TTK UNIVERSITY OF APPLIED SCIENCES SELF-EVALUATION REPORT

Tallinn 2014

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TERMS AND ABBREVIATIONS
TTK UAS – TTK University of Applied Sciences
EQF – European Qualifications Framework for Lifelong Learning
EstQF – Estonian Qualifications Framework
RDC – research, development and creative activity
DMS – document management system
IT – information technology
SWOT – strengths, weaknesses, opportunities, threats
MER – Estonian Ministry of Education and Research
EURASHE – European Association of Higher Education Institutions
UASnet – Universities of Applied Sciences Network
HAPHE – Harmonising Approaches to Professional Higher Education in Europe
TTC – Technology Transfer Centre
SIS – Study Information System
ETIS – Estonian Research Information System
RCUAS – Estonian Rectors' Conference of Universities of Applied Sciences
SAIS – Admissions Information System
EHIS – Estonian Education Information System
ESTER – Online Catalogue ESTER
SAP – resource management software
ICS – information and communication services
ECTS – European Credit Transfer and Accumulation System
TULE – Come Again, Graduate Successfully!
EA – Applied Architecture Curriculum
TÖ – Technoecology Curriculum
EI – Civil Engineering Curriculum
GI – Construction Geodesy Curriculum
TEI – Road Construction Curriculum
TI – Engineering Materials and Marketing Curriculum
MI – Mechanical Engineering Curriculum
ET – Electrical Engineering Curriculum
TD – Technical Design and Technology of Apparel Curriculum
RR – Resource Management in the Field of Clothing and Textiles Curriculum
AT – Automotive Engineering Curriculum
RA – Railway Engineering Curriculum
LI – Transport and Logistics Curriculum
EAA – Estonian Academy of Arts
TUT – Tallinn University of Technology
TPT – Tallinn Polytechnic School
CLIL – Content and Language Integrated Learning
AS – a joint-stock company
EASS – Estonian Academy of Security Sciences
ESN – Erasmus Student Network
BIM – Building Information Modelling
SMEs – small and medium enterprises
EAS – Enterprise Estonia

I. FOREWORD AND GENERAL INFORMATION

General Information and Data about TTK University of Applied Sciences

Name	TTK University of Applied Sciences (hereinafter referred to as 'TTK UAS') Name in Estonian: *Tallinna Tehnikakõrgkool*.
Legal status and form of ownership	A state institution of professional higher education administered by the Estonian Ministry of Education and Research
Registration code	70003773
Location	TTK UAS's main building is located at Pärnu mnt 62, 10135 Tallinn. The main building houses learning and administrative work spaces, the library, sports hall, laboratories and practical learning classrooms. The textile materials testing laboratory, the sewing laboratory and the second sports hall with its auxiliary rooms are located at Siidisaba 7, 11311 Tallinn. The automotive engineering laboratory and the road construction laboratory are located at Siidisaba 8, 11311 Tallinn. The TTK UAS Recreation and Sports Centre is located at Topu, Kiviküla, Ridala Parish. The TTK UAS website: http://www.tktk.ee/en/.
Telephone and email	(+372) 666 4500; tktk@tktk.ee.
TTK UAS's goals as specified in its Statutes	To provide both nationally and internationally recognised, competitive education in the broad areas of Engineering, Manufacturing and Construction, and Services, including the field of transport services; carry out research, primarily applied research, and development in those areas; and offer in-service training and retraining.
Duties of TTK UAS as specified in its Statutes	1) to provide instruction in accordance with professional higher education curricula specified by the Government of the Republic; 2) to assure the organisation of studies and work organisation which will enable students to acquire the knowledge, skills and ethical values necessary for life and work; 3) to provide its membership with favourable conditions for teaching, learning, applied research and development activities, professional development and for communications with teaching staff and students from Estonia and foreign countries; 4) to acquire equipment, literature, fixtures and fittings, and any other means necessary for providing instruction and carrying out research, primarily applied research, and development activities; 5) to pursue cooperation with other educational, research and development institutions in Estonia and abroad; 6) to participate in international, national and social projects which further its goals; 7) to organise conferences, seminars and other events related to its principal activities;

	8) to engage in consulting activities in broad areas of Engineering, Manufacturing and Construction, and Services, including the field of transportation services; 9) to organise the creation and publication of textbooks and other teaching resources and provide recommendations for use of the instructional materials; 10) to offer fee-based services related to its principal activities to the extent established by its Statutes; 11) to implement the policies of lifelong learning and internationalisation of higher education.
TTK UAS's Mission	To support the sustainable development of Estonian society through applied higher education and knowledge transfer in the field of technology, primarily in engineering.
TTK UAS's Vision	TTK University of Applied Sciences will be a nationally valued and internationally recognised professional higher education institution in the field of technology, providing mainly engineering education.
Core Values	Creativity –resourcefulness, ability to create new things; Innovativeness – executing new ideas, courage, openness, flexibility; Entrepreneurship – initiative, determination, taking responsibility, execution.
Number of students	2,825 students (in the 2013/14 academic year).
Number of staff	210 academic staff members and 58 support staff members (as of 01.01.2014).
History	In 1992 an institution of vocational secondary education was reorganised into an institution of professional higher education, and since 1999 its name has been TTK University of Applied Sciences. More about the institution's history can be found at: http://www.tktk.ee/en/ttk/ttk-2/ttk-uas-history/.

TTK UAS offers education under 13 curricula within three study programme groups divided between two broad areas of study (Table 1). The broad areas of study include Services and Engineering, Manufacturing and Construction; where the Railway Engineering Curriculum and Transport and Logistics Curriculum represent Services, and all the other curricula are classified under Engineering, Manufacturing and Construction. All TTK UAS curricula have undergone external state evaluations and the institution has been granted the right for an unspecified term to conduct studies under these curricula and issue the relevant diplomas (see data in EHIS (in Estonian: https://enda.ehis.ee/avalik/avalik/oppekava/OppekavaOtsi.faces).

Table 1. TTK UAS curricula and study programme groups

Curriculum	Faculty	Study programme group
Applied Architecture	Faculty of Architectural and Environmental Engineering	Architecture and civil engineering
Civil Engineering	Faculty of Construction	Architecture and civil engineering
Road Construction	Faculty of Construction	Architecture and civil engineering
Construction Geodesy	Faculty of Construction	Architecture and civil engineering
Technoecology	Faculty of Architectural and Environmental Engineering	Machinery, manufacturing and technology

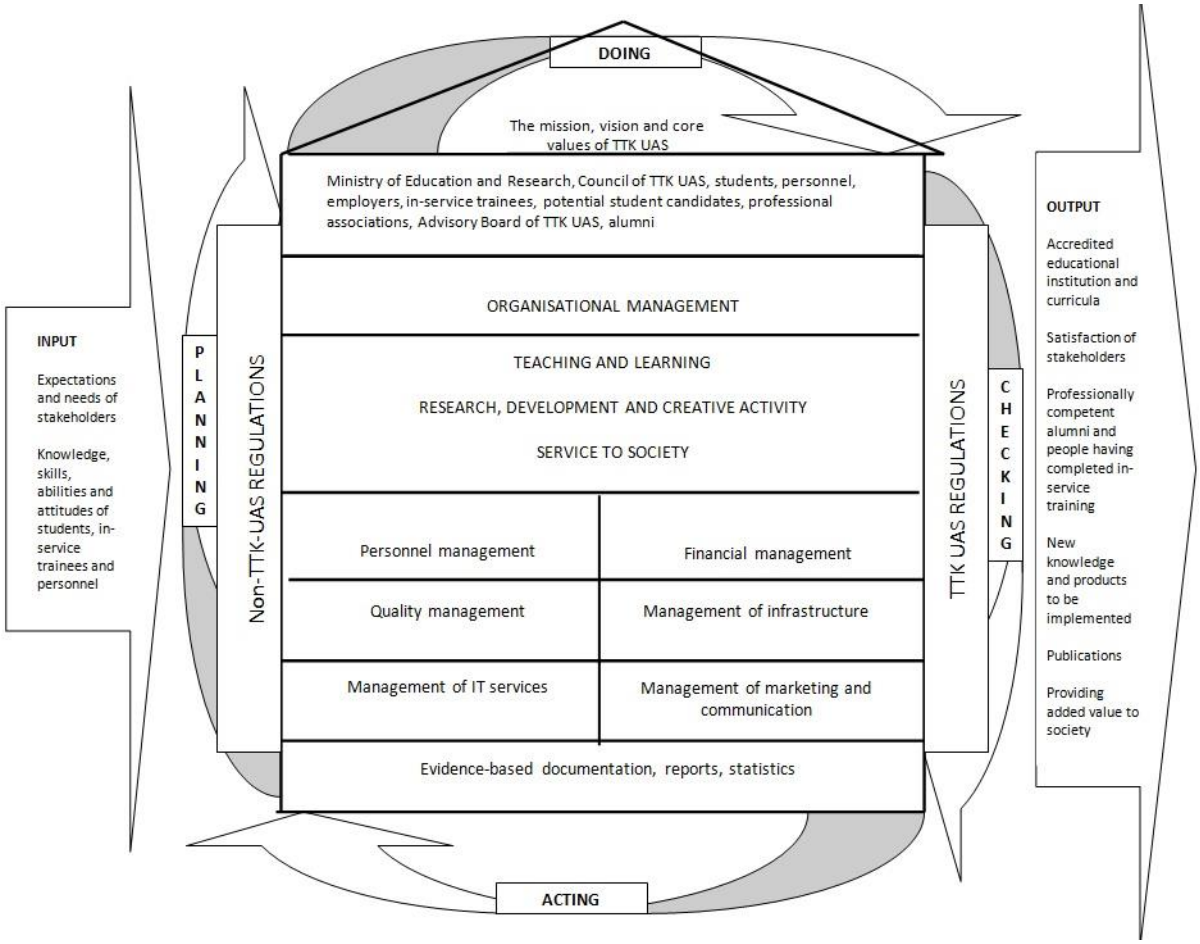
Mechanical Engineering	Faculty of Mechanical Engineering	Machinery, manufacturing and technology
Engineering Materials and Marketing	Faculty of Mechanical Engineering	Machinery, manufacturing and technology
Electrical Engineering	Faculty of Mechanical Engineering	Machinery, manufacturing and technology
Technical Design and Technology of Apparel	Faculty of Clothing and Textile	Machinery, manufacturing and technology
Resource Management in the Field of Clothing and Textiles	Faculty of Clothing and Textile	Machinery, manufacturing and technology
Automotive Engineering	Faculty of Transport	Machinery, manufacturing and technology
Transport and Logistics	Faculty of Transport	Transportation services
Railway Engineering	Faculty of Transport	Transportation services

In addition to formal education, opportunities for in-service training and retraining are offered following the principles of lifelong learning. TTK UAS offers in-service training in all broad areas of its formal education, taking into consideration the development needs of employers and the requirements of professional standards (for more, see 4.2).

Besides teaching and learning, TTK UAS is also engaged in research, development and creative activities, including the following: research and development, applied research, publication of the results, communication of expert knowledge at public events and implementation of expert analyses. The effectiveness of intellectual creative activity is demonstrated by patents or utility model certificates received (see 3.1 and 3.2).

In its activities and process management, TTK UAS aims at continuous improvement, with a focus on sustainability (Figure 1). The TTK UAS quality management system and the management of the higher education institution are described in the TTK UAS Quality Management Handbook.

Figure 1. Quality management system of TTK UAS



Preparation of this self-evaluation report, and contact person

Working groups for drafting the self-evaluation report were approved by the Rector's directive and included members of both the academic and support staffs.

Areas of responsibility	Members of working groups
General management	Enno Lend, Rector; Anneli Jõgiste, Lawyer; Merike Simmer, Rector's Assistant; Ülle Aasjõe, Lecturer at the Faculty of Transport.
Personnel management	Elo Viljus, Head of Human Resources; Lembe Kaljula, Human Resources Specialist; Mare-Ann Perkmann, Dean of the Faculty of Clothing and Textiles.
Financial resources and management of infrastructure	Tarmo Sildeberg, Finance and Managing Director; Andrus Rähni, Head of IT Department; Olev Mäekivi, Administration Manager; Ruubo Roots, Lecturer at the Faculty of Mechanical Engineering.
Teaching and learning	Lauri Peetrimägi, Vice-Rector for Academic Affairs; Anne Rooste, Head of the Office of Academic Affairs; Tiiu Rivis, Admission Specialist; Sirje Herkel, Academic Affairs Specialist; Hedi Pehme, Head of International Relations; Britt Petjärv, Head of Centre for Humanities; Hindrek Kesler, Dean of the Faculty of Architectural and Environmental Engineering; Rein Ruus, Associate Professor at the Centre for Sciences; Anneli Ramjalg, Lecturer at the Faculty of Construction; Ain Tulvi, Lecturer at the Faculty of Transport; Tomomi Hayashi, Lecturer at the Faculty of

	Architectural and Environmental Engineering.
Research, development and creative activity	Anne Kraav, Vice-Rector for Development; Martti Kiisa, Dean of the Faculty of Construction; Oliver Kallas, Head of Technology Transfer Centre; Aimar Lukk, Dean of the Faculty of Transport; Diana Tuulik, Lecturer of the Faculty of Clothing and Textiles; Tavo Kangru, Lecturer of the Faculty of Mechanical Engineering; René Nukki, Lecturer of the Faculty of Mechanical Engineering.
Service to society	Agnes Udumäe, Head of Open University; Malle Jürves, Communication Specialist; Triin Thalheim, Specialist of International Relations; Raivo Russmann, Head of Sports Centre; Vello Vainola, Dean of the Faculty of Mechanical Engineering; Sven Kreek, Lecturer of the Faculty of Transport; Kai Süda, Lecturer of the Faculty of Architectural and Environmental Engineering; Riin Kont-Kontson, Lecturer at Centre for Humanities; Aivars Alt, Associate Professor at the Faculty of Construction; Marek Simulman, Head of Department of Communications and Marketing.
Report coordination	Overall coordination by Brita Laurfeld, Quality Manager, and Mari-Leen Toome, Assistant Quality Specialist.

Many thanks on behalf of TTK University of Applied Sciences to the compilers and reviewers of this self-evaluation report and to representatives of the Estonian Higher Education Quality Agency.

The final report of a 2014 survey conducted by the Estonian Rectors' Conference of Universities of Applied Sciences (hereinafter referred to as 'RCUAS') entitled 'Professional Higher Education in European Higher Education Area: Outputs, Institutions and Operating Models 2020' serves as the basis for comparison data used in this self-evaluation report (the final report of that survey can be found (in Estonian) at: http://www.tktk.ee/uudised/uuring-rakenduskorgharidusest-euroopa-korgharidusruumis).

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II. SELF EVALUATION

1. ORGANISATIONAL MANAGEMENT AND PERFORMANCE

1.1. General management

1.1.1. Role of TTK University of Applied Sciences in the Estonian society

TTK UAS is committed to providing both nationally and internationally recognised, competitive education in the broad areas of Engineering, Manufacturing and Construction, and Services, including the field of transport services; carrying out research, primarily applied research, and development in those areas; and offering in-service training and retraining. TTK UAS acts in accordance with the Institutions of Professional Higher Education Act, Standard of Higher Education and other legislation, as well as its own Statutes and Development Plan 2010–2015.

