & Technology Forum Wuhan Textile University, Wuhan, China Zhejiang Sci-Tech University, Hangzhou, China

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-President 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.

- 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 2023

The Continent	America	Europe	Asia	Africa
Contracting partners in the EU	-	49	-	-
Contracting partners worldwide	2	17	18	1

Contracting partners in the EU

1. Universiteit Gent, Belgium
2. KU Leuven, Faculty of Engineering Technology, Belgium
3. Technical University of Gabrovo, Gabrovo, Bulgaria
4. Trakia University, Stara Zagora, Bulgaria
5. University of Zagreb, Croatia
6. TTK University of Applied Sciences, Tallinn, Estonia
7. ENSISA, Mulhouse, France
8. ENSAIT, Roubaix,
9. Ecole Natinale d'Ingenieurs de Tarbes, France
10. ESMOD, Paris, France
11. RWTH Aachen University, Aachen, Germany
12. University of Albstadt-Sigmaringen, Germany
13. University of Applied Sciences, Zwickau, Germany
14. University of Applied Sciences, Krefeld, Germany
15. Fachhochschule Bielefeld University of Applied Sciences, Germany
16. Hochschule Hof, Germany
17. Hochschule Reutlingen, Germany
18. Kaiserslautern University of Applied Sciences, Germany
19. University of West Attica, Egaleo, Greece
20. Budapest University of Technology and Economics, Hungary
21. Accademia di Belle Arti e Design Poliarte, Ancona, Italy
22. Kaunas University of Technology, Lithuania
23. Academy of Fine Arts in Warsaw, Poland
24. E. Geppert Academy of Art and Design in Wroclaw, Poland
25. Strzemiński Academy of Fine Arts, Lodz, Poland
26. Lodz University of Technology, Poland
27. Academy of Silesia in Katowice, Poland
28. University of Beira Interior, Covilha, Portugal
29. University of Minho, Braga, Portugal
30. ESAD, Senhora da Hora, Portugal
31. University of Madeira, Funchal, Portugal
32. Gheorthe Asachi Technical University of Iasi, Iasi, Romania
33. Aurel Vlaicu University of Arad, Romania
34. Alexander Dubcek University of Trencin, Slovakia
35. Academy of Fine Arts and Design Bratislava, Slovakia
36. University of Maribor, Slovenia
37. University of Ljublajana, Slovenia
38. Universitat Politècnica de Catalunya, Barcelona, Spain
39. Escola Massana, Barcelona, Spain
40. Universitat Politècnica de València, Alcoi, Spain
41. Barreira A+D, SL, València, Spain

42. EASD Fernando Estévez, Santa Cruz de Tenerife, Spain
43. EASD de Burgos, Spain
44. EASD Val del Omar, Granada, Spain
45. San Thelmo School of Art, Malaga, Spain
46. University of Boras, Sweden

New:

47. Budapest Metropolitan University, Hungary
48. Université de Franche-Comté, Besançon, France
49. Saxion University of Applied Science, Enschede, Netherlands

Contracting partners worldwide

1. Polytechnic University of Tirana, Albania
2. Zhejiang Sci-Tech University (ZSTU), China
3. Textile School, Wuhan Textile University, China
4. National Research Institure, Giza, Egypt
5. Indian Institute of Technology Delhi, India
6. Sardar Vallabhbhai Patel Insitute of Textile Management, Coimbatore, India
7. Anna University, Chennai, India
8. Jaya Engineering College, Chennai, India
9. DKTE Society´s Textile and Engineering Institute, Ichalkaranji, India
10. Kumaraguru College of Technology, Coimbatore, India
11. Department of Textile Technology, MLV Textile Engineering College, Bhilwara, India
12. Faculty of Textile Science and Technology, Shinshu University, Japan
13. Kyoto Institute of Technology, Japan
14. National Textile University, Faisalabad, Pakistan
15. Balochistan University of Information Technology, Engineering and Management Sciences (BUITEMS), Quetta, Pakistan
16. Rajamangala University of Technology, Krungthep (RMUTK), Thailand
17. Rajamangala Universtiy of Technology Thanyaburi (RMUTT), Thailand
18. Faculty of Science, Chulalongkorn University, Thailand
19. National Taipei University of Technology, Taiwan
20. Hacettepe University, Ankara, Turkey
21. Istanbul Aydin University, Turkey
22. Uludag University, Bursa, Turkey
23. Cukurova University, Adana, Turkey
24. Dokuz Eylül University, Izmir, Turkey
25. EGE University, Izmir, Turkey
26. Erciyes Universtiy, Kayseri, Turkey
27. Mimar Sinan Fine Arts University, Istanbul, Turkey
28. Gaziantep University, Sehitkamil/Gaziantep, Turkey
29. Pamukkale University, Denizli, Turkey
30. Istanbul Technical University, Istanbul, Turkey
31. Atilim University, Turkey
32. Bursa Technical University,
33. Suleyman Demirel University, Turkey
34. Birmingham City University, United Kingdom
35. Kyiv National University of Technologies and Design, Ukraine
36. The University of Alabama at Birmingham, USA

