

## **The TTK University of Applied Sciences Strategic Plan 2016-2020**

The Strategic Plan of the TTK University of Applied Sciences is approved by clause 2 §15 of the Statutes of the TTK University of Applied Sciences, coordinated with the Ministry of Education and Research, No. 1-9/152-2 of 9 February 2016.

### **Introduction**

The objective of the TTK University of Applied Sciences (hereinafter: TTK UAS or university) is to provide internationally recognized higher education in applied sciences based on the development of science and technology and offer public services based on study, applied science and other creative activity.

The activity of TTK UAS shall be regulated by the Institutions of Professional Higher Education Act, Higher Education Standard, the Statutes of the TTK University of Applied Sciences, and the Strategic Plan 2016–2020 of the TTK University of Applied Sciences.

The Strategic Plan derives from the objectives of the Estonian Lifelong Learning Strategy 2020, the Knowledge-based Estonia 2014–2020, and the competition capacity plan of the National Reform Programme Estonia 2020.

Key objectives of the previous Development Plan 2011–2015 of the TTK UAS University of Applied Sciences centered on updating of curricula, staff development, cooperation with enterprises, including creation of enterprise-based research and development capacity, and successful performance of institutional accreditation. TTK UAS personnel is qualified and the university's study infrastructure has been modernized to provide for higher education level engineering study, lifelong learning and applied research. To update its core activities, TTK UAS pursues cooperation with specialized area and professional associations and takes into account stakeholders' feedback in further improvement activities.

Key objectives for the new strategic plan 2016–2020 are targeted to the growth of competition capacity and higher efficiency of the university performance, implementing basic principles of Lean Higher Education<sup>1</sup> (hereinafter: LEAN).

**Mission:** TTK UAS is a driver of advancement in Estonian society and engineering in the broad areas of professional higher education and knowledge transfer.

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<sup>1</sup> Lean education or lean organisation of a higher education institution is a set of concepts and methods that enables service provision for lifelong learning and applied research at minimum expense of resources, at the same time, maximising the value offered to the stakeholders. Lean approach is targeted to removal of wasting in an organisation, continuous improvement and valuation of people in an organisation.

**Vision:** TTK UAS is a recognized and innovative professional higher education institution, valued by stakeholders.

**Core values:**

innovativeness – creativity, openness, flexibility;  
entrepreneurship – initiative, determination, implementation;  
effectiveness – economy, efficiency, accountability.

**Strategic goals**

The main objective is to ensure the competitive capacity of the graduates of the level study and continuing education on the labour market. TTK UAS takes into account demands of the labour environment, student profile and cooperates with enterprises, higher educational and other educational institutions. The structure and staff policies of the university shall promote integration of study and applied research and support cross-area performance and innovation.

- Competition capacity and capacity to service the society have grown, TTK UAS governance has been improved by the implementation of the LEAN performance model that provides an integral solution for the members, resources, study and work environment, and core processes.
- Applied research and development projects have increased in volume and quality, higher performance capacity of applied research relies on cooperation with enterprises and institutions.
- The proportion of TTK UAS graduates in the first cycle of higher education constitutes at least 5%, amounting to at least 10% of professional higher education graduates.  
Target indicators: annual admission at least 600 students; graduate output at least 340 by 2020.
- TTK UAS has analyzed and implemented structural changes resulting from the internal and external environment, and the university has achieved the target indicator level, including reductions in the proportion of level study dropouts from the basic level (2015) each year at least by 1 percentage point.  
Target indicator: dropout rate by 2020 – 17.0%.
- The success factor of the university shall be motivated members, modern study and work environment, study organization taking into account feedback from stakeholders and enterprise-oriented and study supportive research, development and creative activities. TTK UAS values activities targeted to efficiency, innovation and development on each level.