The TTK UAS curricula of formal education are in compliance with the requirements of the European Qualifications Framework for Lifelong Learning (EQF) Level 6 and the Estonian Qualifications Framework (EstQF) (http://www.kutsekoda.ee/en/index), which give TTK UAS graduates the opportunity to become valued professionals of their fields in the labour market and enables them to continue their educations in master degree studies (for student success, see 1.2). Graduates in the fields of construction and mechanical engineering are awarded the designation of primary-level profession, indicated on their academic reports; professional standards in the fields of other curricula are still being updated. Professional standards are taken into consideration when developing the curricula of both formal education and in-service training.

TTK UAS boasts of a considerable concentration of specialty-related resources in the form of qualified personnel and appropriate learning and RDC infrastructure, which advances its research and development activities in the field of engineering and provides added value to society through fee-based services related to its core activities. To meet society's expectations, TTK UAS continuously collaborates with professional associations, interacts with its stakeholders, obtains feedback about its activities and uses these results for improvement activities. TTK UAS takes into consideration respective national and international trends and strategies when planning its activities.

1.1.2. Management levels at TTK University of Applied Sciences and their responsibilities

As a state institution of professional higher education, TTK UAS is not a legal person and therefore it does not have the passive legal capacity of an independent legal person. TTK UAS operates within the powers conferred on it by its Statutes, approved by the Government of the Republic of Estonia (http://www.tktk.ee/wp-content/uploads/Statutes-of-the-TTK-University-of-Applied-Sciences.pdf).

Rector

The Rector governs TTK UAS and is responsible for its general state of affairs and development, as well as for the lawful and efficient use of its financial resources. The Rector reports to the TTK UAS Council and to the Minister of Education and Research. The Rector approves the composition of the staff and their subordinate relationships by a new directive for each academic year. Under the authority of the Rector, the Vice Rector for Academic Affairs and the Vice Rector for Development direct their respective fields of activity, as determined by the Rector, and the relevant structural units.

TTK UAS Council

The Council is the highest collegial decision-making body of TTK UAS, comprising the Rector, Vice Rectors, the Head of the Board of Professors, the Finance and Managing

Director, one teaching staff representative from each faculty and student body representatives who make up at least one-fifth of the membership of the Council (http://www.tktk.ee/en/ttk/management/ttk-council/). Representatives to the TTK UAS Council are elected according to the Procedure for the Election of Representatives to the TTK UAS Council. The Rector serves as the Chair of the Council. Council meetings are usually held once a month, except in the summer period, and are regulated by the Rules of Procedure of the TTK UAS Council. The meetings of the TTK UAS Council are recorded and the minutes are available in the document management system (DMS); the decisions are forwarded to members of the institution through mailing lists.

Rectorate
The Rectorate acts as an advisory body to the Rector and resolves practical management issues. It comprises the Rector, the Vice Rector for Academic Affairs and the Vice Rector for Development, the Finance and Managing Director, the Head of Human Resources and the Lawyer. The composition of the Rectorate and its rules of procedure are approved by a Rector's directive (http://www.tktk.ee/en/ttk/management/rectorate/). Meetings are usually held once a week.

TTK UAS Management Board
The Management Board is set up for the purpose of discussing and resolving operational management issues, reviewing legislation and other matters within the powers of TTK UAS Council before being forwarded to the Council and of communicating information. The Management Board comprises the Rector, Vice Rectors, heads of structural units, the Quality Manager, the Lawyer and members of the Student Council. Meetings of the Management Board are usually held once a week and are open to any interested party. The composition of the Management Board is approved by a Rector's directive (http://www.tktk.ee/en/ttk/management/ttk-management-board/).

TTK UAS Advisory Board
The Advisory Board is a consultative body connecting TTK UAS with the general public, being composed of representatives of business and cultural communities, professional associations, employers' organisations as well as state and local government authorities (http://www.tktk.ee/en/ttk/management/advisory-board/). The Advisory Board makes recommendations to the TTK UAS Council and the Minister of Education and Research and provides assessments regarding TTK UAS activities, including matters related to curriculum development, and this information is made available to the public on the TTK UAS website (in Estonian: http://www.tktk.ee/korgkool/alusdokumendid/). The Minister of Education and Research determines the number of members on the Advisory Board and approves its composition. The Advisory Board meets at least once a year.

Research, Development and Creativity Council (RDC Council)
The purpose of the RDC Council is to coordinate RDC activities. Its statutes are approved by the TTK UAS Council (in Estonian: http://www.tktk.ee/wp-content/uploads/TTK_NK_otsus_13_03122013.pdf). The RDC Council comprises the RDC Council Chair, the Head of Board of Professors, the Deans of Faculties, the Head of Centre for Sciences, the Head of Centre for Humanities, the Head of Technology Transfer Centre and the Chair of TTK UAS students' voluntary research association Heureka.

Board of Professors
The Board of Professors acts as an advisory body to the Rector in academic matters and is made up of ordinary professors and professors emeriti of TTK UAS. The composition of the board and its rules of procedure are approved by a Rector's directive (in Estonian: http://www.tktk.ee/korgkool/juhtimine/professorite-kogu/).

Academic and support structures

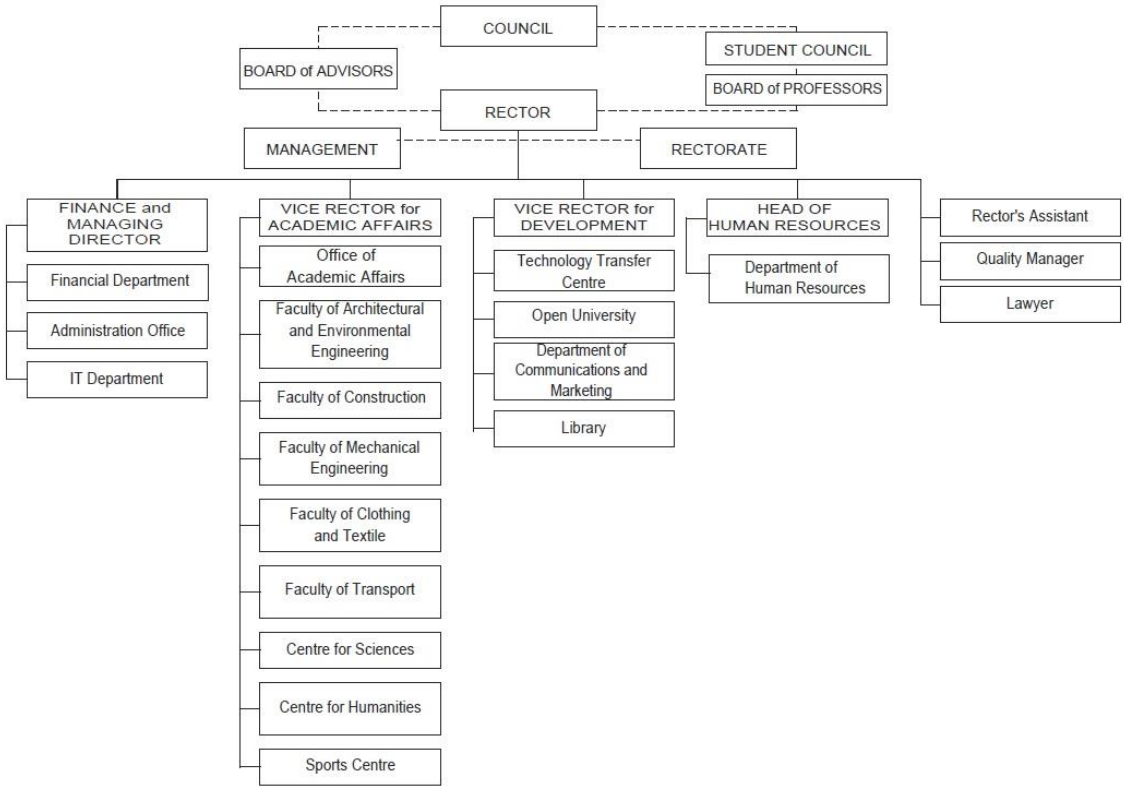
TTK UAS is divided into academic and support structures. These structural units are established, modified or terminated by a decision of the TTK UAS Council. The academic units include Faculties, the Centre for Humanities and the Centre for Sciences. The Faculties consist of Chairs. The Councils of Faculties and Centres are their highest decision-making bodies whose composition, functions and responsibilities are regulated by the statutes of the relevant structural units (http://www.tktk.ee/en/ttk/faculties/). The support units include Open University, Financial Department, Administration Office, IT Department, Department of Communications and Marketing, Department of Human Resources, Library, Technology Transfer Centre, Office of Academic Affairs and Sports Centre. The Lawyer, Quality Manager, Quality Specialist and Rector's Assistant provide field-related support services.

Student Council

The Student Council stands for the interests of the student body and represents students in decision-making processes related to their rights, engages in the development of students' academic and RDC activities, and organises student events (http://www.tktk.ee/en/ttk/student-life/student-council/). Management cooperates with the Student Council and members of the Student Council are involved in the work of the institution's advisory and decision-making bodies.

The management structure of TTK UAS is described in Figure 2.

Figure 2. TTK UAS structural map in 2014



1.1.3. Preparation of development and action plans of TTK University of Applied Sciences

TTK UAS's mission, vision and strategic objectives are described and itemised in the TTK UAS Development Plan 2010–2015 (http://www.tktk.ee/wp-content/uploads/Development-Plan.pdf). The Rector's election platform which specifies current and future objectives for

TTK UAS serves as a framework for the development plan, taking into account the results of the SWOT analysis of the preceding period, reports of external evaluations, national and international developments and strategies in the fields of higher education and specialties taught. The draft development plan is discussed in structural units, the Advisory Board and the Council, and it is approved by a directive of the Minister of Education and Research. The current development plan will be valid until 2015; it was supplemented with updates in October 2013 approved by the TTK UAS Council (http://www.tktk.ee/wp-content/uploads/Changes-to-the-Development-Plan.pdf). In 2013, in connection with the Estonian education reform, operating subsidies were allocated to TTK UAS for the 2013–15 calendar years by the directive of the Minister of Education and Research (hereinafter referred to as the 'Directive of TTK UAS Operating Subsidies') (http://www.tktk.ee/wp-content/uploads/Directive-of-TTK-UAS-Operating-Subsidies.pdf). TKK UAS action plans, prepared for each calendar year under the Rector's supervision, are the implementation documents of the development plan (http://www.tktk.ee/wp-content/uploads/TTK-UAS-Action-Plan-2014.pdf). These action plans are built on the objectives identified in the TTK UAS development plan, but also on activity analyses of structural units of the preceding calendar year, obligations established by the Directive of TTK UAS Operating Subsidies and feedback from stakeholders. The TTK UAS action plan is calendar year based and its preparation process involves both members and stakeholders of the institution. The first input comes from the heads of structural units and, based on that input, main trends and objectives are formulated and subsequently discussed on the Management Board. Next, after the approval of the TTK UAS Council, the action plan is approved by a Rector's directive.

Action plans of academic units are also calendar year based and are guided by the TTK UAS action plan. The action plans of academic units are discussed and approved by Faculty Councils.

Stakeholders are involved in the process of drafting action plans through advisory and decision-making bodies. TTK UAS students are involved in the work of TTK UAS Council, Management Board and Faculty Councils; society's representatives are involved through the TTK UAS Advisory Board; and academic and support staffs are involved through participation in the work of advisory and decision-making bodies or through heads of structural units.

The yearly implementation of development plan objectives is evaluated through an annual report compiled at the end of each calendar year. The objectives specified in the action plan are reviewed twice a year: in addition to the annual report, also during the management spring seminar held at the end of each spring semester. Amendments and additions considered necessary by the end of the spring semester will be added to the action plan. Each year TTK UAS submits its financial year report to MER, consisting of an annual report and an accounting statement. The TTK UAS Advisory Board provides an assessment of the activity of TTK UAS that is also forwarded to MER. The structural units submit their annual reports to the Rectorate.

In managing TTK UAS, developments in both local and international higher education areas are taken into account. Field-related strategies are also taken into consideration, e.g. the Estonian Higher Education Strategy 2006–2015, Estonian Lifelong Learning Strategy 2014–2020, Knowledge Based Estonia 2014–2020, Strategy for the Internationalisation of Estonian Higher Education 2006–2015, Estonian Entrepreneurship Growth Strategy 2014–2020, and the National Reform Programme 'Estonia 2020' (http://ec.europa.eu/europe2020/pdf/nrp/nrp_estonia_et.pdf). To implement and advance new trends and directions, the following documents have been prepared: Guidelines for Development of Lifelong Learning 2013–2015 (http://www.tktk.ee/wp-content/uploads/Directions-of-Development-of-Life-Long-Learning-of-TTK-UAS-for-2013-

2015.pdf), Guidelines for RDC Development 2014–2015 (http://www.tktk.ee/wp-content/uploads/TTK-UAS-Guidelines-for-RDC-Development-2014-2015.pdf), and Guidelines for Development Communications and Marketing 2014–2015. Internationalisation goals of TTK UAS are defined in TTK UAS Erasmus Policy Statement 2014–2020 (http://www.tktk.ee/en/international-relations/erasmus-charter/). TTK UAS builds its development activities on the positions of international higher education networks by participating as a member in international organisations such as EURASHE (European Association of Higher Education Institutions, www.eurashe.eu), UASnet (Universities of Applied Sciences network, www.uasnet.eu) and, as the only representative from Estonia, the HAPHE project (Harmonising Approaches to Professional Higher Education in Europe, http://www.eurashe.eu/projects/haphe/).

1.1.4. Performance indicators of TTK University of Applied Sciences

To assess the performance and effectiveness of its activities TTK UAS has specified quantitative performance values or performance indicators that reflect process developments and serve as the basis for self-evaluation. These performance indicators are listed in the TTK UAS Quality Management Handbook and categorised by processes of teaching and learning, RDC activities, service to society and the management of personnel, financial resources and infrastructure. At the end of each calendar year, the performance indicators are gathered at a structural unit level and assembled in the TTK UAS database. The Directive of TTK UAS Operating Subsidies has set three-year objectives for certain indicators which are followed up by action plans.

A selection of relevant performance indicators is presented to MER in the annual report that is available on the TTK UAS website (http://www.tktk.ee/wp-content/uploads/Financial-Year-Report_2013.pdf) and the complete list of indicators is attached to the TTK UAS Yearbook that is available in the document management system (DMS).

Indicators which ensure that TTK UAS has adequate resources to implement its development and action plans' objectives are considered to be critical success factors (key results). The critical success factors include the number of students; admissions effectiveness; student academic progress; the number of graduates, their successful employment or continuation of studies; student dropout rates and student mobility; the number of members of the academic staff engaged in RDC activities; publications in the Estonian Research Information System (ETIS) (https://www.etis.ee/index.aspx?lang=en); turnover of contract work and in-service training provided; the number of public events and participants; TTK UAS representation in professional associations and international networks; stakeholder satisfaction indicators; the number and structure of staff; the proportion of ordinary teaching staff to the overall academic staff; student/teacher ratio; the breakdown of qualifications of ordinary teaching staff (according to the level of their education); staff professional development (the number of training days per employee per year); and the financial resources of TTK UAS.

1.1.5. Giving purpose to and managing internal and external communications of TTK University of Applied Sciences

The target group of TTK UAS internal communications includes students, in-service training participants and staff. Internal communications aim at ensuring a smooth daily work organisation and learning process, as well as informing the audience about internal and external events, changes and developments (Table 2).