New:

37. Wool Research Association (WRA), Thane, Mumbai, India
38. Universidad Nacional de Ingeniería, Lima, Peru

5.3 Scientific conferences and seminars

Organisation of

In 2023 FT TUL organized 3 international seminars:

- Design, Light, and Technical textiles seminar, two-day hybrid seminar, 14-15.2. 2023, KMI FT TUL & RMUTT (Thailand)
- WEBINAR on Technical Textiles, Textile Fibers, one-day webinar, 15.2. 2023, KMI FTTUL & Technological institute Bhiwani (India);
- Training program, one week webinar, 20.3-24.3.2023, KMI FTTUL & KTC - Kumaraguru (India).

Organisation of summer schools and courses

International Summer Schools: (funded by the PPSD)

- Summer School 2D/3D Fabric Construction (continuation of the previous international summer school Fabric patterning - sixth year,www.ft.tul.cz/fabric_patterning (KTT)
- Summer School of Textile Structures - second year, https://www.ft.tul.cz/veda-design/summer-school-of-textile-structures (KTT)

International Course: (funded by the PPSD)

- Course on Finite Element Method in textile Engineering - third year (KTT).

5.4 Mobility

International mobility means arrivals/departures of students/employees. 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 agreements
- 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 Textile Engineering, and also opened in Design with 11 courses, including studio work, and a selection of 13 courses from the remaining Bachelor's courses. 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 subjects 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. The FT has developed a system of counselling for students so that they have information about the recognition of their activities in advance of their choice of departure. Mainly 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 2023
In June 2023, the mobility with Kyoto Institute of Technology, Japan, was completed and all remaining outgoing and incoming mobility of academics was implemented. The inbound mobility with Thailand was also completed on time with the 6.7 month inbound portion of RMUTT students. The numbers of departures and arrivals are shown in the following tables.

CEEPUS
Another mobility programme that was valid in 2023 is CEEPUS, which is a Central European University Exchange Programme focused on 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 was one inbound mobility of an academic for a teaching fellowship in 2023.

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).

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. Jana Drašarová, Ph.D. (2022-2024)
- 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. (2022-2024)

Table 19a: Student outgoing

Provider of financial support	Number of months - request for support	Number of students	Number of months implemented
Erasmus+ KA103	120	32	103,4
Erasmus+ KA107	-	-	-
CEEPUS CIII-SI-0217-00	-	-	-
Other scholarship support, summer schools (SGS, PGS, departments, etc.)	-	9	19,77
Total	-	41	123,17

Table 19b: Student incoming

Provider of financial support	Number of months - request for support	Number of students arrivals	Number of months implemented
Erasmus+ KA103	-	34	146,8
Erasmus+ KA107	-	3	6,7
CEEPUS CIII-SI-0217-00	-	-	-
Freemover mobility (without specific scholarship support)	-	12	39,13
Total	-	49	185,93

Table 19c: Staff outgoing

Provider of financial support	Number of days - request for support	Number of employees	Total number of days
Erasmus+ KA103	85	9	45
Erasmus+ KA107 No.2020	80	2	10
CEEPUS CIII-SI-0217-00	-	-	-
Total	165	11	55