**TTK UAS directions of activity area development**

**1. Study activity**

*General aim: The graduate rate and learning outcomes of the level and continuing education are in compliance with the expectations of the work environment and the organization of the study process conforms to the expectations and demands of stakeholders. The study environment and study process have been updated and designed in accordance with the student profile.*

- *Target indicator: employment and continuing education rate 95%.*

The main outcome and builders of reputation are the university's graduates. Study process advancement derives from systematic and balanced student admission, study process and curriculum development as well as from updating of the study infrastructure and staff development. Study development activity shall be student-centered, based on the accountability of a teacher and a

student; along with factual knowledge, comprehension and interpretation of phenomena, analysis and synthesis abilities, team work skills and entrepreneurial knowledge are promoted. Compliance of learning outcomes of graduates with expectations of the labour market shall be subject of analysis with employer representatives.

1.1. Continuous updating and appropriate enhancing of the study environment (study environment comprises the teaching staff, their competence and teaching approaches, study materials, study and teaching materials, curricula and learning outcomes). Support of innovative (digi) study environment, including development of e-support, wider application of simulation software and hardware.

1.2. Development of curricula in accordance with the qualification framework and qualification standards in Estonia and if required, implementation of new curricula, side specializations according to recommendations from employers.

1.3. Flexible organization of the study process, in compliance with the students' prior educational experience (vocational study, high school, higher education graduates, students with work experience etc.).

1.4. Student counselling, including tutoring, improvement of career and practice/internship counselling in cooperation with the Student Council.

1.5. To reduce student dropouts, a unit of student support services accountable for analysis and counselling shall be set up mainly for first and second year students (clear definition of interest groups and choice of demand-based counselling methods).

1.6. Enhancing student and teacher mobility, increasing the share of disciplines taught in English, broadening of modules. These activities relate to the objectives of internationalization and along with enterprise approaches changing, to filling work and internship places with international students.

1.7. Flexibility in the study process shall account for student profile and changes in the learning approaches, regarding to the principles of lifelong learning and demands of the labour market. Focus is on interdisciplinary learning outcomes and promoting talented students' opportunities for intensive study.

1.8. To consolidate teaching of entrepreneurial and economics disciplines, circulation economics, a study centre for entrepreneurial disciplines shall be set up. The target is to increase the role of economy-based functional knowledge and skills along with declarative knowledge.

1.9. Diversification of the study process is attained by applying problem learning, among other forms, reflective blended study, emphasizing its value. Traditional learning shall be complimented by experience of do-it-yourself, such as product and service development and preparation (so-called idea products, prototypes, student conferences etc.).

1.10. Teaching staff development in the areas of modern methods and engineering pedagogy is promoted.

1.11. Better connectivity of study to applied research, involvement of students in product and service innovation and applied research.

1.12. Study materials shall be prepared to comply with growing demands of students for online study materials and aids. Crowd creation of study materials is supported.

1.13. Transfer to a hybrid library<sup>2</sup> shall be implemented.

## **2. Research, development and creative activities, cooperation with enterprises**

*General objective: In the framework of research, development and creative activities (RDC), applied research and participation in the development projects and creative activities have been pursued. TTK UAS has, in cooperation with enterprises and other institutions of higher education, raised the volume and quality of applied research and development projects.*

- *Target indicators: ensure the proportion of turnover from economic activity at 11% by 2020; number of operating spin-off companies at least 2.*

Growth of research, development and creative activity capacity relies on the TTK UAS study infrastructure and development of RDC capabilities. Research activity targeted to applied research shall be either individual or based on cooperation with other institutions. RDC service provision shall be mainly focused on the demands of small- and medium-sized enterprises.

2.1. In the RDC broader area, main challenges are enterprise-based studies that promote constructive TTK UAS-enterprise connectivity (identification of innovation required).

2.2. Cooperation between enterprises and other institutions of higher education is operated, including study-related product development projects, and creation of spin-off companies is supported.

2.3. RDC activities are financed from international and national programmes and projects and subscriber (enterprise, institution) resources. RDC support services are also funded from the TTK UAS activity support. To enhance RDC capacity, the technology transfer centre and academic structural units will be reinforced/reorganized for their infrastructure, staff and administration, among other sources making use of support programmes.

2.4. To enhance competitive capacity, laboratories are being modernized (accredited, if required) and updating of RDC support services is ensured.