The aim of TTK UAS's external communications is to channel purposeful information primarily to potential students and in-service training participants, businesses and partner institutions of higher education and potential cooperation and contractual partners. To ensure effective international communication, direct contacts are used, an English website has been created and brochures printed.

Regarding communications and brand management at TTK UAS, the Department of Communications and Marketing guides the development of communications and marketing strategies and the related action plans. Communications and marketing activities are organised in collaboration with academic units and cooperating partners. To enhance TTK UAS's marketing efforts, an analysis of its marketing activities was ordered from Advisio Consulting Ltd in 2012 who also provided starting points for improving the marketing plan. Based on these recommendations, the TTK UAS brand image was updated. A modern website segmented by target groups has also been completed along with the mobile web platform. Based on the results of feedback surveys, web-based marketing has been applied to a greater extent; e.g. in spring 2014, a separate webpage was created to be used during a campaign focused on potential student applicants which got 7600 hits during the campaign period of 13–19 March; the TTK UAS Facebook account was updated and its postings from March through May 2014 have reached about 225,000 people.

Table 2. TTK UAS's means of communicating

Meetings	Formal meetings: schedules and participants are determined by regulations; guided by agendas. By an established system, minutes are made available to the appropriate people through employee mailing lists or in the DMS. Heads of structural units pass on practical information. Informal meetings: exchanges of practical information to make quick decisions or to discuss urgent matters; working groups are convened on the basis of need and appropriate people are involved.
Email system	Mailing lists of different audiences: employees, students, in-service training participants, alumni, employers, etc. There are mailing lists at both the TTK UAS and structural unit levels. These are used to forward information about changes in the organisation of studies, events and guests; as well as minutes, decisions, practical organisational information, etc. to the respective target groups.
DMS	The Document Management System where TTK UAS regulations (statutes, rules, procedures, forms), strategies, action plans, reports, minutes, decisions and other pertaining to the management of the institution's affairs, including official correspondence, are made available to TTK UAS members. Training and business travel applications, proposals and drafts can also be submitted through the DMS.
SIS	A system that serves as an information carrier of teaching and learning activities (curriculum descriptions, syllabi, courses, academic staff) and as a communication environment of the institution with its students, alumni and academic staff (sending of notifications). The SIS enables one to make inquiries related to teaching and learning (students, alumni) and to conduct student and staff surveys.
Newspaper	The TTK UAS newspaper, *Young Engineer*, is intended for members and stakehlders of TTK UAS and addresses topics related to school life. The newspaper is published ten times a year in paper form and is also available online (in Estonian: http://www.tktk.ee/noor-insener).
Bulletin boards, displays, indoor and outdoor banners	There are bulletin boards for event notifications, international studies and job advertisements. Faculties and Centres have bulletin boards for information regarding the respective structural units.

Website and social media	The website contains information about TTK UAS, its core activities, events and cooperation opportunities. The website is structured according to target groups, e.g. student candidates, students, in-service training participants, international students and entrepreneurs. Social media channels include Facebook aimed at future and current students and YouTube aimed primarily at potential students.
Brochures	Brochures in Estonian and English introducing TTK UAS are intended for potential students and in-service training participants as well as entrepreneurs and contractual partners.
Fairs	TTK UAS regularly participates in fairs to introduce itself and its curricula to potential students and entrepreneurs as potential partners, e.g. the largest educational fairs (altogether about 8 per year). Internationally, TTK UAS is promoted in international weeks and specialty fairs.
Face-to-face events with target groups	To introduce its curricula and academic regulations, TTK UAS visits upper secondary schools and institutions of vocational education and training. Information materials are distributed and admissions information disseminated. TTK UAS organises open houses for those interested and hosts visiting schools. Professional seminars, Information Days and laboratory visits are arranged. Receptions for delegations from other higher education institutions and businesses are arranged to introduce the institution.
Media. Radio and television broadcasts, popular scientific literature	TTK UAS staff and students appear in radio and television programmes; employees publish opinion pieces in press publications and popular scientific articles in publications of general interest, e.g. *Inseneeria* and *Horisont*.

In 2011 TTK UAS initiated an upgrade of its visual identity that would support modern developments and its marketing strategy. As a result a new logo was created and the TTK UAS Brand Book prepared which regulates the use of the institution's logo and the style of its publications and presentation materials.

TTK UAS organises joint events for its staff and students inviting institution-related people and organisations as guests. These joint events serve the aims of keeping traditions alive, shaping similar values and developing organisation culture. The staff and students of the institution have highly rated their satisfaction with the overall atmosphere at the institution and its reputation as indicated below (Table 3).

Table 3. Satisfaction indicators of students, academic and support staffs, 2012–14 (%)

Overall atmosphere at the institution	**2012**	**2013**	**2014**	**2012**	**2013**	**2014**	**2012**	**2013**	**2014**
	Satisfied			Undecided			Dissatisfied		
academic staff	86	93	84	13	6	15	1	1	1
support staff	95	–	86	3	–	12	2	–	2
students	85	83	84	13	11	12	2	6	4
Institution's reputation	**2012**	**2013**	**2014**	**2012**	**2013**	**2014**	**2012**	**2013**	**2014**
	Satisfied			Undecided			Dissatisfied		
academic staff	90	93	91	9	6	9	1	1	0
support staff	95	–	91	3	–	7	2	–	2
students	79	79	82	15	17	13	6	4	5

Feedback surveys provide a basis for evaluating the effectiveness of internal communications, which are conducted among students, separately for first-year students, and among academic and support staffs (Table 4, Table 40).

Table 4. Academic staff satisfaction indicators, 2012–14 (%)

Academic staff	2012	2013	2014	2012	2013	2014	2012	2013	2014
	Satisfied			Undecided			Dissatisfied		
I can openly express my opinion	87	87	92	12	8	4	1	5	4
At the faculty level, opinions and suggestions of the academic staff are taken into account	73	86	88	18	11	7	9	3	5
Flow of information regarding school life	80	85	90	13	10	7	7	5	3

Support staff	2012	2014	2012	2014	2012	2014
	Agree		Undecided		Disagree	
Flow of information needed for work is good at the structural unit level	87	86	11	14	2	0
Flow of information needed for work is good at the institutional level	63	69	32	19	5	12
I can openly express my opinion	92	75	3	21	5	4
Opinions and suggestions of the support staff are taken into consideration at the structural unit level	92	95	3	5	5	0
Opinions and suggestions of the support staff are taken into consideration at the management level	80	71	9	12	11	17

Indirect evaluation of external communications takes place through organised media coverage, published articles and television or radio broadcasts in which TTK UAS employees and students participate. Web and social media visitor statistics are monitored as well. Other indicators considered to be important are: competition among applicants for the institution's offered curricula, admission statistics, numbers of in-service training participants and contractual partners, etc.

1.2. Personnel management

Based on its current Development Plan, the TTK UAS strategic objectives for personnel management are as follows:

1. In all structural units there will be competent and motivated employees who consciously implement the institution's vision as well as maintain and promote its good reputation. The proportion of ordinary teaching staff will be at least 75%.
2. TTK UAS will be an attractive and steadily developing organisation that provides self-realisation and motivation for its highly professional staff.
3. TTK UAS will have established a stable team of full-time academic staff which will also involve foreign teaching staff, including specialists from outside enterprises.
4. There will be 24–28 students for each teaching staff position (in Estonian institutions of professional higher education the average is 21.8).
5. Academic staff continuity will be ensured through balanced age groups (Table 8).

6. As a result of carefully planned and consistent personnel policies, teaching staff's professional and university teaching competencies and international experience will be ensured. Professional development of the teaching staff will support the learning outcomes of subjects, modules and curricula.

1.2.1. Principles and procedures for employee recruitment and development

In the beginning of each academic year (in the case of major changes more often), the TTK UAS staff structure and composition as well as the structure of subordination and personnel are approved by a Rector's directive (Table 5).

Table 5. Staff numbers

Staff numbers	2011	2012	2013
total number of the academic staff	219	209	210
including heads of academic units	8	8	8
including ordinary teaching staff	130	126	121
including visiting lecturers	66	60	65
including support staff of academic units	15	15	16
teaching staff positions	103.5	102.2	103.2
including ordinary teaching staff	92.7	89.9	91.5
including visiting lecturers	10.8	12.3	11.7
total number of support staff	58	57	58

Academic staff elections are conducted according to the procedures established by the Institutions of Professional Higher Education Act. The requirements applicable to the academic staff are determined by the relevant job descriptions approved by the TTK UAS Council on the basis of the principles provided for in the Standard of Higher Education. Positions of the ordinary teaching staff are filled by way of public competition applying equal conditions to all candidates. To evaluate the candidates, a competition committee is established who submits its recommendations to the TKK UAS Council. In accordance with the Institutions of Professional Higher Education Act, the Council elects the academic staff in secret ballots. The guidelines for recruiting support staff follow in general the procedures for recruiting academic staff. TTK UAS considers the competition for support staff sustainable, but as far as academic staff are concerned, more effort should be made to find specialty-related teaching staff (Table 6).

Table 6. Staff competitions, 2011–13

Number of candidates per position	2011	2012	2013
academic staff	3.1	2.4	2.4
support staff	10.5	40.5	17.5

TTK UAS's overall labour turnover figures have remained stable over the years, e.g. it was 10.6 in 2013, which also ensures application of new knowledge along with continuity. TTK UAS has also developed additional measures for recruiting specialty-related teaching staff. To ensure successors to its teaching staff and enhance their qualifications, TTK UAS supports their pursuits of additional formal education with scholarships. Formal education of the teaching staff has been supported since 2007 and during that time seven faculty members have been awarded master's degrees and two faculty members – doctoral degrees. In the 2013/14 academic year, TTK UAS supported five faculty members in their master degree studies and six faculty members in their doctoral studies (Table 7). Business practitioners and professionals are included as specialty-related teaching staff, working as visiting lecturers.

Table 7. Qualifications distribution of ordinary teaching staff, 2011–13 (the number of people)

	2011	2012	2013
with doctoral degrees	15	14	13
with master's degrees or equivalent to master's degrees	96	93	93
with higher education/professional higher education	19	19	15

Qualifications distribution has remained stable and satisfies the objectives and requirements of curricula. TTK UAS considers the development and balanced distribution of qualifications of its employees important and prefers candidates with professional experience and academic degrees.
Academic staff continuity is ensured through balanced age groups (Table 8).

Table 8. Age distribution of ordinary teaching staff

Age group	Number of ordinary teaching staff		
	2011	2012	2013
up to 30 years old	29	27	24
31–40 years old	17	17	20
41–50 years old	27	27	25
51–60 years old	25	23	23
61 years old and older	32	32	29

The age distribution of the academic staff shows sustainability. TTK UAS considers this distribution optimal. Personnel management measures implemented by TTK UAS have balanced the age groups of the academic staff (Table 9).

Table 9. Average age of the staff, 2011–13

	2011	2012	2013
average age of the support staff	49.7	48.9	47.4
average age of the ordinary teaching staff	50.2	47.6	47.4

1.2.1.1. Measures for new employee induction

To support new employees, a New Employee Information Sheet has been produced, assembling all essential information about TTK UAS operations. Since 2013, seminars with the Rectorate have been held for new employees where, in addition to information from heads of relevant fields, they are able to ask additional questions about the TTK UAS policies and to provide feedback. A mentor programme has been launched to help new teaching staff to settle in, and having received positive feedback, a similar programme to help new support staff is planned to be launched in coming years. During their first year, teaching staff may work with a reduced workload and receive additional in-service training as required.
A procedure has been established to assist principal officers whose employment contracts have ended to restore their previous professional qualifications, allowing a smoother transition for those whose duties change due to the change of position.

1.2.1.2. Staff professional development

When planning training and business trips, both the objectives of the institution and the qualification needs of employees are taken into consideration. Training plans are made in structural units and then assimilated into a training plan for the entire institution which is made available in the DMS. Institution-wide in-house staff trainings, acquired from an outside training provider, are planned for once or twice a year. In-house trainings designed and delivered by TTK UAS staff include language courses, e.g. in 2013 English, Russian and

German courses. Since the 2013/14 academic year, working load agreement have included planned trainings and their scope in order to better schedule the trainings for staff members. Since 2013, the trainings and business trips have been managed in the DMS enabling the institution to better analyse and plan this field of activity. The number of training days a year per an employee was 2.53 in 2013. Staff satisfaction with opportunities for professional development and trainings has remained high over the years (Table 10).

Table 10. Satisfaction with opportunities for professional development and trainings as needed, 2012–14 (%)

	2012	2013	2014	2012	2013	2014	2012	2013	2014
	Satisfied			Undecided			Dissatisfied		
academic staff	81	87	94	11	12	5	8	1	1
support staff	89	–	82	0	–	9	11	–	9

A large part of the costs related to trainings and business trips have been covered from non-state budget and project funds (Table 11).

Table 11. Expenses related to trainings and business trips, 2011–13 (in euros)

	2011	2012	2013
state budget funds	21,883	54,846	50,306
non-state budget funds	67,587	52,735	40,465
projects	31,389	43,712	32,647
total	108,118	151,293	123,418

1.2.2. Positions and evaluation of academic staff

Academic staff job descriptions regulate individual positions' objectives, main responsibilities, rights, required qualifications, duties and indicators for performance evaluations. Workload distribution among duties falls under three categories supporting the coherence of core processes (the working load agreement) is attached to the employment contract): 1) teaching and the associated workload; 2) management, including administrative activities; and 3) research, development and creative activities. The head of the relevant academic unit agrees the workloads of teaching staff members for each academic year based on needs of the curriculum, the employment contract entered into with that teaching staff member, the job description, the report on activities and results of the preceding academic year and student feedback. Since 2013, in a new procedure, workloads have been planned in the SIS, where teaching staff can prepare annual performance reports at the end of each academic year following the structure of the working load agreement.

The TTK UAS Collective Agreement establishes the workload of 38 hours per week for full-time teaching staff and 1,600 hours per year calculated in full loads, whereas contact hours of lecturers is generally 400–600 hours. Staff opinions about workloads is examined through personal interviews and feedback surveys; their satisfaction has remained high over the years and grown among the academic staff (Table 12).

Table 12. Satisfaction with workload, 2012–14

	2012	2013	2014	2012	2013	2014	2012	2013	2014
	Satisfied			Undecided			Dissatisfied		
support staff	90	–	88	5	–	12	5	–	0
academic staff	72	74	88	9	8	4	19	18	8

So far the ordinary teaching staff have entered into fixed-term employment contracts of up to five years, but according to the Estonian higher education reform, a transition to open-ended employment contracts with ordinary teaching staff is pending. When reapplying for their

positions at the end of their terms of office, the teaching staff is required to submit their performance reports for the preceding period in office, including their professional development, publications, etc. During job interviews, candidates' prior RDC activities and their experiences of participation and readiness to participate in projects are assessed in addition to their teaching experience.

1.2.2.1. Evaluation of academic staff

The evaluation of teaching staff is conducted once during the period of their election or appointment and, in the case of employees with an open-ended employment contracts, once every five years, based on their performance reports that follow the structure of working load agreement. These evaluations are also based on the teacher competency model used in higher education. In the course of evaluation, the compliance of teaching staff's activities with qualifications requirements and the related job descriptions are assessed. In addition to performance reports, the evaluation committee examines the development interview summaries, students' subject monitoring results and other documents considered to be necessary by employees under evaluation or their supervisors. Successful passing of the evaluation allows teaching staff to continue in their positions without competition, while non-passing of the evaluation may lead to the modification or termination of their employment contracts.