Table 19d: Staff incoming

Provider of financial support	Number of days - request for support	Number of employees	Total number of days
Erasmus+ KA103	-	5	22
Erasmus+ KA107 No. 2020	42	2	10
CEEPUS CIII-SI-0217-00	5	1	5
Total	47	8	37

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

The third role of the university is to connect the academic environment with the outside world. The societal contribution of the TUL FT has an impact across a wide range of companies and institutions with which cooperation is carried out. FT TUL, in line with its mission and vision, focuses on cooperation with textile and clothing manufacturers as well as with entities that apply fibre structures (e.g. healthcare, automotive, hygiene, security segments). The benefits 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 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 FT, expanding cooperation with future employers is a significant benefit.

The Faculty pursues development in the following areas:

- the supra-regional and national nature of cooperation;
- partnerships with regional governments;
- cooperation in the field of education;
- research and development (R&D) cooperation;

and also evaluates

- transfer of knowledge and skills into practice (including contracts concluded, projects implemented, professional training for companies and popularisation events (see chapter 2.4.7)).

Supra-regional and national nature of cooperation

FT TUL provides higher education and engages in creative activities across the entire textile industry as the only one in the Czech Republic. The faculty has a significant influence and impact not only at the regional, but also at the supra-regional and national level. Its collaboration extends beyond the region and influences the wider context of education and research. The Faculty actively cooperates with other educational institutions, industrial partners and public authorities at the national level, contributing to the importance and prestige not only in the field of textile and materials engineering, but also in the wider context of the academic environment in the Czech Republic. This cooperation enables the sharing of know-how, the creation of innovative solutions and supports the development of professional skills and competences of students and faculty staff.

Cooperation with regional governments

The Faculty maintains close cooperation with regional governments, which is essential for strengthening the links between academia and regional development. This cooperation is manifested by active involvement in the development of regional strategies and initiatives (RIS 3 strategy of the Liberec Region), which aim to support the economic, social and cultural development of the area. The faculty is also involved in projects and programme activities aimed at promoting innovation, entrepreneurship and vocational training in the region (e.g. woucher type). In this way, the Faculty not only contributes to the development of the regional

environment, but also creates opportunities for its students and staff to engage in specific projects and activities at the regional level.
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.

Cooperation in education
It is described in detail in chapter 2.4 *Linking educational activities with the third role of the faculty* (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, possibility of excursions, study internships or work experience and the solution of diploma or bachelor theses, where the topics are based directly on companies). In cooperation with Clutex, z.s., the FT TUL also supports and develops cooperation in the field of textile education also at the level of secondary schools and vocational apprenticeships within the framework of active participation in the meetings of working educational regional committees and within the framework of meetings of the management of secondary schools and vocational apprenticeships focused on textile and clothing issues.

Cooperation in R&D
Science and research represents the fundamental pillar of the Faculty's activity. The Faculty cooperates with other research institutions and industrial partners to implement innovative projects and programmes. This collaboration includes a wide range of activities such as joint search for research topics, sharing of research infrastructures and laboratories, consultation and expert advice. The emphasis is on applied research that has a direct impact on practice and applications in manufacturing and industrial settings. The faculty also encourages active involvement of students in research projects and programmes, which contributes to their professional development and preparation for future work challenges. Together with industrial partners, the faculty follows the latest trends in science and technology and strives to be at the forefront of innovation in the field of textile and materials engineering. R&D collaboration focuses on searching for topics of possible cooperation with the aim of obtaining joint projects (see chapter 4.1 *Projects addressed*).

6.1 Transferring knowledge into practice

Intellectual property protection
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 IP and its commercialization. Methodological guidance is provided by the rectorate departments, which, in addition to providing advice, also provide legal services and interpretation of internal standards that regulate this issue. The management of FT TUL actively discussed the commercialisation potential of the know-how created at FT TUL with a representative of the spin-off The University Company TUL.

Contractual framework for cooperation

In 2023, 2 framework agreements, 10 work agreements, 1 project co-management agreement, 4 agreements on the use of project results, one agreement on the use of intellectual property, 4 service agreements, one contract development agreement and several operating agreements were newly concluded.