2.5. To improve cooperation with enterprises, broader functionality of the technology transfer centre will be analyzed to create an attractive environment for knowledge-based services (e.g., TTK UAS business centre, workshops, spin off rooms etc.).

2.6. Curricula group based seminars with business people are arranged on a regular basis.

2.7. To promote commercialization of knowledge-based services, establishment of TTK UAS development share will be considered, the main aim being to foster cooperation between TTK UAS and enterprises by way of intensive marketing activity.

2.8. TTK UAS supports student participation in applied research, product development projects between different universities, at the competitions of research, development and creative activity.

## **3. TTK UAS management and communication**

*General objective: Management is effective and performance based, adaptable to changes in the internal and external environment. Management decisions derive from directions of higher education developments and the university's strategic goals and values. To promote TTK UAS strategic capacity and resource allocations, LEAN principles are implemented.*

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<sup>2</sup> Hybrid library – both published matter and online resources are available.

- *Target indicators: management structure and processes have been improved in accordance with the LEAN principles and recommendations of the institutional accreditation report; proportion of graduates in the graduates of the first cycle higher education at least 5%; proportion of visiting professors in regular teaching staff - 10–20%; student number per one teaching staff position at least 20.*

TTK UAS management is directed to the integration of study activity, research, development and creative activity, administrative, financial and personnel management in its entirety. A common entity in the management areas is constituted by the values, planning, feedback and performance analysis, processes, personnel, stakeholders, and communication.

- 3.1. Monitoring and analysis of TTK UAS key activities are operated under an updated quality management system that involves organization of feedback from stakeholders (incl. students), validity of analysis results and processes and activity improvements.
- 3.2. LEAN education principles are implemented in the innovation of TTK UAS development and processes that concentrate on the analysis of necessity, efficiency, effectiveness of process sub-activities and relevant improvement activities. Improvement planning derives primarily from balanced purposes that take into account activities, activity environment, timing and availability of resources and expectations, and satisfaction of stakeholders.
- 3.3. TTK UAS as an organization shall be evolved/upgraded as an open system where input, processes, outcomes and feedback create an activity framework. An important success factor is membership motivation, development of teaching skills as well as upgrading of the study environment are of equal significance.
- 3.4. TTK UAS contributes to promotion and marketing targeted to stakeholders and fosters electronic marketing channels.
- 3.5. For sustainable development of TTK UAS modern study infrastructure, opportunities for joint use by enterprises and other higher education institutions are analyzed.
- 3.6. To promote access and distribution of management information, Business Intelligence environment will be implemented, which derives from national trends for consolidating information services and facilitates integration of information flows in the organization.
- 3.7. Continuous support is provided to the activities of the Student Council, sports and hobby/interest activities and to other informal forms of study.
- 3.8. To operate management decisions, TTK UAS quality management system is being refined, with its main function targeted to acquisition of stakeholder feedback and regarding performance indicators, ensuring validity of analysis results and analysis and implementation of recommendations for improvements.
- 3.9. Participation in national and international cooperation networks, professional associations, bodies for cooperation, professional councils is promoted. The aim is to develop and set forth directions of professional higher education and broader specialized areas.

### ***Personnel management***

*General objective: TTK UAS personnel is motivated, adaptable to changing requirements and opportunities of stakeholders.*

- 3.10. An optimal size and required qualification level of personnel is ensured and TTK UAS career models will be developed.

- 3.11. Staff upgrading of skills and knowledge is acknowledged, including teaching staff development of higher education didactics and internship in enterprises, systematic mentoring of novel teaching staff.
- 3.12. Improvements will be made into the performance evaluation system of academic staff.
- 3.13. Developments in the TTK UAS competitive wages system follow primarily minimum wages rates established for the university's staff posts and the wages agreement (wages agreed on at the negotiations) and warranties and indemnities.
- 3.14. TTK UAS work organization considers changes in the students' profile and their grounded demands and focuses on main activity performance, therein enabling different work forms and flexible use of working hours.