1.2.3. Employee remuneration and motivation policies

TKK UAS's remuneration policies are described in the TTK UAS Remuneration Rules which establishes how much employees are paid, the method of its calculation, payment procedures, and the bases and procedures for awarding premium pay. These rules include approved minimum rates for employee wages by position, ensuring that a starting member of the teaching staff would also receive competitive pay in comparison with that in the area and the professional field (Table 13).

Table 13. Average salary of TTK UAS's ordinary teaching staff in comparison with average wages in Tallinn, 2011–13 (in euros)

	2011	2012	2013
the average salary of TTK UAS's ordinary teaching staff	1,356	1,443	1,456
the average wage in Tallinn	955	1,010	1,092

The employee remuneration is agreed upon and documented in an employment contract. In addition to their basic wages, employees are able to get extra pay for additional work outside their working load agreement and job descriptions (e.g. participation in projects, contract work and conduct of in-service training) (Table 14). Measures for motivating and boosting RDC activities are described in the Incentive System for Research, Development and Creative Activity.

Table 14. Staff expenses in TTK UAS, 2011–13 (in euros)

	2011	2012	2013
state budget funds	3,318,700	3,378,121	3,673,667
non-state budget funds*	818,966	629,892	519,415
total	4,137,666	4,008,013	4,193,082

*Non-state budget funds of staff remuneration include all resources earned by TTK UAS through its activities including project funds. In 2013 the proportion of wages paid from non-state budget and project funds was 14% of wages paid from state budget funds (cf. 19% in 2012 and 25% in 2011).

TTK UAS considers financial incentives important and monitors the competitiveness of its compensation in the local area and in the professional field. The results of staff satisfaction

surveys reflect employees' satisfaction with the correspondence between their remuneration and their work input (Table 15).

Table 15. Results of staff satisfaction surveys regarding wages and desire to continue working at TTK UAS, 2012–14 (%)

Academic staff	2012		2013		2014	
	Yes	No	Yes	No	Yes	No
I consider that my remuneration is in accordance with my contribution into TTK UAS	68	32	62	38	76	24
I see myself working at TTK UAS in the future as well	96	4	95	5	91	9

Support staff	2012			2014		
	Satis-fied	Unde-cided	Dis-satis-fied	Satis-fied	Unde-cided	Dis-satis-fied
Satisfaction with correspondence between remuneration and contribution into TTK UAS	86	3	11	91	2	7

Tangible and intangible benefits and the bases for their application are described in the Incentive System of TTK UAS which is made available in the DMS. Many grants, benefits and bonuses are described in the TTK UAS Collective Agreement and TTK UAS Remuneration Rules.

Tangible and intangible benefits

Tangible benefits include bonuses for their outstanding achievements, compensations for the use of their personal cars or mobile phones and purchasing low vision aids, as well as different family related benefits, etc. Moreover, teaching staff's further pursuit of formal education is supported with scholarships, and those pursuing doctoral degrees are provided with one paid free semester. As to intangible benefits, employees are able to participate on favourable terms in language courses and sports activities organised by TTK UAS and use TTK UAS's fitness studio and TTK USA Recreation and Sports Centre at Topu. TTK UAS supports the activities of a folk dance group and a chamber choir. After a three-year employment, seven additional vacation days will be added to support staff annual holiday and all staff receive the period from 27 to 31 December as the Christmas holiday. TTK UAS compensates its employees also for the first three days of their doctor-certified incapacity to work (above that which is required by law), and provides five 'health days' each year for its staff.

In addition, TTK UAS rewards and recognises its employees with letters of appreciation and honour as well as with decorations, organises various joint events for its employees and their families, and keeps in touch with its retired employees.

Besides the above listed benefits, TTK UAS pays close attention to a pleasant work atmosphere, employee-friendly work environment and reasonable workloads, and provides opportunities for professional development (Table 3, Table 4, Table 12, Table 15).

1.2.4. Surveying employee satisfaction and using results for improvement activities

Satisfaction and feedback surveys for both academic and support staffs are conducted on a regular basis. All employees are asked about their satisfaction with the management, working conditions, flow of information, etc.; and in the case of academic staff, their satisfaction with the organisation of studies as well (Table 16). The employees can give feedback by means of

a rating scale and also by comments and suggestions. Survey results are aggregated at both the institutional and structural unit levels and taken into account for improving the work organisation. Major improvement activities arising from surveys are described in action plans. In 2012, a satisfaction survey for support staff was conducted for the first time; it was repeated in 2014 and will be continued the same way going forward.
In addition to surveys; direct discussions, development seminars and development interviews are conducted with employees. During the evaluation of the teaching staff; members of the teaching staff under evaluation, their immediate supervisors and the evaluation committee – all assess staff's performance along with feedback received from students – whereas ultimately, the committee makes recommendations to both the teaching staff member and the relevant structural unit.

Table 16. Staff satisfaction indicators in 2012 and 2014 (%)

Support staff	**2012**	**2014**	**2012**	**2014**	**2012**	**2014**
	Agree		Undecided		Disagree	
My immediate supervisor takes an interest in my work practices	92	93	6	7	2	0
I get constructive feedback from my immediate supervisor regarding my work	95	91	3	9	2	0
I get constructive feedback from my colleagues regarding my work	87	83	8	14	5	3
I use that feedback to better organise my work	92	98	5	2	3	0

Academic staff	**2012**	**2013**	**2014**	**2012**	**2013**	**2014**	**2012**	**2013**	**2014**
	Satisfied			Undecided			Dissatisfied		
Flow of information regarding the organisation of studies is good between Head of Faculty Chair and academic staff	74	77	84	14	13	15	12	10	1
Flow of information regarding the organisation of studies is good between a Dean's Office (Dean and Dean's Assistant) and teaching staff	65	82	88	25	12	8	10	6	4
Head of Faculty Chair takes an interest in my work	74	77	84	15	16	11	11	7	5

1.2.5. Employee participation in international mobility programmes, cooperation projects, networks, etc.

Staff mobility occurs mainly through the Erasmus, NordPlus, DoRa, Spinno and the Archimedes Foundation programmes, and consists of teaching at partner institutions, supervising intensive programmes (IPs), support staff trainings and representing TTK UAS at international weeks at partner institutions and business trips associated with conferences and development projects (http://www.tktk.ee/en/international-relations/).
Furthermore, TTK UAS employees participate in several international development projects in the fields of their profession and higher education (e.g. Entretech, ADOK, B2BLoco, EDUPROF) and in cooperation networks (e.g. EURASHE, UASNET, ENAS). A list of the

international projects is available on the TTK UAS website: http://www.tktk.ee/en/international-relations/international-projects/.
International networks in which TTK UAS participates include, for example, EURASHE and UASnet, and through them the institution participates in various international projects. EURASHE is a network of European institutions of professional higher education (http://www.eurashe.eu/), in which the TTK UAS Vice Rector for Development has, through RCUAS, served as the representative of Estonian institutions of professional higher education since 2002; she is a member of the EURASHE Council as well. This international experience is essential for planning trends and directions for TTK UAS and managing its RDC activities (Table 17).

Table 17. Out-bound mobility indicators for the ordinary academic staff and support staff, 2011–13

	2011		2012		2013	
	academic	**support**	**academic**	**support**	**academic**	**support**
ERASMUS	10	9	12	7	10	10
DoRa	8	–	6	–	6	–
IP projects	13	–	13	–	19	–
development projects	4	9	14	6	6	6
total	35	18	45	13	41	16

The number of business trips of the support staff to partner institutions of higher education and conferences was 29 in 2012 and 26 in 2013.
In 2013 the Archimedes Foundation awarded TTK UAS the 'Golden Apple of Cooperation' in the category of higher education institutions for its international cooperation under the European Lifelong Learning Programme, NordPlus programme and international projects (in Estonian: http://www2.archimedes.ee/hkk/index.php?leht=899).

1.2.6. Employees base their activities on principles of academic ethics

The principles of academic ethics are described in the Rules of Work Organisation of TTK University of Applied Sciences and in the job descriptions of the academic staff of TTK UAS, approved by the TTK UAS Council. Employees follow general best practices and the regulations on professional ethics in their fields.
According to the TTK UAS academic protocol, TTK UAS as an organisation aspires to the following values: 1) respect for the individual and human dignity as a core value; 2) academic professionalism and competence as a basis for realising its mission; 3) academic freedom as a socially responsible freedom; 4) integrity and correctness in professional activities as prerequisites for trusting cooperative relationships, as well as considerate partnership, mutual respect and recognition.
Uniform assessment criteria for student study results, knowledge testing and rules for processing plagiarism cases are described in the TTK UAS Study Regulations (http://www.tktk.ee/wp-content/uploads/TTK-UAS-Study-Regulations.pdf).

1.3. Management of financial resources and infrastructure

1.3.1. Management of financial resources of TTK University of Applied Sciences

As a state institution of professional higher education, TTK UAS receives a substantive part of its funds from the state budget. Until the 2013/14 academic year, the TTK UAS funding system was based on state-commissioned education; but starting from the 2013/14 admission, the institution has been funded according to the policies established by the Directive of TTK UAS Operating Subsidies (http://www.tktk.ee/wp-content/uploads/Directive-of-TTK-UAS-Operating-Subsidies.pdf). This directive determines the rights, responsibilities and liabilities

of TTK UAS and MER, and the procedure for allocating operating subsidies for calendar years 2013–15. Annex 1 to the directive explains the principle for developing the allocated operating subsidy for the 2013 calendar year. In 2015, TTK UAS will submit a report to MER, indicated in Annex 2 to the directive of TTK operating subsidies, which will serve as the basis for future allocations of operating subsidies.

1.3.1.1. Preparation of the budget

Budgets are planned for each calendar year and are based on the TTK UAS development plan and the related action plans. An action plan outlines general investment trends and the budget specifies the required activities. The TTK UAS general budget is drafted in three categories: 1) state budget funds (operating subsidies, education allowances and funds prescribed for specific purpose); 2) non-state budget funds (fee-based educational services, in-service trainings, knowledge services); 3) international and national project funds.
All structural units participate in the budget drafting process. Budget estimates and forecasts are, as in the general TTK UAS budget, grouped by funding sources under three sub-headings: personnel expenses, study and management expenses, and investments.
Stages of drafting the TTK UAS budget are as follows:

- compilation of a draft budget on the basis of budget applications from structural units;
- discussion of the draft budget within structural units;
- processing of motions to amend;
- request for approval of the draft budget from the TTK UAS Council;
- approval of the budget by a Rector's directive.

The approved budget is available in the DMS.
Faculties and Centres are responsible for the management of their staff expenses; study, business travel and training expenses; and revenues of non-state budget funds earned. The rest of the budget is maintained and managed centrally.
Budget funds come from different sources, which reduces financial risks. As a result of the higher education reform the earning of non-state budget funds has declined mainly due to the overall change in providing tuition-based education. TTK UAS has maintained a stable budget under the conditions of an economic slowdown (Table 18). In the past financial years, TTK UAS has had total net gains and transferred funds to the following year.

Table 18. TTK UAS budget, 2011–13 (in euros)

	2011	**2012**	**2013**
state budget funds	5,616,813	6,135,666	6,305,467
non-state budget funds	1,119,943	1,020,718	670,470
investments supported by structural funds*	1,169,799	435,868	45,650
projects	739,510	539,700	544,289
total budget	8,646,065	8,131,952	7,565,876

*EU Structural Funding in period 2007–2013.

With regard to expenditures from state budget funds, employee wages constitute the largest portion (64%) followed by management expenses (26%) and investments (10%). The sources of funds for employee remuneration differ by structural units depending on the specifics of instruction and the proportion of knowledge services and development projects performed (Table 19).

Table 19. Proportion of remuneration from non-state budget funds to entire remuneration by structural unit, 2011–13 (%)

	2011	2012	2013
Faculty of Architectural and Environmental Engineering	18	10	7
Faculty of Construction	22	28	22
Faculty of Mechanical Engineering	24	21	9
Faculty of Clothing and Textile	7	9	10
Faculty of Transport	23	18	26
Centre for Humanities	13	17	5
Centre for Sciences	7	12	7
Sports Centre	6	7	0
support units	17	10	7

A budget of the Student Council is also part of the TTK UAS budget; TTK UAS financially supports students' joint events (Student Spring Days, Student Autumn Days, sports events, etc.).

1.3.1.2. Management of the budget

The Finance and Managing Director presents quarterly overviews to the Rectorate regarding implementation of the budget. Structural units receive monthly statements of the implementation of the budget which serve as bases for management decisions and assessments of the implementation of the budget. The budget is adjusted in the fourth quarter, as needed, and the amendments to the budget are approved by a Rector's directive.

TTK UAS economic activities have undergone audits; there have been no negative comments regarding its essential activities which have been in accordance with legislation. At the end of each year, the institution submits its financial year report to MER which also includes a report on the implementation of its budget.

Non-state budget funds are used to cover direct costs of instruction and RDC activities, update the learning environment and pay premiums to employees for their extra work, such as providing knowledge services, conducting in-service trainings and participating in development projects. When combined with premiums, the actual salaries of academic staff are about 15% higher than their basic salaries.

TTK UAS analyses its financial risks and hedges them by earning non-state budget funds and by expanding the provision of services in accordance with its main activities and development plan. The financial forecast of non-state budget funds up to 2018 has been prepared and submitted to MER.

1.3.2. Information systems of TTK University of Applied Sciences and their uses

Important and resource-intensive information systems that support the institution's main activities are jointly used with other higher education institutions in accordance with cooperation or consortium agreements (Table 20). While acquiring hardware and software, TTK UAS searches for cost-optimal solutions that provide a regularly updated base for information technology. Operational leasing is preferred to purchasing and each year 40–50 units of computer hardware and software are replaced by means of rotation, and laptops are upgraded. Service contracts to manage central systems have been concluded and the use of cloud services has continuously increased among the TTK UAS employees.

Table 20. Information systems used by TTK UAS

Study Information System, SIS	Study Information System of professional higher education institutions (SIS) is used to manage information and activities regarding teaching and learning. In collaboration with other institutions of professional higher education, TTK UAS has been developing the SIS for years and will continue to participate in this development work. One trend in that work is to interface the SIS with other information systems relevant to TTK UAS (SAIS, EHIS, Moodle, etc.), enabling a more coherent functioning of main processes. The SIS is used by TTK UAS students, teaching staff and other employees; user rights are configured according to the needs of different user groups.
Admissions Information System, SAIS	SAIS is used for managing the admissions process and data of student candidates. It is used in collaboration with other universities and higher education institutions following the consortium agreement.
E-learning platform Moodle	The Moodle open-source e-learning platform is used in teaching and learning and its users include TTK UAS students, in-service training participants and teaching staff.
The Integrated Library System Millennium	The information of Library items and users is managed in the Millennium information system by the Consortium of Estonian Libraries Network.
Document Management System WebDesktop (DMS)	The document management system (DMS) is used to manage managerial information, facilitate communications, ensure transparency and interlink work processes along with substantive control mechanisms. The DMS is used for planning business trips and trainings, approvals and reporting, storing contracts and legislation, processing draft legislation, etc.
Estonian Research Information System, ETIS	A platform for managing information regarding research and development conducted at higher education institutions.
Management of business transactions and financial analyses, eArvekeskus, SAP, Persona	Purchase invoices are processed and approved in the web-based information system, eArvekeskus. The bookkeeping of TTK UAS is organised centrally by a central service unit of government, namely by the Financing Department of MER. Since 2014, personnel and payroll have been calculated using the SAP resource management software and, as of 2015, TTK UAS will switch to the SAP-based accounting as well.