Additional activities

TUL records the following activities as income from non-public sources (in order of frequency): **contract research**, expert analyses, consultations, testing, royalties and donations for R&D. 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. An indicator of the success of the cooperation with the application sphere is the volume of revenues from complementary activities, which in 2023 totalled CZK 6 509 thousand. The total amount of funds obtained is in line with the development strategy proportional to the size and capacity of the TUL FT. Opportunities are sought on the basis of contacts of individual TUL FT staff in the professional national and international community. The administration of the TUL FT provides consultation and advice (support) for the drafting of contracts and the 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.

Table 20. Transfer of knowledge and research results into practice

	IN THE CZECH REPUBLIC	Abroad	Number TOTAL	TOTAL revenue
Number of new spin-off/start-ups*				
Patent applications filed	1	1	2	
Granted patents	1	1	2	
Registered utility models	10	0	10	
Licence agreements valid as of 31.12.	5	0	5	10 113 Kč
Newly concluded licence agreements	2	0	2	
Contract research, consulting and advisory services	10	0	10	4 492 559 CZK
Paid training courses for employees of application entities	0	0	0	

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 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 and 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. Minutes of all meetings of the colleges were taken. When necessary and to address urgent tasks, the Dean convened operational meetings directly with stakeholders. TUL's legal norms are demonstrably published on TUL's intranet.

7.2 Meeting of the Faculty Scientific Council

The 5th meeting of the VR FT TUL was held on 26 April 2023:

- Strategy VVI+2030 FT TUL
- Changes in the Strategic Plan of Educational and Creative Activities of the Faculty of Arts until 2030
- Accreditation of the Habilitation and Appointment to Professor Procedure in Textiles
- technology and materials engineering
- commencement of habilitation proceedings Ing. Adnan Ahmed Mazari, Ph.D.
- commencement of habilitation proceedings Ing. Veronika Tunáková, Ph.D.
- addition of a member of the Habilitation Committee Ing. Jaromír Marek, Ph.D.
- experts with the right to examine at the SZZ
- various

The 6th meeting of the SC of the TUL was held on 30 November 2023:

- Habilitation proceedings Ing. Veronika Tunáková, Ph.D.
- Plan for the implementation of the Strategic Plan of Educational and Creative Activities of the Faculty of Arts of TUL in 2024
- experts with the right to examine at the SZZ
- Experts with the right to examine for thesis and dissertation defences
- various

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 2023, 8 meetings of the AS FT TUL were held. The topics discussed and the resolutions dealt with by the Senate result from the activities of the Faculty.

AS FT TUL approved:

- FT investment proposal for 2023
- TUL FT budget for 2023
- Annual Report on the Activities of the Faculty of Arts of TUL for 2022
- Candidate for the Council of Ministers
- FT Annual Report 2022
- Changes in the Strategic Plan of Educational and Creative Activities of the Faculty of Arts of TUL until 2030
- Strategy VVI+2030 FT TUL
- Conditions of the FT TUL admission procedure for the academic year 2024/2025.

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.

The joint meeting of the doctoral study programmes Textile Engineering P3106, P0723D270002, P0723D270003 and Industrial Engineering P0723D270001 was held on 17 October 2023.

The branch councils consistently dealt with the status of the doctoral study programme, an overview of supervisors and experts with the right to examine at the PhD and dissertation defences, the conditions and organisation of doctoral studies, the admission procedure, and proposals for dissertation defence committees 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 2023 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 2023.

Educational activities
As of 31 December 2023, 573 students (414 BSP, 116 NMSP, 43 DSP) were studying at TUL. 269 applicants entered the first year. In 2023 (in the period from 1 January to 31 December) a total of 104 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. 11 projects of external providers were implemented, 22 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 by 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 2023, 115 employees worked at the TUL Faculty of Science, 79 of whom were academic staff, including staff for science and research. There were 7 professors, 14 associate professors, 30 assistant professors, 4 assistant professors and 17 lecturers. 5 academic staff with foreign citizenship worked at TUL FT in the year (number of natural persons)

Internationalisation
FT TUL has been actively developing a number of international relations for a long time and has an excellent prestige.

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 2023 it developed aspects of cooperation with companies and regional governments.

In Liberec on 7. 6. 2024

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