SLOVAK UNIVERSITY OF TECHNOLOGY IN BRATISLAVA
Faculty of Materials Science and Technology in Trnava

STU MTF
Long-term objective in education, research and development, and other creative activities for 2025-2031

INTRODUCTION

The submitted material *Slovak University of Technology in Bratislava, Faculty of Materials Science and Technology in Trnava – Long-term Objective in Education, Research and Development, and Other Creative Activities* (hereinafter only as STU MTF Long-term Objective) for years 2025-2031 is an essential strategic document on the Faculty development. It is elaborated in compliance with Art. 3, Par. 4 and 5 of the STU MTF Statute and links up to the STU MTF Long-term Objective in education, scientific research and development, artistic and other creative activities for 2025-2031.

VISION

STU MTF, in compliance with the STU vision, aims at being a research-oriented Faculty recognized nationally and internationally as well as accepted by the industry. The Faculty also aims at the provision of advanced and internationally competitive education based on scientific research results. With its advanced research and innovations in the field of Materials Science, Production Technologies, Informatization, Automation and Robotization, Safety and Environmental Engineering, Industrial Engineering and Management, the Faculty purports to be a full-featured part of an international research and innovation ecosystem with a positive impact on the society and industrial practice sustainable development. The Faculty aims to be a leader among the institutions preparing their graduates for successful professional and personal life in line with the needs of the society, develop knowledge, skills, wisdom, creativity, critical thinking, and the good of a human.

STU MTF MISSION

STU MTF mission is to contribute to the development of knowledge and scientific research in its specific field and thus aid to the knowledge-based society. In compliance with STU Mission, the Faculty purports to meet this mission particularly by:

- provision of accredited education in all three stages of university study with the perspective of constant innovation of existing and prepared study programmes reflecting thus the current and future needs of social practice,
- integration into the university system of life-long learning via flexible short-term educational forms,
- spread, deepening and development of knowledge by the tools of research and open science aimed at active contribution to flourishing and sustainable future,
- ensuring the transfer of research and development results into the educational process and industrial practice while protecting the copyright,
- contribution to the society development via its all activities, and specifically by the development of the student harmonic personality.

VALUES

MTF STU recognizes and within its mission purports in all activities: **academic freedom, social responsibility, wisdom, sustainability, personality development, academic integrity and ethics, inclusiveness and equality of opportunity, innovativeness, openness, and cooperation**.

STRATEGIC AREAS

MTF STU Long-term Objective specifies the main aims of the Faculty development in the following strategic areas: **1. Education. 2. Science, research and innovations. 3. Cooperation with practice. 4. STU MTF community development. 5. Effective administration and resources.**

Strategic area 1:
EDUCATION

Vision

To encourage and support the young generation in developing scientific thinking and innovative skills towards a sustainable, knowledge-driven future through accredited study programs reflecting current and future trends in the field of STEM (Science, Technology, Engineering, Mathematics).

Strategic aims

1.1 Provide quality education in attractive study programmes important for society development.
1.2 Ensure the increase of education effectivity.
1.3 Strengthen the international parameters and internationalisation of education.
1.4 Build s system of modern, flexible short-term educational programmes within life-long learning for adults.
1.5 Modernize and develop the educational infrastructure effectively.

Key measures

1.1 Provide quality education in attractive study programmes important for society development

1.1.1 Innovate study programmes according to the job market needs and new trends (artificial intelligence, digitalization, and sustainability) and support innovative practice-oriented forms of education.
1.1.2 Support systematic integration of theoretical education and practical experience in industrial practice.
1.1.3 Provide professionally oriented bachelor study programmes.
1.1.4 Make the evaluation system of teaching by students more efficient to constantly increase the quality of education.

1.2 Ensure the increase of education effectivity

1.2.1 Set up an effective system of admission procedure to the study, oriented on the quality of applicants.
1.2.2 Develop pedagogical competences of teachers with the emphasis on modern teaching methods.
1.2.3 Support projects of mutual student support (*Student teaches student*, etc.).
1.2.4 Develop the system of advisory support for students (for 1st years students in particular) with the aim on adaptation, and study, personal and career challenges.
1.2.5 Identify the students needing additional support in time and integrate them into targeted support programmes.

1.3 Strengthen the international parameters and internationalisation of education

1.3.1 Offer new study programmes in English in all three stages of study.
1.3.2 Increase the number of students integrated in mobility programmes.
1.3.3 Widen and increase the network quality of partner university and institutions (via common study programmes – double degree, cotutelle, etc.).
1.3.4 Build complex support for foreign and domestic students (community, buddies, administration assistance).

1.4 Build s system of modern, flexible short-term educational programmes within life-long learning for adults

1.4.1 Prepare a framework for accreditation and recognition of micro-credits in compliance with the STU internal system of quality.