TTK UAS Faculties and Centres altogether house 11 computer rooms, with about 300 computers for student use. In addition to computer rooms, students can use the computers in the Library and E-learning Centre to do their homework. Students can download free, for use in their personal computers, professional programmes taught at the institution (Autodesk programmes, ArchiCAD, Artlantis, Bentley Microstation, Catia, SolidEdge, NX, etc.).
A wireless internet network with a password-secured access and public access is available in the institution. All full-time employees are provided with laptops or computer workstations, and the work environment requirements are taken into account when equipping workplaces.

In addition to the document management system, information exchange and sharing of data is supported by shared folders located on network drives, and the cloud services of Google Edu Apps are being implemented as a new development.
Information and communication technology development is based on the everyday needs of the institution and its structural units, as well as on general trends in technology.
The management of information systems is regulated by the TTK UAS Procedures for the Use of the Study Information System and the TTK UAS Procedures for the Use of Hardware and Software of Information Systems.
Information and communication technology (ICT) costs constitute a considerable and stable part in the TTK UAS budget (Table 21). A decline in ICT costs is related to the achievement of an optimal level of ICT resources and the recent completion of major development works (e.g. networking and Wi-Fi throughout the building).

Table 21. ICT costs of TTK University of Applied Sciences, 2011–13 (in euros)

	2011	2012	2013
ICT costs	194,334	182,201	158,951
including leases	81,248	66,666	75,402

1.3.3. Administration and development of infrastructure of TTK University of Applied Sciences, staff's working conditions, and students' learning and RDC conditions

The TTK UAS teaching and learning environment is characterised by compactness, partly because of its good location in city centre (Table 22). Auditoria and teaching laboratories are located in different sections of the building and laboratory resources are used cross-curricular, based on cost-effectiveness. Because of technical specialties, TTK UAS space planning has focused on emphasising laboratories that support teaching and learning. Its space allocation is optimal with about 5–6 m^2 of closed net area per student (in other state institutions of professional higher education this figure is 7–8 m^2 per student, except the Estonian National Defence College and the Estonian Academy of Security Sciences).

Table 22. Space allocation in TTK UAS (m^2)

Total area	16,387
Laboratories	2,999
Auditoria and rooms for teaching staff	4,430
Other facilities for educational activities (gym, assembly hall, library, hall of e-learning centre, sports hall, fitness studio, etc.)	2,710
Other areas (administrative and public areas, non-usable for teaching or learning)	6,248

Arising from the specifics of a professional higher education institution, laboratories have a large proportion in an overall space plan – TTK UAS has 34 laboratories and practical learning classrooms, or laboratories form 20% of the teaching area. During the period 2012–13, the Faculty of Clothing and Textile laboratories and the laboratory for the Electrical Engineering Curriculum of the Faculty of Mechanical Engineering were developed. Entrepreneurs and enterprises have also contributed to the development of institution's learning environment, technical equipment and laboratories, and TTK UAS recognises sponsors for their contributions (in Estonian: http://www.tktk.ee/korgkool/sponsorid/). During the period 2011–13, the institution invested heavily to improve learning and working conditions and develop laboratories (Table 23).

Table 23. Total investments* into the TTK UAS infrastructure and laboratories, 2011–13 (in euros)

	2011	2012	2013
construction works	121,684	2,180,228 **	641,728
lab appliances and furniture	1,503,284	156,414	127,343

*In the period 2011–13, EU Structural Funds of 3,134,367 euros were invested.
**Including reconstruction of Student Hostel financing (CO2 Quotas according to Kyoto Protocol).

Students are provided with opportunities for independent and team work in the Library, E-learning Centre and, with the approval of teaching staff, in auditoria outside school hours; there are also recreation spaces at the institution that can be used. The TTK UAS Student Council has been provided with rooms furnished with all that may be required for their work.
The operating costs of the TTK UAS buildings are routinely analysed. Infrastructure management costs are analysed once a year and the results serve as a basis for infrastructure management decisions (e.g. labour costs vs. outsourcing) and procurements. The institution has concluded maintenance and service contracts with specialised companies to manage its infrastructure. The Administration Office allocates direct costs and estimated indirect costs among the academic buildings, which allows the institution to monitor the dynamics of infrastructure costs and the breakdown thereof among curricula. The results of such analyses are taken into account when drafting or adjusting action plans and making management-related decisions.
In recent years, the infrastructure costs have been stable but with a slight increase (Table 24), having been affected by an overall rise in prices of utility services and the increase in electricity consumption caused by the introduction of a new ventilation system in section A of the main building. On the other hand, teaching laboratories built at Siidisaba 7 have increased the total area of TTK UAS and reduced rental costs.

Table 24. TTK UAS's infrastructure operational costs, 2011–13

	2011	2012	2013
total area (m^2)	15,641	15,641	16,387
operational costs (in euros)	485,071	478,986	538,799
costs (EUR/m^2)	31	31	33

1.3.3.1. Improvement of work environment

Assistance from Structural Funds have been used to finance the improvement of work environment and the development of laboratories.
Work organisation regarding the work environment is regulated by the Rector's directive, 'Occupational Health and Safety Procedures'. In each laboratory of TTK UAS, there is a designated person responsible for occupational safety and employees have undergone the relevant training. First aid, if needed, is provided by a medical worker employed by TTK UAS and other employees who have completed first aid training courses. New employees are, among other things, familiarised with legislation regarding the work environment.
In 2013, TTK UAS ordered an audit from the Tallinn Association of Persons with Mobility Impairment to evaluate the physical accessibility of its infrastructure and identify any necessary construction works. The audit assessed the accessibility to the academic infrastructure to be good, but highlighted a number of key construction details that will be taken into account in future construction and repair works. Staff and student satisfaction with the working and learning conditions is also surveyed and taken into account in improvement activities (Table 25, Table 26, Table 27), e.g. as a result, the ventilation system was built in

section A of the main building. Teaching staff and student satisfaction with general conditions of the teaching and learning environment as well as with occupational safety and equipment of laboratories has increased over the past three years. Satisfaction with IT resources is especially high (87% of the teaching staff and 86% of the students are satisfied).

Table 25. Student satisfaction with the learning environment, 2012–14 (%)

	2012	2013	2014	2012	2013	2014	2012	2013	2014
	Satisfied			Undecided			Dissatisfied		
Availability of IT resources	87	88	86	8	8	11	5	4	3
Availability of computer use	85	86	87	11	10	10	4	4	3
General conditions in auditoria	63	65	67	12	18	17	25	17	16
Availability of common rooms	71	72	71	13	14	14	16	14	15
Availability of modern laboratory equipment	71	64	67	21	29	25	8	7	8
Occupational safety in laboratories	76	72	73	22	25	25	2	3	2

Table 26. Results of academic staff satisfaction surveys regarding working conditions, 2012–14 (%)

	2012	2013	2014	2012	2013	2014	2012	2013	2014
	Satisfied			Undecided			Dissatisfied		
Satisfaction with availability of IT resources used for teaching	96	91	87	4	5	5	0	4	8
General conditions of auditoria (ventilation, lighting, temperature, size, etc.)	46	65	68	10	5	9	44	30	23
Working conditions in TTK UAS rooms other than classrooms	73	77	77	20	13	18	7	10	5
Availability of modern laboratory equipment	57	62	–	35	32	–	8	6	–
Occupational safety in laboratories	62	70	–	35	26	–	3	4	–

Table 27. Results of support staff satisfaction surveys regarding working conditions in 2012 and 2014 (%)

	2012	2014	2012	2014	2012	2014
	Satisfied		Undecided		Dissatisfied	
General conditions of the work room	79	81	11	14	10	5
IT resources needed for work	98	98	2	2	0	0
Tools needed for work	100	100	0	0	0	0
IT support	92	86	8	12	0	2

Table 28. Areas for improvement of general management

The process of planning the main activities includes taking account of the trends and needs of new economy, technologies and working life (ongoing).	The basis of Development Plan for the new period will be created, which will ensure the sustainable development of the organization.
Developing strategic management tools for the implementation of change management processes.	TTK UAS as a whole with its structural units and staff will be quick and flexible in reacting to changes.
Coaching of the Management Board.	Effective coaching methods will ensure the successful implementation of development goals and improve the cooperation between

	staff.
Recruiting highly qualified teaching staff, including foreign teaching staff.	Competitions for academic staff will be successful, the positions will be filled (ongoing). In 2015, there will be foreign members of teaching staff.
Promoting company work experience of teaching staff through different support measures.	The obligation to practise at a company will be tied with the evaluation of teaching staff, e.g. it will be required that specialty-related teaching staff must practise at an enterprise at least once every five years.
Launching a mentorship programme to facilitate the settling in of new members of support staff.	By 2015, the mentorship programme for support staff will be launched (e.g. an induction programme will be formalised).
Adjusting wages in accordance with the situation in the labour market to stay competitive with wages in the local area and professional field. Expanding non-monetary incentives (e.g. supporting sports activities).	The average wage of TTK UAS staff will be competitive in comparison with the local area and professional field (ongoing). Staff will be motivated (ongoing).
Developing flexible work options.	Different forms of flexible working hours will be used where appropriate.
Conducting a survey at the end or termination of an employment contract.	Departing employees' opinions will be taken into account to improve future TTK UAS operations (ongoing).
Continuously upgrading and developing laboratories/practical learning classrooms and equipment.	Hands-on learning will be supported by laboratories that take into account the dynamics of curricula and RDC activities, as well as market demand for professionals.
Creating a 3D house model and introducing BIM solutions.	Space efficiency and allocation of financial resources will improve.
Performing an information technology environment audit and developing a framework plan.	The audit will evaluate ICT's current attributes at TTK UAS and specify directions for their further development.
Modifying rooms for group work or independent work.	Opportunities for group and individual work will be improved.
Refining the student place cost-benefit analysis (ongoing).	Curriculum costs will be determined through cost-benefit analyses and, if possible, a basis for optimising academic and economic activities will be identified.
Improving the employees' work environment.	Completion of the ventilation system and upgrading of the heating system will improve the work environment at TTK UAS.

2. TEACHING AND LEARNING

2.1. Effectiveness of teaching and learning, and formation of the student body

2.1.1. Educational objectives of TTK University of Applied Sciences and their implementation

Strategic objectives of teaching and learning for the year 2015 arise from the TTK UAS Development Plan 2010–2015 and the Directive of TTK UAS Operating Subsidies and are as follows:

1. TTK UAS will base admission numbers on its training capacity; proposals from employers, ministries, local government associations and registered professional associations; and national strategies. TTK UAS will matriculate at least 600 students in the first cycle of higher education studies in the 2014/15 academic year.
2. The number of professional higher education curricula will not be increased, and in curriculum development, it will be specified that graduates will be able to continue with their master degree studies at other higher education institutions.
3. To reduce dropout rates by use of supportive activities. In 2015, the proportion of dropouts in the broad area of Engineering, Manufacturing and Construction will not exceed 17% and, in the broad area of Services, it will not exceed 11%.
4. To continue executing cooperation agreements with vocational education institutions and upper secondary schools, and preparing specific action plans. In 2015, TTK UAS will have cooperation agreements with at least ten institutions of vocational education and training, which will include, among other things, collaboration in curriculum development. By 2015, the proportion of student candidates with vocational education will account for 20% of all candidates.
5. To increase the number of students participating in international mobility programmes to be 10% of the total number of students, including the number of students participating in student exchanges under the Erasmus programme to be 2%.
6. To conduct surveys and gather data about alumni employment and successes.
7. By 2015, to increase study loads of business and entrepreneurship subjects to be 6–12 ECTS credits, depending on the profile of a curriculum; and include business professionals and other practitioners for teaching these subjects.
8. To apply for the right to award designations of primary-level professions where applicable, and to begin awarding designations of primary-level professions starting from 2013.
9. To ensure the sustainability of e-learning after the end of the BeSt Programme (a national e-learning programme) in 2014: two employees will continue working in the E-learning Centre and at least 95% of subjects will have e-support.

In addition to strategic objectives, there are operational objectives arising from self-analyses of broad areas of study and guided by annual reports. To achieve these objectives, the relevant activities are defined in the TTK UAS action plan and the action plans of structural units; at an individual level, in employment contracts; and for teaching staff, in working load agreement. The involvement of stakeholders through advisory and decision-making bodies is described under point 1.1.4 of this report. Field-related strategies, and the expectations and trends of society and the labour market are also followed.

Implementation of the objectives, regarding teaching and learning, are analysed at the institutional level during meetings of the Rectorate and the Management Board, as well as in the academic unit councils. More important issues (e.g. shaping of admission numbers, interruptions of studies by students, employment or continuation of studies by graduates) are discussed in the TTK UAS Advisory Board as well. The performance indicators for evaluating the teaching and learning processes have been identified and serve as a basis for

self-analyses and for setting objectives for new calendar years; they are selectively presented in financial year reports to MER as well. Selected performance indicators are analysed more frequently as appropriate, e.g. interruptions of studies, extracts from student academic successes and internationalisation. The institution will analyse the achievement of objectives set in the Directive of TTK UAS Operating Subsidies and submit a report on the analysis to MER in 2015.

2.1.2. Securing national and international competitiveness for graduates of TTK University of Applied Sciences

All TTK UAS curricula have successfully undergone state transitional evaluations and the institution has been granted the right for an unspecified term to conduct studies under these curricula and issue the relevant diplomas. The curricula are based on the requirements of the Standard of Higher Education, learning outcomes of the cycles of higher education and their relevance to the Estonian Qualifications Framework (http://www.kutsekoda.ee/en/kvalifikatsiooniraamistik). The learning outcomes of curricula are in accordance with the general requirements of Level 6 of the Qualifications Framework. The Estonian Qualifications Framework is in conformity with the European Qualifications Framework, thus ensuring graduates an international competitiveness for working as well as continuing their studies in foreign countries. The learning outcomes of the TTK UAS curricula are compared with the competency requirements of professional standards, when those standards are developed or updated. The Estonian Qualifications Authority has conducted conformity assessment regarding TTK UAS's curricula and granted the institution the right to award designations of primary-level professions to the graduates of Civil Engineering, Road Construction, Mechanical Engineering as well as Engineering Materials and Marketing curricula.

As a professional higher education institution, TTK UAS puts great emphasis on practical courses (in addition to theoretical courses), providing each curriculum with laboratories and practical learning classrooms in which to conduct the courses. The acquired knowledge and skills are tested and applied by way of practical training both at school and in enterprises. In-plant work-experience comprises at least 15% (36 ECTS credits) of the study load of a curriculum based on the Standard of Higher Education. In-plant practical trainings start already in the first year and are divided into an observation practice work and a so-called engineering practice work. Students compile empirical materials of their graduation papers in the course of engineering practice work.

To enhance students' international competitiveness, they are encouraged to study and have their practical placements abroad. The learning outcomes and the structure of TTK UAS's curricula are compared with curricula of partner higher education institutions abroad to effectively implement mobility. Studies are mutually recognised by partners. TTK UAS students can also acquire an international experience from foreign visiting teaching staff and professionals who are teaching at TTK UAS (Table 29) and from international visiting students who participate in academic activities (Table 39).