### ***Financial management***

*General objective: Management of TTK UAS financial resources and financial services and evaluation of possible influence of university and structural unit level decisions on the university's monetary financial creation. The university derives from value-based financial management aiming at practicable use of resources.*

- 3.15. Management decision-making is guided by the university's core values, financial effect of decisions and financial risk management.
- 3.16. Financial management and budgeting derives from the internal performance-based financing model.
- 3.17. Financial resource planning is based on the principle of balanced distribution of resources: study and development work, upgrading of study and work environment, property management and sports and recreational activities for higher work capacity.
- 3.18. Participation in the support and other programmes of structural funds is operated, self-financing is planned and exiting activities and expenses are taken into account.

### ***Infrastructure development***

*General objective: The infrastructure of TTK UAS is in compliance with modern study methods and student profile and supports competitiveness of the university's main activities. Infrastructure management takes into account usability of rooms for disabled individuals, energy efficiency of buildings and their reasonable use.*

- 3.19. To expand opportunities for business cooperation and continuous education and cooperation with the university's external stakeholders, the laboratory building will be reconstructed.
- 3.20. The main building will be renovated, taking into account a renewed interior architectural concept.
- 3.21. Access to study buildings and room usability by disabled individuals is ensured.
- 3.22. LEAN administration model will be fostered, including development and implementation of automation and smart solutions targeted to energy efficiency and saving, which creates facilities for local production of renewable energy.
- 3.23. Principal concepts of informal environmental management systems are applied in member activities.
- 3.24. Further trends and internal regulations of information and communication technology will be developed.

3.25. New solutions of information and communication technology are applied, including increased use of cloud services, upgrading of security and storage solutions.

3.26. Information systems supporting the university's core processes and their connectivity, including the study information system, timetables and other applications, are upgraded.

#### **Implementation and amendments to the Strategic Plan**

- The TTK UAS Strategic Plan is prepared for five years; amendments thereof are adopted in accordance with the Statutes of the TTK University of Applied Sciences.
- Action plans for a calendar year of the university and its structural units derive from the TTK UAS Strategic Plan. An action plan contains a list of activities and resources required to achieve the strategic and operative objectives and performance indicators used for their evaluation.
- The action plan of TTK UAS for a calendar year is coordinated by the TTK UAS Council, approved by the Rector. Fulfilment of the action plan shall be evaluated by the TTK UAS Council based on the TTK UAS report for a calendar year by 31 March at the latest.
- Fulfilment of the objectives stated in the TTK UAS Strategic Plan shall be reviewed on the basis of the action plan.

Enno Lend  
Rector

## Appendix. TTK UAS SWOT analysis

<p style="text-align: center;"><u>Internal factors</u></p>	<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>· Curricula operative within an unspecified term of the right for instruction.</li> <li>· Continuous upgrading of curricula and connectivity with work life is ensured.</li> <li>· Faculties offer study organization specialist support.</li> <li>· Study infrastructure and laboratory equipment have been modernized.</li> <li>· Theoretical and practical disciplines are reasonably balanced.</li> <li>· Lifelong learning opportunities, diversity of study forms and methods have been ensured.</li> <li>· Qualified academic staff and acting performance evaluation system are available.</li> <li>· Graduate employment rate is high.</li> <li>· National cooperation with enterprises is successful.</li> <li>· Infrastructure supports performance of RDC activities.</li> <li>· RDC focus areas have been defined.</li> <li>· Optimal management structure and process performance are operating.</li> <li>· Five years Strategic Plan and activity plans are available.</li> <li>· Sustainable budget policy and a competitive and flexible wage system are available.</li> <li>· Member motivation system exists.</li> <li>· Feedback from external and internal stakeholders is systematic and updated.</li> <li>· Infrastructure has been upgraded and study laboratory development is adjusted to work market demands.</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>· Modern study methods in use are unequally distributed, incl. student independent work and application of active study methods is unsatisfactory.</li> <li>· Distribution of student independent work and study load by term and week is imbalanced.</li> <li>· Study activity has weak connectivity with RDC activity.</li> <li>· Collaboration between academic structural units is inadequate.</li> <li>· Student tutoring and mentoring are insufficient.</li> <li>· Student dropout rate is high.</li> <li>· Level of study internationalization is inadequate.</li> <li>· Distribution of RDC work between academic staff is unequal.</li> <li>· Use of laboratory resources is inadequate.</li> <li>· Low preparedness to conduct RDC work.</li> <li>· Academic structural units are of different sizes and capacity.</li> <li>· Areas of responsibility of units of academic and support structure are not adequately defined.</li> <li>· Documenting and management of information is uneven.</li> <li>· Informal forms of information exchange have been implemented inadequately.</li> <li>· Results from feedback have been insufficiently implemented.</li> <li>· Interior plan of room placement is unsupportive to</li> </ul>
<p style="text-align: center;"><u>External factors</u></p>		