1.4.2 Promote micro-credits as a form of flexible lifelong learning and qualifications increase for graduates or public.

1.5 Modernize and develop the educational infrastructure effectively

1.5.1 Innovate the equipment of teaching rooms (audio-visual technology, hybrid teaching rooms, etc.).

1.5.2 Utilise the capacity of teaching rooms effectively.

1.5.3 Systematically modernize the laboratories and IT infrastructure in line with current teaching needs.

1.5.4 Provide modern library and information services and ensure availability of current study resources.

Measurable indicators for achieving the key measures

Unemployment of graduates

Graduates of Master study, full-time form.

Initial status by 2024: **7 %**

Final status by 2031: **5 %**

Number of accredited professionally oriented bachelor study programmes

Initial status by 2024: **0**

Final status by 2031: **1**

Share of students integrated in the evaluation of subjects

Initial status by 2024: **12,5 %**

Final status by 2031: **30 %**

Dropout rate

Share of students in full-time form of study who ceased their study after 1st year from all enrolled students in full-time form of study.

Initial status by 2024: **19.84 %**

Final status by 2031: **16 %**

Success Rate

Share of students in full-time form of study who accomplished their study in standard length of study from all enrolled students in the full-time study in relevant cohort.

Initial status by 2024: **52.96 %**

Final status by 2031: **60 %**

Openness of study

Increase the openness of study (share of study programmes graduates in full-time form of study of other university enrolled to the full-time study of STU MTF study programmes) in average on 2nd and 3rd stage of study until the end of 2031 by 5%.

Number of accredited study programmes in English

Initial status by 2024: **6**
Final status by 2031: **8**

Number of students leaving for mobility in a year (Erasmus +; CEEPUS; NŠP)

Initial status by 2024: **22**
Final status by 2031: **40**

Number of prepared short-term educational programmes for adults (micro-credits)

Initial status by 2024: **0**
Final status by 2031: **10**

Strategic area 2:
SCIENCE, RESEARCH AND CREATIVE ACTIVITY

Vision

To support high-quality and excellent research based on the integration of scientific and research capacities and broad domestic and international cooperation. To produce internationally relevant research and development results in the long term and to effectively transfer them into practice and educational activities.

Strategic aims

2.1 Develop research environment systematically.
2.2 Ensure sustainable financing of research, development and innovation.
2.3 Increase the quality of research and development outcomes and their social impact.
2.4 Strengthen the international parameter of research and development activities.

Key measures

2.1 Develop research environment systematically

2.1.1 Prepare the environment for effective utilisation of existing research capacities.
2.1.2 Support the origin of interdisciplinary research teams with all relevant Faculty workplaces with connection to other national and international research subjects and industrial practice.
2.1.3 Intensify the research competencies development of PhD students and their stabilisation at the Faculty by preparing postdoc positions.
2.1.4 Support the integration of students in master study in the solution of the research and development tasks with the aim to search for new talents.
2.1.5 Prepare conditions for more sustainable and more attractive career in the field of research and development in compliance with HR strategy for researchers (HRS4R).
2.1.6 Constantly strengthen the awareness of research integrity and ethics as well as the availability of research results also to lay public.

2.2 Ensure sustainable financing of research, development and innovation

2.2.1 Increase the participation and success in winning research projects from national and international agencies with focus to obtain the position of principal investigator.
2.2.2 Increase the share of applied research with financial partnership of industrial partners.
2.2.3 Develop the system of coordination and strong administration support in submission and implementation of research projects.
2.2.4 Prepare funds for research infrastructure operation and maintenance.

2.3 Increase the quality of research and development outcomes and their social impact

2.3.1 Support the origin of scientific outcomes with significant scientific and social impact (methodology VER – Verification of Excellence in Research*)* in crucial research areas.
2.3.2 Support publication of research and development results by renowned scientific journals and publishing houses. Prefer publishing in open access journals respected by wide scientific community.
2.3.3 Strengthen effective transfer of research and development results into practice, support the protection of quality technological solutions by patents, industrial designs, and licences.
2.3.4 Support research and development activities with high potential to achieve breakthrough knowledge on the level of discoveries or inventions.

2.4 Strengthen the international parameter of research and development activities

2.4.1 Build attractive research environment able to attract experienced researchers as well as beginners in research from abroad.

2.4.2 Increase the number of study, lecture, and research stays of creative employees and PhD. students at renowned foreign research workplaces.

2.4.3 Build and strengthen strategic partnerships with foreign universities, research plants via common projects, sharing research infrastructure and building of international research teams.

Measurable indicators for achieving the key measures

Financing of research activities by national grant agencies

Volume of finances acquired for research projects from national grant agencies, calculated per one creative Faculty employee.