Table 29. Involvement of foreign visiting teaching staff and professionals in teaching, 2011–13

	2011	2012	2013
teaching staff from foreign partner higher education institutions	21	43	46
professionals from foreign enterprises	6	3	12

To evaluate the competitiveness of its graduates and determine whether its curricula respond to society's expectations, TTK UAS gathers feedback about graduate competencies from the Advisory Board, Curriculum Councils, Diploma Theses Evaluation Committees, employer

round tables and other stakeholders. Professionals outside of TTK UAS are included as members of Curriculum Councils or Diploma Theses Evaluation Committees, or as reviewers of diploma thesis, and they all provide, among other things, external critical opinions on the teaching and learning process which are used in curriculum development. Several members of the teaching staff and other employees participate in professional associations where they receive additional feedback on graduates.

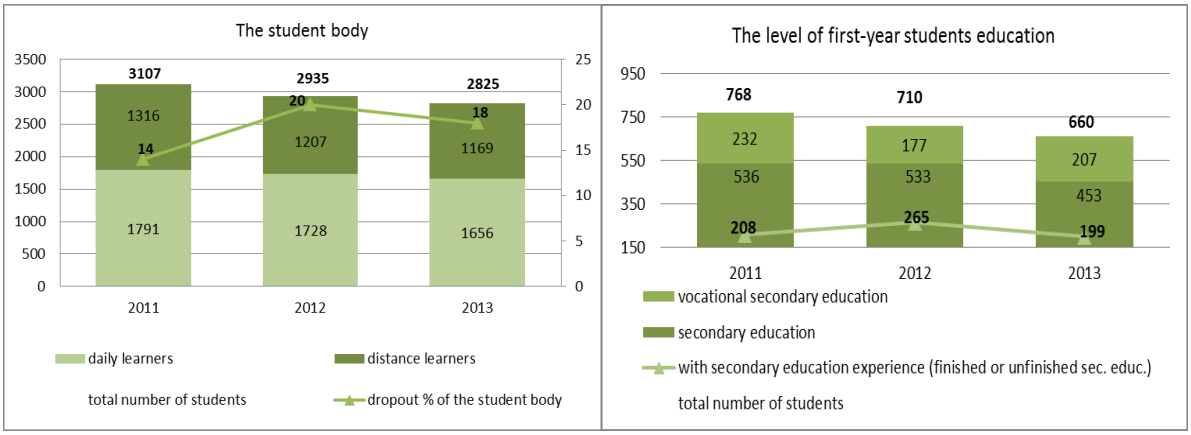
2.1.3. Planning of student places, the student body and the effectiveness of teaching and learning at TTK University of Applied Sciences

In planning student places, TTK UAS takes into account precepts of the Directive of TTK UAS Operating Subsidies, the needs of the labour market and proposals of the TTK UAS Council and Faculties. Admission rates are set with TTK UAS resources in mind, as well as the suggestions from employers' organisations and professional associations. Admission numbers for each academic year are planned by curriculum; discussed by the TTK UAS Advisory Board, Rectorate, Management Board and Faculty Councils; and approved by the TTK UAS Council.

Until 2012, student places were classified under two categories: state-funded student places commissioned by the government (455) and non-state-funded student places (200–250). The national higher education reform, launched in 2013, brought along several changes, including a change in the system of funding student places – state-commissioned education was replaced with a state operating subsidy. TTK UAS has done an analysis of student places and costs of services which serves as a basis for establishing reimbursement rates for study costs / tuition fees and the pricing of academic services purchased via Open University.

MER has approved the admission numbers for TTK UAS – 600 students at minimum. Despite an overall decrease in the number of young people applying for higher education institutions and a nation-wide increase in the number of free student places in Engineering, Manufacturing and Construction, and Services; TTK UAS has filled all the planned student places (Figure 3). In Figure 3, external students are included under distance learning students – in 2011, 2012 and 2013 there were 15, 12 and 9 external students respectively. Alumni employment surveys have shown that the planning of student places has met the needs of the labour market and alumni employment rates have been high (Table 32).

Figure 3. Student body of TTK UAS, 2011–13



Teaching staff satisfaction with student numbers per course has been in the range of 71–78% over the past three years (Table 30).

Table 30. Academic staff satisfaction with student numbers per course, 2012–14 (%)

	2012	2013	2014	2012	2013	2014	2012	2013	2014
	Satisfied			Undecided			Dissatisfied		
number of students per course	75	78	71	13	8	11	12	14	18

Between 2008 and 2012 the number of students in Estonian higher education has decreased by 5% and in professional higher education the decrease has been 12%. With this in mind and, to reduce the number of future dropouts, the admission numbers were reduced in 2013, thus increasing the admission of motivated students with better prior knowledge. The dropout rate of TTK UAS students is the highest in the first year of studies (Figure 3). The percentage of students who dropped out during their first year of studies was 27%, 29% and 29% in 2011, 2012 and 2013 respectively. Interruption of studies is monitored and improvement activities in this area are ongoing. Some examples are: the admission rules have been supplemented (see 2.1.4), methods of analysis have been enhanced, personal contact with students with incomplete work is performed at a faculty level; a survey to identify the reasons for dropping out by distance learning students has been conducted; e-support and e-learning are being developed; counselling services for students are being enhanced; and information flow is being improved. TTK UAS participates in the TULE programme designed for continuation of interrupted studies in higher education (TULE – an acronym from Estonian words meaning 'Come Again, Graduate Successfully'), providing another opportunity for higher education dropouts to complete their studies. Under this programme, 39 students have returned to their studies at TTK UAS between 2010 and 2013.

In 2014, TTK UAS is participating as the leader in a survey conducted by nine institutions of professional higher education which is attempting to map the reasons for student dropouts and students' opinions on improvement activities and factors that would support academic progress and reduce dropping out.

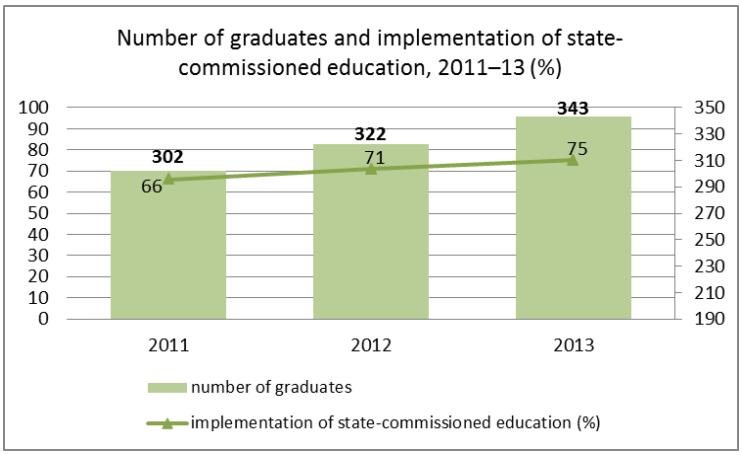
TTK UAS has set a goal by broad areas of study for 2015 regarding the decrease in dropping out among students who have interrupted their studies (Table 31).

Table 31. Dropout numbers by broad areas of study in 2013

Broad area of study	Number of dropouts/incl. first-year students	Number of students in the broad area of study	Dropout rate (%)	Objective for 2015
Engineering, Manufacturing and Construction	424/170	2,316	18.3	up to 17%
Services	71/22	509	13.9	up to 11%
total	495/192	2,825	17.5	–

Despite the decrease in numbers of young people pursuing higher education, the decrease in numbers of student candidates applying to TTK UAS and larger than average dropout rates, the number of graduates shows a growing trend (Figure 4).

Figure 4. Number of graduates and implementation of state-commissioned education, 2011–13 (%)



Graduate employment rates have been relatively high, including in the fields where the current economic situation has been problematic (e.g. construction and architecture). The employment of alumni who are working in their professions is also remarkably high – 87%, 88% and 83% in 2011, 2012 and 2013 respectively (Table 32).

Table 32. Employment and continuation of studies of alumni, 2011–13 (data is collected 6 months after graduation from the institution)

	2011	2012	2013
are studying or working	96%	96%	92%
unemployed	4%	2%	5%
other*	–	2%	3%

*On a maternity leave, in the military service or residing abroad. Data collection methods were changed in 2012, therefore data regarding the earlier years cannot be presented.

2.1.4. TTK University of Applied Sciences admissions rules and formation of the student body

TTK UAS provides formal education under 13 curricula (Table 1) and, because of the demand, offers distance learning programmes under seven of them in addition to the daytime curricula, allowing students to combine learning and working. Admission to TTK UAS is regulated by the TTK UAS Conditions and Procedures for Admissions, approved by the TTK UAS Council (in Estonian: http://www.tktk.ee/sisseastujale/vastuvotukord/). Student candidates are accepted on the basis of admission rankings linked to the learning results of their secondary or vocational education studies. The objective of admissions rules is to accept the student candidates with better prior study results. In 2012, TTK UAS established a threshold for applicants which consists of an average grade of at least 3.4 on their graduation certificates and a system of additional points to support the right choice. Additional points are given for the results of the state examinations in mathematics, for gold or silver medals upon graduation from upper secondary schools (e.g. in 2013, TTK UAS admitted 17 students who had graduated from upper secondary schools with medals), and a successful completion of the TTK UAS preliminary course in mathematics and the exam thereof. To better determine the appropriateness of curricula for applicants, admission tests are conducted for candidates who apply to the Applied Architecture Curriculum, and tests for candidates who apply to the Transport and Logistics Curriculum and the Technical Design and Technology of Apparel Curriculum. Graduates from specialty-oriented institutions of vocational education and training compete for study places on a general basis but under separate admission rankings

which have been allocated up to 20% of available student places. TTK UAS collaborates with several vocational education institutions to provide youths who have the best results in vocational secondary education, with opportunities to continue with higher education studies.
Competition for student places has decreased over the recent years. The main reasons for that are: an increase in the number of free student places available in higher education from 2013 and the demographic situation in Estonia, and also more conscious specialty choices made by applicants (Table 33).

Table 33. Competition for student places (ratio of applications to places), 2012–13

Competition of applicants	EA	TÖ	EI	GI	TEI	TI	MI	ET	TD	RR	AT	RA	LI
DS* 2012	6.5	6.3	4.0	4.1	5.2	4.9	4.9	5.6	4.0		4.4		21.5
DL* 2012			5.4		4.7		3.5			3.5	3.0	3.0	1.7
DS 2013	3.9	3.2	3.8	1.9	3.0	3.9	2.7	3.6	2.6	3.5	2.5		7.4
DL 2013			3.9		3.0		4.1			0.7	2.1	1.3	6.6

*DS – daytime studies; DL – distance learning.

Review and evaluation of the admission process are undertaken through an admissions analysis once a year in the autumn semester. Conditions and procedures for admissions are established annually no later than 1 March. Profiles of applicants and first-year students are analysed and the information received is used as an input for organising future admissions and determining the numbers. Recent years' admissions indicate a tendency toward an increase in the number of first-year students with prior higher education experience. Approximately 30% of these learners are older than 30 and employed. In 2011 there were 498 students aged 30 and older enrolled in TTK UAS, 432 in 2012 and 530 in 2013. A high employment rate among students influences dropout rates as students often withdraw from the institution due to their work or family life.
Collaboration with institutions of vocational education and training has ensured a stable admission of young people with vocational secondary education. In 2013 the proportion of admitted students with general secondary education was 69% and those with vocational secondary education 31%, including 17% of those who had previously acquired general secondary education as well. In addition, 30% of all admitted students had prior higher education or some experience of it.
Student candidates with special needs apply to TTK UAS under the same terms and conditions as all other applicants. Curricula and the learning process in the field of engineering impose certain restrictions on studies, and issues concerning special needs students are resolved on an individual basis.
TTK UAS conducts annual satisfaction surveys for first-year students with regard to the organisation of admissions and the induction period (Table 34). Survey results are used for selecting marketing channels to attract potential student candidates, enhancing the effectiveness of the organisation of admissions and improving support measures that help first-year students better settle into their studies.

Table 34. First-year student satisfaction with organisation of admissions, 2011–13 (%)

	2011	2012	2013	2011	2012	2013
	Yes			No		
I found information needed for admission easily	96	93	96	4	7	4
TTK UAS admission procedure was simple and straightforward	96	92	97	4	8	3
Did you apply to other schools besides TTK UAS?	48	48	54	52	52	46
Are you enrolled in the specialty of your first	82	87	86	18	13	14

preference?						
Are you aware of your opportunities after graduating from TTK UAS?	76	79	80	24	21	20

2.2. Curriculum development

2.2.1. Launch of new curricula and curriculum development at TTK University of Applied Sciences

The key objectives of curriculum development include the compliance of the learning outcomes of curricula with expectations of society and with the requirements of professional standards, higher rates of graduate employment and/or continuation of studies by graduates and increased interest by student candidates in the curricula.

2.2.1.1. Principles for launching new curricula

To address the needs of the labour market, the launch of a potential new curriculum is based on proposals from professional associations, members of the TTK UAS Advisory Board and partner enterprises, as well as on input received from external members of Curriculum Councils and Diploma Theses Evaluation Committees. Written proposals and recommendations by professional associations are accepted as bases for launching new curricula and planning specialisations. The two major curriculum development projects of recent years, illustrating TTK UAS's collaboration with professional associations, include the launch of the Electrical Engineering Curriculum of professional higher education at the Faculty of Mechanical Engineering in 2012; and determining the need for specialisation in the field of heating and ventilation under the existing Civil Engineering Curriculum in 2014. The former was developed based on the proposals by the Estonian Association of Electrical Enterprises and vocational education institutions and in cooperation with Tallinn Polytechnic School (TPT); and the latter project is under way in collaboration with the Estonian Association of Construction Entrepreneurs, the Estonian Society of Heating and Ventilation Engineers, and the Estonian Association of Water Supply and Wastewater Engineers. Furthermore, in April 2014, TTK UAS initiated cooperation with several associations of processing industry enterprises to develop a Production Management Curriculum of professional higher education.

2.2.1.2. Principles for curriculum development

In order to develop broad areas of study and curricula, TTK UAS has executed cooperation agreements with universities, other professional higher education institutions and vocational education institutions. For example, in 2011 a cooperation agreement was signed by TTK UAS, the Estonian Academy of Arts (EAA) and the Union of Estonian Architects to develop the field of architecture, to develop educational infrastructure for their common use and to facilitate the admission to EAA's master degree studies for TTK UAS graduates who have completed the Applied Architecture Curriculum (in Estonian: http://www.tktk.ee/uudised/ettevotjale/ttk-solmis-kunstiakadeemia-ja-arhitektide-liiduga-koostooleppe-3). In order to avoid duplication of master degree programmes, TTK UAS and the Tallinn University of Technology (TUT) have signed an agreement that allows the best TTK UAS graduates to continue with master degree studies at TUT.
Faculty Councils have established Curriculum Councils at each Faculty which operate as standing committees coordinating the development, modification and analyses of curricula. A Curriculum Council comprises the Dean, the Head of Faculty Chair, at least one student representative and at least two external representatives of professional associations or from among employers. The Curriculum Council meets at least once every two years and submits its proposals for modifying the existing curricula or launching new curricula to the Faculty

Council who in its turn will submit them to the TTK UAS Council for approval. Curriculum development is an ongoing process led by the Heads of Faculty Chairs.
Feedback from external evaluation experts and their recommendations have been taken into account in the process of curriculum development (curriculum accreditations, transitional evaluations) and world-class professionals have been commissioned to provide their expert opinions on several curricula (e.g. the Applied Architecture Curriculum and all three curricula of the Faculty of Construction). Feedback from the labour market is received through the TTK UAS Advisory Board, Curriculum Councils and the members of Diploma Theses Evaluation Committees, as well as through the TTK UAS employees who have memberships in professional associations.
When designing learning outcomes for curricula, requirements of the relevant professional standards (both developed and updated) are taken into account, and learning contents are updated as needed. To ensure graduate success in the labour market, knowledge and skills in the field of humanities and entrepreneurship (e.g. communication skills, ability to work well with others, language skills, readiness for professional development and engineering responsibility) are also emphasised in addition to core subjects. In the period 2010–14, the proportion of entrepreneurship-related subjects has grown about 30%. In addition, all TTK UAS curricula contain elective subjects with a value of 8 ECTS credits that develop entrepreneurial attitudes and skills. To this end, TTK UAS has joined the ENTRETECH project which aims to develop entrepreneurial skills and enterprising in technical education (http://www.entretech.ee/en/).
Syllabi are reviewed and updated each academic year. At least once every two years the Curriculum Councils submit amendment proposals regarding the lists of subjects and study loads of subjects to the Faculty Councils and these lists will then be discussed at meetings of the Management Board and subsequently approved by the TTK UAS Council. Results of surveys on subject monitoring conducted among students are also used for course development. Moreover, through surveys relating to the organisation of studies, the institution collects, among other things, student and academic staff feedback on opportunities to present opinions and on issues of receiving feedback itself and its usage (Table 35).