	<ul style="list-style-type: none"> <li>· Study buildings are concentrated on a good location.</li> <li>· Vision and strategy of infrastructure development are available.</li> </ul>	flexible study methods. <ul style="list-style-type: none"> <li>· Access to rooms in study buildings by disabled individuals is limited.</li> <li>· Access to parking and number of parking places is limited.</li> <li>· Level and access to IT-services is uneven.</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>· EU cooperation programmes (e.g. ASTRA).</li> <li>· National strategies targeted to development of higher education and economy.</li> <li>· Demand of society for specialists in engineering areas.</li> <li>· Cooperation with other higher education institutions, enterprises, associations, cooperation networks and organizations developing business.</li> <li>· Demographic changes.</li> <li>· Recognized position achieved in the areas of engineering, manufacturing, construction, and service.</li> </ul>	<p><i>How to implement opportunities by use of internal strengths?</i></p> <ul style="list-style-type: none"> <li>· Participation in EU supported cooperation programmes.</li> <li>· TTK UAS structure and capacity support implementation of national strategies.</li> <li>· Popularization of engineering education and admission of motivated student candidates; relevance in response to job market demands.</li> <li>· New product and service development in cooperation with other higher education institutions, enterprises, associations and networks.</li> <li>· Adaptation to changing demands of the student body.</li> <li>· Achieving recognized position in engineering, manufacturing, construction, and service areas.</li> </ul>	<p><i>How to make use of external opportunities to overcome internal weaknesses?</i></p> <ul style="list-style-type: none"> <li>· Application of ASTRA programme for infrastructure and personnel development in accordance with the decision of an implementation unit.</li> <li>· Fostering cooperation with organizations evolving business and acquisition of additional resources through these organizations.</li> <li>· Introduction of best internships in the process of curricula, study and RDC development in cooperation with other higher education institutions and cooperation networks.</li> <li>· Recruiting best student candidates through popularization of engineering education.</li> </ul>

<p><b>Dangers</b></p> <ul style="list-style-type: none"> <li>· Decrease in potential student population.</li> <li>· Demographic and social changes in society.</li> <li>· Changes in student and employee values and attitudes.</li> <li>· Decrease in opportunities for academic staff renewal.</li> <li>· Unstable social-economic and educational policy.</li> </ul>	<p><i>How to avoid external dangers by use of internal strengths?</i></p> <ul style="list-style-type: none"> <li>· Retaining student body by use of study process upgrading.</li> <li>· Adaptation to demographic and social changes through a flexible study process and work organization.</li> <li>· Retaining the position of professional higher education through learning outcomes valued by society.</li> <li>· Improvements in organizational structure, incl. implementation of LEAN management.</li> </ul>	<p><i>How to reduce internal weaknesses and protect against external dangers?</i></p> <ul style="list-style-type: none"> <li>· Creation of a motivating and supporting environment for membership.</li> <li>· Building TTK UAS's brand.</li> <li>· Application of results of feedback.</li> <li>· Strengthening of activities promoting internationalization.</li> <li>· Re-structuring of the infrastructure in accordance with requirements of student profile and study methods.</li> <li>· Development of a room programme supporting business cooperation.</li> <li>· Enhancing ICT service quality.</li> <li>· Promoting stakeholder targeted marketing and communication.</li> </ul>
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