Initial status by 2024: **4,768 €**

Final status by 2031: **5,500 €**

Financing of research activities by foreign research agencies

Volume of finances acquired for research projects from foreign research agencies, calculated per one creative Faculty employee.

Initial status by 2024: **2,272 €**

Final status by 2031: **4,000 €**

Excellent publication outcomes

Number of publications indexed in WoS database in Q1 and Q2 according to AIS metrics (Article Influence Score), calculated per one creative Faculty employee.

Initial status by 2024: **Q1 – 0.29 / Q2 – 0.22**

Final status by 2031: **Q1 – 0.35 / Q2 – 0.26**

Scientific monographs according to Nordic List

Number of scientific monographs published by renowned publishing houses (Nordic List) for period 2025-2031: **10**

Patents, industrial designs and licences provided

Total number of granted patents, industrial designs, and licences provided.

Number for period 2025- 2031: **70**

Citations to research and development activities

Total number of citations in publications in WoS and Scopus databases.

Initial status by 2024: **2,719**

Final status by 2031: **4, 000**

Strategic area 3:
COOPERATION WITH PRACTICE

Vision

To strengthen the position of a strategic partner for industrial entities, public and state organizations in the field of research, development, innovation and technology transfer. To connect the potential of the Faculty with the needs of practice through partnerships, research projects, development of prototypes and technological solutions.

Strategic aims

3.1 Increase the impact of research and other creative activities on society and economic practice.
3.2 Increase the intensity and quality of participation of practice in education.
3.3 Increase the share of applied research – target research activities to practical results applicable in industrial practice and support outcomes commercialisation.
3.4 Strengthen the partnerships with industrial subjects – prepare the system of long-term strategic cooperation with companies in Faculty key research areas.
3.5 Increase Faculty´s visibility and reputation in industrial environment – present systematically the cooperation results, successful projects, and contribution of the Faculty for economic practice.

Key measures

3.1 Increase the impact of research and other creative activities on society and economic practice

3.1.1 Organize common research teams with industrial partners.
3.1.2 Support interdisciplinary projects with applicable potential.
3.1.3 Cooperate intensively with the University Knowledge Transfer Office.

3.2 Increase the intensity and quality of participation of practice in education

3.2.1 Implement systematic participation of experts from practice in teaching.
3.2.2 Develop expert stays of students and employees in practice partner companies.
3.2.3 Cooperate with industrial partners on the preparation and upgrade of study programmes.
3.2.4 Organize common workshops and student competitions with industrial partners.

3.3 Increase the share of applied research

3.3.1 Design internal stimuli and financial mechanisms for applied research.
3.3.2 Strengthen cooperation with technological centres and clusters.
3.3.3 Make the process of copyright protection and results commercialization more effective.

3.4 Strengthen the partnerships with industrial subjects

3.4.1 Identify new key partners and design strategic cooperation frameworks.
3.4.2 Organize thematic fora, technological days and networking events.
3.4.3 Intensify the elaboration of common grant projects, dissertation theses´ topics, and research assignments with industrial partners.

3.5 Increase Faculty´s visibility and reputation in industrial environment

3.5.1 Optimize communication strategy for promoting Faculty´s success in media and online environment.
3.5.2 Participate in expert fairs, conferences, and exhibitions to promote the Faculty.
3.5.3 Build the Faculty brand as a credible and innovative partner for industry.

Measurable indicators for achieving the key measures

Cooperation with non-academic external subjects
Annual number of orders and contracts from entrepreneurial activities.
Initial status by 2024: **218**
Final status by 2031: **230**

Share of sum of finances from entrepreneurial activities with scientific features to the total sum of finances from entrepreneurial activities
Total share in per cent.
Initial status by 2024: **90 %**
Final status by 2031: **95 %**

Participation of experts from practice in teaching
Total number of taught teaching units.
Initial status by 2024: **323**
Final status by 2031: **400**

Share of theses solved in the environment of industrial practice
Initial status by 2024: **45 %**
Final status by 2031: **50 %**

Strategic area 4:
STU MTF community development

Vision

To create an attractive, **safe and supportive** environment for talented and committed people who are interested in being part of a cohesive, collaborative, **mutually respectful** community.

Strategic aims

4.1 Ensure high quality and motivated human resources in the structure relevant to the Faculty´s objectives, which are able to meet strategic aims in key areas of the Faculty activities.

4.2 Allow of systematic long-term personality and professional development of Faculty employees, on young employees in particular.

4.3 Prepare the environment to allow for the compact community of STU MTF students, employees, graduates and followers based on the equality of opportunity, psychological safety, cooperation, trust, mutual respect and sound interpersonal relations.

Key measures

4.1 Ensure high quality and motivated human resources in the structure relevant to the Faculty´s objectives, which are able to meet strategic aims in key areas of the Faculty activities

4.1.1 Build the working environment with positive organization culture attractive for current and future STU MTF employees.