Table 35. Student and academic staff satisfaction indicators, 2012–14 (%)

Students	2012	2013	2014	2012	2013	2014	2012	2013	2014
	Satisfied			Undecided			Dissatisfied		
Teaching staff consider students' opinions and proposals	71	66	70	18	22	21	11	12	9
Faculty considers students' opinions and proposals	58	60	60	31	28	29	11	12	11
Social skills are developed along with professional knowledge in the learning process	64	69	73	24	22	19	12	9	8
Academic staff	2012	2013	2014	2012	2013	2014	2012	2013	2014
	Satisfied			Undecided			Dissatisfied		
I receive constructive feedback from the Head of Faculty Chair on my work	67	72	77	16	16	12	17	12	11
I receive constructive feedback from students on my work	77	77	75	16	14	9	7	9	16
I use the feedback received to improve teaching	93	93	95	7	4	4	–	3	1

In recent years, more attention has been given to improving the collaboration between Faculties and Centres in order to better integrate the learning contents and study loads of course materials, e.g. CLIL – Content and Language Integrated Learning.

2.2.2. Graduate satisfaction with the quality of studies and employer satisfaction with qualifications of graduates

The institution receives feedback about employer satisfaction with graduate qualifications through the TTK UAS Advisory Board, Curriculum Councils and Diploma Theses Evaluation Committees whose memberships comprise at least 50% of external members. Feedback is also received from reviewers of graduation theses, governing bodies of professional associations in which TTK UAS employees participate and from practical training coordinators' communications with enterprises. In some professional fields (e.g. construction and architecture), national surveys of employer satisfaction have been conducted which have also involved TTK UAS graduates and their employers. The feedback received is primarily used when developing curricula (including topics for practical trainings and graduation theses), but also for planning student places and improving the organisation of studies.
In 2006 and 2009, TTK UAS participated in nationwide alumni surveys which explored the labour market successes of alumni, their opinions about competencies they had acquired and the teaching and learning process at TTK UAS, the feedback to TTK UAS has been positive. A similar survey will be repeated in 2014 in which the graduates of 2012 will be the target group.
In order to gather employer and alumni feedback, TTK UAS is planning to carry out an internal pilot project in 2014, in which the Heads of Faculty Chairs will conduct semi-structured interviews with representatives of the target group. The interview results will be recorded and the information will serve as an input for Faculties to guide their organisations of studies, and for Curriculum Councils to develop curricula.
To keep in touch with its alumni, TTK UAS established the TTK UAS Alumni Association in 2013. In 2006, the Ericius Student Society at the Faculty of Construction was founded whose traditions have become well established, e.g. visits to construction sites, specialty-related lectures by foreign lecturers and presentations of career opportunities to current students by alumni (in Estonian: http://www.ericius.ee/). Faculty alumni reunions at least once a year have become a tradition as well. Traditional basketball tournaments for alumni have been organised since 2000. Such alumni gatherings provide informal feedback about teaching and learning.

2.3. Student academic progress and student assessment

2.3.1. Monitoring and support of student academic progress

Formal education can be acquired on a full-time or part-time basis and external study options are also available. Full-time and part-time studies are conducted in the forms of daytime study or distance learning, while the requirements for the final results of learning do not depend on levels of student workloads or forms of study. In full-time study, a student will cumulatively complete at least 75% of the study load subject to completion under the curriculum by the end of each academic year and, in part-time study, cumulatively 50–75%. A student who has completed less than 50% of the study load by the end of an academic year may be exmatriculated.
Formal education curricula are based on the course system where, in order to complete the curriculum, a student must complete subjects in the order provided for in the learning schedule. Students' academic progress is monitored by means of SIS applications which allow one to have extracts of students' academic progress by different parameters (Table 36). Deans' Assistants and Heads of Faculty Chairs analyse students' curriculum completion rates,

their weighted average grades, the effectiveness of teaching and learning by course and by teaching staff member, etc.

Table 36. Aggregate indicators of students' academic progress, 2011–13

	2011	2012	2013
total number of students	3,107	2,941	2,825
full-time students (%)*	90.2	88.4	87.9
part-time students (%)*	8.7	10.3	11.2
percentage of student body completing 100% of curriculum to date (%)	36.2	32.5	34.0
percentage of student body completing 90–99% of curriculum to date (%)	20.0	19.7	19.6
weighted average grade for all students combined **	3.42	3.33	3.26
weighted average grade for graduates **	3.79	3.83	3.73

*Presented for all students. In addition to full-time and part-time learners, there are students with undefined study loads in the SIS, e.g. international students.
**On a differentiated grading scale, the grades from 1 to 5 indicate positive results.

Academic progress is calculated at the end of the first academic year and from then on after every examination session as of 15 September and 1 February. Students who are enrolled full time and have completed the required study load by the upcoming semester have the right to study free of charge (this will apply to students enrolled in the 2013/14 academic year or later). The results of consolidated analysis are used for calculating the completion of study loads, granting study allowances and performance scholarships, and determining the needs for counselling. These results will also serve as a basis for the Faculties to plan additional activities and trainings as well as to develop curricula (including a general course in basic mathematics in curricula, extracurricular study of Estonian as a second language, bridging courses in the sciences for graduates of institutions of vocational education and training, etc.).
Providing e-learning support for courses is an effective way to support students' academic progress and as such it has been identified as a priority in the TTK UAS Development Plan (see 2.4.4). Students are also provided with subject-related consultations.
Students are able to apply for study allowances and/or performance scholarships based on their academic achievement (in Estonian: http://www.tktk.ee/uliopilasele/oppetoetused/), as well as the TTK UAS Active Student Scholarship. Beginning with the 2014/15 academic year, students studying under the Civil Engineering Curriculum will be able to apply for a specialty-related scholarship. TTK UAS also allocates scholarships to leading members of the Student Council. Various partner enterprises support TTK UAS students by allocating scholarships under certain contractual conditions. For example, ABB AS has awarded scholarships to students of the Faculty of Mechanical Engineering, AS Schenker and AS Toyota Baltic to students of the Faculty of Transport.

2.3.2. Student assessment

Polices for assessing study results and confirming acquired student knowledge are described in the TTK UAS Study Regulations. Students' knowledge is assessed in terms of achieving learning outcomes. Courses' contents, objectives and learning outcomes to be achieved, as well as assessment methods and criteria, are described in course descriptions and syllabi that are available to students in the SIS and are also introduced to students at the beginning of the specific course.
Based on learning outcomes, assessment may be differentiated or non-differentiated; and assessment methods include pass/fail evaluations, graded evaluations, examinations and defences. A differentiated assessment is consistent with the grading scale described in the

TTK UAS Study Regulations, which is applied equally to all students. In the case of non-differentiated assessment, the achievement of learning outcomes that equals or exceeds a predetermined level will be given an assessment of 'passed', and the achievement below this level will be assessed as 'failed'. Faculties are entitled to establish an increased completion threshold for specified specialty-related subjects.
In the case of failing to pass an exam or evaluation, students may take up to two test resits. In the case of the second resit, the student has the right to request an examination committee to be present at the resit. Any decision associated with the organisation of studies, including grade disputes, are regulated by the Study Regulations.
Defence of theses takes place in an open session of a Diploma Theses Evaluation Committee where external members comprise at least 50% of the Board. In justified cases (confidentiality of a thesis), graduates are entitled to apply for closed defences of their graduation theses.

2.3.3. Recognition of prior learning and work experience in TTK University of Applied Sciences

Recognition of prior learning and work experience (Estonian acronym *VÕTA*) is regulated by a decision of the TTK UAS Council, 'Conditions and Procedures for Recognition of Prior Learning and Work Experience of Its Students and Transfer of Their Study Results'. Such recognition and transfer of study results are applied to both formal education and in-service trainings.
TTK UAS has named advisors who counsel students regarding recognition of prior learning and work experience, and assessors who evaluate the related applications. Together the advisors and assessors are referred to as *VÕTA-komisjon* [Committee to recognise prior learning and work experience]. Recognition of prior learning and work experience is conducted on an individual basis. Applicants must submit an application enclosing documents that certify their prior learning and/or work experience. The Committee is entitled to request the applicant to submit additional documents; take an exam, evaluation or test; or be interviewed. Each application needs to be approved by at least two members of the Committee; professional experts will be involved as needed.
Studies completed under accredited curricula will be recognised and credited on the basis of an academic report. The Committee will evaluate the compliance of subjects listed in the application or learning outcomes described therein with learning outcomes of the subjects to be credited for and verifies the correctness of the application. Replacement of a subject or part of it by professional work experience is agreed between the student and the corresponding teaching staff member, and the standard application procedures do not apply. Credit points earned in a vocational education institution cannot be transferred one-for-one, but teaching staff can take into account student knowledge acquired there, e.g. as a practical part of the subject. Curriculum-related work experience may be taken into account when completing subjects associated with practical skills or undergoing practical training. Recognition of prior learning and work experience cannot be applied to the defence of a graduation thesis or final examination. Recognition of prior learning and work experience can be applied to in-service trainings as well.
Completion of curricula based on recognition of prior learning and work experience has been different over the years, representing 6–9% of all ECTS credits entered. Most credit transfers within the framework of such recognition were implemented in 2010 and 2011 when a number of former TTK UAS students returned to continue their unfinished studies.

2.4. Support processes for learning

2.4.1. Organisation of formal education

A curriculum is the basic document for teaching and learning which is prepared and developed by the Faculty, reviewed by the TTK UAS Council and registered at MER. Study loads of all curricula are 240 ECTS credits and the standard period of study is four years. Uniform bases for the organisation of studies are provided for in the TTK UAS Study Regulations (http://www.tktk.ee/wp-content/uploads/TTK-UAS-Study-Regulations.pdf). In order to determine the timeline of activities, an academic calendar for each academic year is prepared. The academic year is divided into two semesters of 16 weeks each; in distance learning the academic year consists of six one-week training sessions, and at other times learning is undertaken independently.

One ECTS credit is equivalent to 26 hours of study by a student of which 8–16 hours are intended for contact-based learning, which on average is 12 hours. In general, students are expected to attend classes earning 30 ECTS credits every semester (compulsory and elective subjects plus practical learning), which allows them to graduate within the standard period of study.

The structure of curricula is based on the so-called course system in which coherence between subject courses and practical trainings are monitored, as well as a logical succession of achievement of learning outcomes. Teaching and learning at Faculties and Centres are organised based on a timetable. Priorities kept in mind when preparing the timetable are the completeness of studies and reasonable daily and weekly workloads of classroom teaching and learning. Decisions by Faculty Councils formulate the requirements for students (the maximum allowed rate of unfulfilled academic work) to be able to proceed to the engineering practice work needed for graduation. To graduate, the student must complete all theoretical and practical subjects of the curriculum on positive grades, accumulate the required ECTS credits and defend his or her diploma thesis in front of a Diploma Theses Evaluation Committee and, under some curricula, also take an engineering examination. The Office of Academic Affairs analyses performance of the organisation of studies once a year and proposes amendments to the Study Regulations as appropriate.

In order to support student learning, attention is given to the implementation of activity methods, the establishment of linkages between applied research and the process of teaching and learning, and the development of e-support to courses which will support students' independent work (see also 2.4.4).

To support the learning process, TTK UAS has a library equipped with all the required facilities. The Library uses the integrated library system Millennium and its items are visible in the ESTER e-catalogue (http://www.tktk.ee/en/ttk/supportive-units/library/electronic-search-e-catalogue/). Library databases and finding resources are available on TTK UAS webpage (http://www.tktk.ee/en/ttk/supportive-units/library/e-databases/). Beginning with autumn 2014, the information retrieval training will be mandatory for first-year students and will form part of the information and data processing subject.

As a result of a feedback survey conducted in 2013, the accessibility of items and the level of customer service was improved, and the content and structure of Library website was redesigned to be more user friendly.

2.4.2. Counselling services provided for students of TTK University of Applied Sciences

Students are provided with academic, career, social and psychological counselling. Counselling is provided by both academic and support staffs (in Estonian: http://www.tktk.ee/uliopilasele/noustamine/).

Academic and career counselling aim to help students complete their studies successfully and enter the professional labour market. In general, the Dean's Assistant is the primary academic

advisor at the Faculty; Heads of Faculty Chairs and Deans deal with curriculum issues. To support students in finding workplaces for practical training and entering into agreements, each curriculum has a Practical Training Coordinator. Course-related counselling is provided by teaching staff who all have consultation hours outside regular teaching hours intended for that purpose.

In addition, students can get advice and help from support units. Academic Affairs Specialists of the Office of Academic Affairs provide learning-related and social counselling; and the Student Admissions Specialist is responsible for career, academic and social counselling to student candidates. The staff of International Relations Office counsels students in matters relating to international study opportunities, mobility programmes and practical trainings.

Students can also use psychological counselling services. In addition, it is possible to get consultation and advice from the Lawyer of TTK UAS. Medical help is available as well. Feedback surveys confirm that students know who to turn to with their counselling issues (Table 37).

Table 37. Student opinions on whether they know who to turn to with counselling issues at their faculties, 2012–14 (%)

	2012	2013	2014	2012	2013	2014	2012	2013	2014
	Agree			Undecided			Disagree		
I know who to turn to with counselling issues at my faculty	78	77	77	12	11	15	10	12	8

Faculties arrange briefings for students to communicate needed information. At least once each academic year, Curriculum Advisors (i.e. Heads of Faculty Chairs) explain to student groups of a specific curriculum the objectives of a given period and the prospects for completing them. The Office of Academic Affairs in collaboration with the Student Council organises an Information Day for student group leaders once each academic year. Information Days for first-year students are organised to introduce matters relating to studies at TTK UAS (issues from regulations to technological support), structures of curricula, organisation of studies and practical trainings, etc. Student satisfaction with information flow is surveyed annually (Table 38).