4.1.2 Apply flexible forms of employment balanced with Faculty professional career and personal life.

4.1.3 Spread the application of employees´ evaluation to all Faculty workplaces with connection to transparent and just remuneration based on the achieved results evaluation.

4.2 Allow of systematic long-term personality and professional development of Faculty employees, on young employees in particular

4.2.1 Support actively the education and qualifications improvement of employees.

4.2.2 Prepare conditions for continual improvement of pedagogical, digital, and transferrable competencies of Faculty employees.

4.2.3 Increase the number of teachers with the degree Associate Professor up to the age of 45 and number of teachers with the degree Professor up to the age of 50 years as well as the number of young researchers.

4.2.4 Recruit actively young talents and support their career development.

4.2.5 Develop the process of on-boarding and mentoring of new employees.

4.2.6 Support foreign mobility of creative employees.

4.2.7 Support competencies development of administrative, technical, and economic employees.

4.3 Prepare the environment to allow for the compact community of STU MTF students, employees, graduates and followers based on the equality of opportunity, psychological safety, cooperation, trust, mutual respect and sound interpersonal relations.

4.3.1 Build open co-working centres for regular meetings and wide cooperation of community members.

4.3.2 Prepare conditions for information sharing among different groups of employees.

4.3.3 Support practice of mutual help and community members support.

4.3.4 Improve contact with STU MTF graduates and join them to the Faculty life.

Measurable indicators for achieving the key measures

System of employee evaluation applied in all STU MTF workplaces

Upgraded system of Faculty employees' motivation

Number of successfully accomplished inauguration procedures by Faculty employees: 6 until end of 2031

Number of successfully accomplished habilitation procedures by Faculty employees: 15 until end of 2031

Number of accepted creative employees with PhD. degree up to the age of 35 years: 20 until end of 2031

Number of employees who obtained scientific qualification degree: 10 until end of 2031

Number of employees with the degree Associated Professor up to the age of 45 years:
Initial status by 2024: **3**
Final status by 2031: **9**

Number of employees with the degree Professor up to the age of 50 years:
Initial status by 2024: **3**
Final status by 2031: **6**

Elaborated and applied adaptation process and the system mentoring of new employees

Number of sent creative employees to foreign mobility in given year
Initial status by 2024: **49**
Final status by 2031: **60**

Number of co-working premises at the Faculty: 5 until end of 2031

Strategic area 5:
Effective administration and resources

Vision

Digitalized, efficiently set up and user-friendly processes of Faculty activities, especially support of education and research. Sophisticated infrastructure enabling the fulfilment of the Faculty's strategic goals. Sustainable financing of Faculty operations and development.

Strategic aims

5.1 Increase the quality and effectivity of Faculty internal processes.
5.2 Decrease administrative load of Faculty creative employees.
5.3 Develop infrastructure to achieve Faculty´s objectives and ensure its sustainability.
5.4 Increase Faculty's economic effectivity without negative impact on the quality of its main and supportive activities.

Key measures

5.1 Increase the quality and effectivity of Faculty internal processes

5.1.1 Implement cyclic quality and effectivity analysis of Faculty internal processes and apply corrective measures on the basis of its evaluation.

5.2 Decrease administrative load of Faculty creative employees

5.2.1 Prepare lean internal processes and services and gradually optimize and digitize them with the aim to lower time and cognitive load of creative employees.

5.3 Develop infrastructure to achieve Faculty´s objectives and ensure its sustainability

5.3.1 Continue in investing in the reconstruction and modernization of campus premises in order to make it fully internationally competitive as well as prepare it as a positive and stimulating environment for students, employees and cooperating organizations.
5.3.2 Debarrierize the environment (dismantle physical, technical and information barriers) supporting inclusiveness.
5.3.3 Increase the level of physical safety of the environment for Faculty employees, students and partners.

5.4 Increase economic effectivity of Faculty main and supportive activities

5.4.1 Continue with the diversification of financing resources, increase the share of means beyond dotation to ensure the Faculty operation and development.
5.4.2 Increase the energetic effectivity of the campus operation.

Measurable indicators for achieving the key measures

Share of other than dotation resources in the income of the Faculty budget estimate

Initial status by 2024: **19.63 %**
Final status by 2031: **25 %**

Financing the research and pedagogic infrastructure

Volume of finances used for the research and pedagogic infrastructure development in 2025-2031:
Final status by 2031: **7 m € at minimum**

Scope of investments into STU MTF campus premises reconstruction and modernization:
Final status by 2031: **3 m € at minimum**

Scope of investments into the increase of physical safety level in STU MTF premises:
Final status by 2031: **700, 000, - € at minimum**