Table 38. Student satisfaction indicators, 2012–14 (%)

	2012	2013	2014	2012	2013	2014	2012	2013	2014
	Agree			Undecided			Disagree		
Mutual contact and information exchange between students and teaching staff is effective	73	70	73	16	19	19	11	11	8
Information about the organisation of studies is available	72	76	72	18	17	20	10	7	8
Information flow about school life is effective	64	65	67	21	18	21	15	17	12

Information relevant to students is available from different information carriers (Table 2). Since 2010, the Student Handbook has been compiled and issued which contains concise information on the learning process and serves as a reference guide for first-year students. TTK UAS is a member of the Studentweb Consortium (https://www.tudengiveeb.ee/en) – an Estonian student and employer information portal that provides students with educational and career counselling and mediates internship offers.

2.4.3. Student international mobility and support thereof

TTK UAS students are offered opportunities under the Erasmus programme to study 3 to 12 months at foreign partner higher education institutions or complete their practical training of 1 to 12 months in foreign enterprises. As it is shown in Table 39, both incoming and outgoing mobility have risen in recent years.

Table 39. Student mobility indicators, 2011–13 (numbers)*

	2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013
	Short-term			Long-term			Other			Total		
Out-going mobility	42	68	68	39	46	38	–	–	38	81	114	144
Incoming mobility	6	85	26	18	21	32	16	73	93	40	179	151

*Outgoing long-term mobility includes studying and internships abroad under the Erasmus programme; short-term mobility includes participation in projects and networks within the framework of Erasmus Intensive Programmes and NordPlus programmes; and 'other' outgoing mobility includes language learning and short-term projects.

The most popular partners among higher education institutions are those in Portugal, Sweden, Germany, Finland, Denmark, Czech Republic, Spain and Turkey. Erasmus Intensive Programmes and NordPlus networks and intensive courses also offer students international learning experience having allowed them to visit higher education institutions and enterprises in Finland, Lithuania, Poland, Germany, Portugal, Iceland and elsewhere. Through intensive programmes and courses students participate in international working groups. The list of partner higher education institutions can be found at: http://www.tktk.ee/en/international-relations/partner-universities/.

The learning agreement, prepared on the basis of a study plan and signed in advance by the student, TTK UAS and the host higher education institution, is a required document for participating in studies at partner higher education institutions.

International guest students are offered courses taught in English (http://www.tktk.ee/en/international-relations/international-courses/elective-courses-specialties/). To support social, academic and cultural integration of international guest students and to offer them a diverse academic environment – TTK UAS, the Estonian Academy of Security Sciences (EASS) and Tallinn Health Care College signed a tripartite agreement in 2013 that allows international students to complete their elective subjects in accordance with their learning agreements at a partner higher education institution of their host higher education institution. For example, in 2013 international students were offered two integrated courses in collaboration with EASS: the Estonian Language and Culture and the Creativity and Group Work Course.

TTK UAS has created a support system for international guest students by offering tutors. In addition, TTK UAS actively collaborates with the Erasmus Student Network (ESN) (http://www.esn.ee/tallinn/), being its member since 2008.

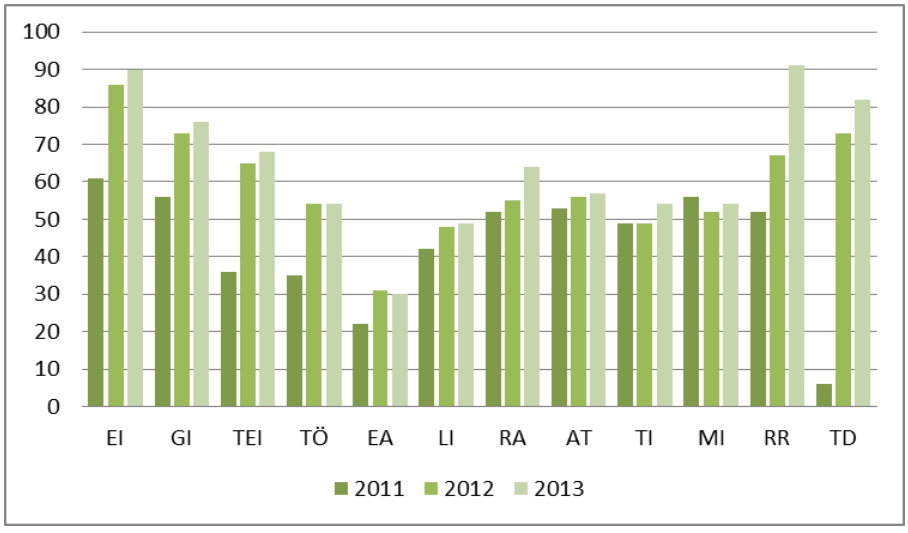
The Head of International Relations submits a consolidated report to the Archimedes Centre for Academic Mobility (Mobility Unit) at the end of each academic year. TTK UAS has agreed on internal performance indicators for evaluating the internationalisation process; the aims are to increase the number of students participating in international programmes and balance incoming and outgoing student mobility. Feedback surveys on the organisation of studies indicate that information about study opportunities abroad is available for the majority of students, but the decision of studying abroad is heavily influenced by economic reasons.

2.4.4. Use of modern technical and educational technology resources in organising teaching and learning

Management of teaching and learning processes and the information obtained is performed in the web-based Study Information System (SIS), in the development of which TTK UAS has had a leading role among other professional higher education institutions. The SIS contains daily information for students and teaching staff, e.g. the module for planning workloads for the academic year (the working load agreement), the module for conducting surveys, student declarations of courses and means for analysing student academic progress. Collaboration by higher education institutions in the Admissions Information System (SAIS) ensures a smooth technical flow of admissions each year. E-learning is conducted via the Moodle open-source e-learning platform. Moodle is very popular in teaching and learning: it contains 374 courses that are either completely web-based or support classroom activities and has 3000 active users. TTK UAS has its own server farm consisting of five physical servers and several virtual servers. The main building of TTK UAS is provisioned with a centrally managed indoor wireless internet network.

According to the Development Plan, e-learning is one of the priorities for the learning process. TTK UAS has employed two Educational Technologists who supervise and help teaching staff prepare e-materials and advise students as appropriate (in Estonian: http://www.tktk.ee/korgkool/tugiuksused/haridustehnoloogia/). As of 1 January 2014, the proportion of subjects in TTK UAS's curricula either completely or partly covered by e-materials stood at 65% (online courses, learning objects, video lectures, lecture materials or other teaching materials). One of the objectives for the year 2013 was to introduce and implement e-consultations. Data in the chart is presented cumulatively (Figure 5).

Figure 5. Proportion of subjects with e-support in curricula, 2011–13 (%)



Between 2008 and 2013, TTK UAS applied the support from the BeSt Programme (a programme funded by the European Social Fund) to shape a foundation for its high-quality e-learning, creating 30 online courses of which six were awarded the Quality Label of the BeSt Programme. In 2012, the Information Technology Foundation for Education (HITSA) named the *Construction Engineering and Management* course, created by TTK UAS's Lecturer Anneli Ramjalg, as 'E-course of the Year', and in 2013, this award went to the *Organisation of Construction + Project* course, created by TTK UAS's Associate Professor Aivars Alt. The ADOK online course (Automation Technology and German as an Online Course) developed by Britt Petjärv and Marek Pakkin together with project partners received the European Language Label 2012 awarded by the European Commission and MER.

2.4.5. Organisation of student feedback

Student satisfaction surveys are conducted on a regular basis, dates and objectives described in Table 40.

Table 40. Student satisfaction surveys at TTK UAS

Name of survey	Objective	Date	Use of results
Survey of organisation of admissions and settling in at TTK UAS	To increase admission rates and reduce dropout rates.	October, annually	Admission Specialist: improving the admissions process. Faculties: facilitating the induction of students.
Survey of the organisation of studies and the learning environment	To improve the organisation of studies and the learning environment in more student-friendly ways. To reduce dropout rates and improve the quality of studies.	March, annually	Vice Rector for Academic Affairs: improving the organisation of teaching and learning. Deans and Heads of Faculty Chairs: improving the organisation of studies and the learning environment.
Subject monitoring	To improve the quality of studies.	Autumn and spring semesters	Teaching staff: improving courses. Heads of Faculty Chairs, Deans, Heads of Centres: assessing the work performed by teaching staff, developing curricula. Evaluation Committee: evaluating teaching staff.
Survey of the organisation of engineering practice work	To improve the completion of curricula and organisation of practical trainings.	Pilot, October 2012	Organiser of engineering practice work and Heads of Faculty Chairs.
Feedback survey of the writing and defence of graduation thesis	To ensure better quality of graduation theses.	June, every other year	Heads of Faculty Chairs: improving graduation thesis writing and defence processes.

Regular surveys are organised centrally and conducted in the SIS environment, surveys have selectively been conducted on paper as well. Meetings to receive student feedback are convened as appropriate and regular joint meetings of the Student Council and Rectorate are held as well. Furthermore, needs-based pilot projects are implemented for surveying issues and topics of interest, e.g. interviews with distance learning students and Heads of Faculty Chairs were conducted in spring 2013.

At the end of their in-plant work-experience, students prepare practical training reports that also serve as feedback on the organisation of practical trainings and the compliance of curricula with the world of work.

The system of subject monitoring is integrated with the system of teaching staff evaluations. In this regard, the courses taught by members of the teaching staff under evaluation are included in the monitoring and the results are taken into account for evaluation.

Results of surveys are available in the SIS to the relevant student groups, teaching staff, Heads of Faculty Chairs and Deans. Results of each survey are summarised at the institutional level as well as at structural unit levels and the results are compared with previous years. Surveys include rating scale questions as well as open comments and suggestions.

Table 41. Areas for improvement of the effectiveness of teaching and learning and formation of the student body

Area for improvement, activity	Expected results
According to the development of the Estonian economy and in collaboration with employer representatives, establishment of a framework for further development of the existing curricula and preparation of new ones.	By 2015 the framework will have been established and the development work started.
Curriculum development based on the Estonian Qualifications Framework and professional standards (ongoing).	The curricula will be consistent with the appropriate professional standards; awarding of designations of primary-level professions to TTK UAS graduates will have been started.
Systematic development of satisfaction surveys for alumni and employers.	Satisfaction surveys will support the curriculum development process.
Reduction in the proportion of students who interrupt or withdraw from studies. In order to create a support system, TTK UAS has initiated and assumed leadership in a survey across all professional higher education institutions to examine the reasons for interruption of studies.	An overview of reasons for interruptions and potential support measures will be created. By 2015 the proportion of dropouts in the broad area of Engineering, Manufacturing and Construction will not exceed 17% and in the broad area of Services 11%.
Increasing student mobility; developing subjects, modules, projects and summer schools taught in English.	According to the Directive of TTK UAS Operating Subsidies, the number of students participating in all international programmes will have reached 10% of total students by 2015; which includes up to 2% of the total number of students who will be participating in student exchanges under the Erasmus programme.
Development of teaching methodology, including e-support (ongoing).	Students will be motivated, the learning process will support their individual and social development. The effectiveness of teaching and learning will improve. Further development of e-learning will continue, at least 95% of courses will get e-support and the e-consultation system will be implemented.
Modernisation of the learning environment and development of	The use of the digital environment in teaching and learning will expand. Laboratory

simulation software and hardware, e.g. BIM, simulation software for the field of transportation and logistics, and development of an industrial automation laboratory.	equipment will be upgraded.
Investments to change the learning environment to be more suitable for students with special needs, in accordance with an existing prepared audit.	By 2016 the recommendations presented in the audit will be realised.

3. RESEARCH, DEVELOPMENT AND CREATIVE ACTIVITY

For the purposes of determining objectives in the field of research, development and creative activity (RDC) and measuring their results, TTK UAS has, in collaboration with other professional higher education institutions, defined RDC as described below.

Research

Scientific studies or investigations commissioned by external partners or conducted for the development purposes of TTK UAS which result in publications or research reports consistent with the ETIS classification and have accepted characteristics of research (originality, novelty, objectivity, etc.). Research at TTK UAS, by its nature, is mainly applied research.

Development

Activities arising from an internal need of TTK UAS and undertaken for the development of teaching and learning, including teaching staff research related development, resulting in a report; or student diploma thesis commissioned by a client (higher education institution or enterprise) resulting in a report or student paper.

Creative activity

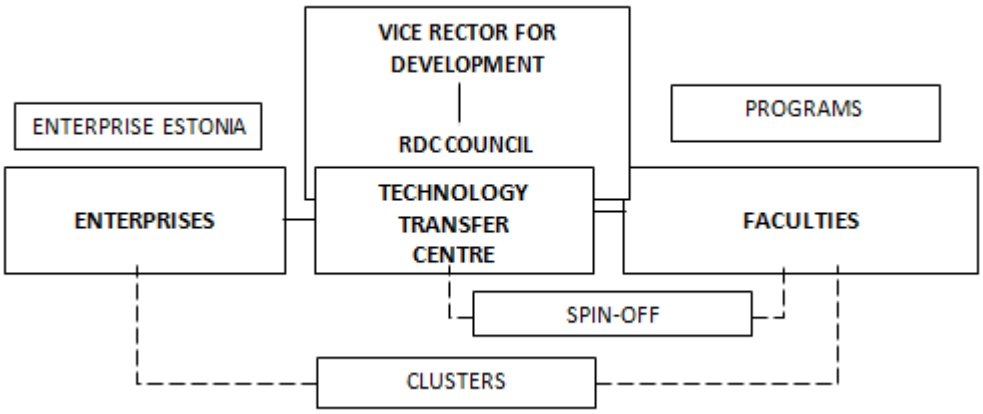
Intellectual work that may result in an application for patents or utility model certificates, and creative work that may have public utility: exhibitions; original creations; participation in competitions, festivals and fairs; works in public space; etc.

3.1. RDC effectiveness

3.1.1. RDC objectives of TTK University of Applied Sciences and their implementation

RDC activities are coordinated at a strategic level by the Research, Development and Creativity Council (hereinafter referred to as 'RDC Council' (see 1.1.2). The RDC Council prepares a long-term plan for applied research by academic year, considering TTK UAS's investment potentials faculty resources and input from the enterprises. RDC management system of TTK UAS is shown in Figure 6

Figure 6. RDC management system of TTK UAS



The RDC Council develops directions for RDC activities of TTK UAS, approves long-term plans for applied research topics and provides its opinion on the effectiveness of RDC activities (see 1.1.2). RDC activities of TTK UAS support the institution's objectives to provide up-to-date engineering education and to participate in national and international cooperation projects with enterprises and other educational institutions – in order to enhance the competitiveness and innovation of the Estonian economy. In 2013, TTK UAS was the only professional higher education institution who participated in the Evaluation of Research in Civil Engineering conducted by an international committee evaluating the potential of this field in Estonia. The committee assessed the achievements of TTK UAS to be very good at the national level.

RDC strategic directions are described in the TTK UAS development plan, and its yearly objectives and activities are described as priority research directions in action plans of the institution and its structural units. Employee participation in RDC activities is described in job descriptions and documented in working load agreement on a yearly basis. In the case of commissioned applied research, the teaching staff will enter into additional contracts.

Students are included in Faculties' RDC activities, e.g. through contract work and partly through graduation theses and course papers.

In the coming years, RDC objectives will be based on two documents: the TTK UAS Development Plan and the Guidelines for RDC Development 2014–2015 (http://www.tktk.ee/wp-content/uploads/TTK-UAS-Guidelines-for-RDC-Development-2014-2015.pdf), Focus will be on priority growth areas, based on the concept of smart specialisation. In addition to other competencies, the Faculties will develop strong and unique competencies which are in demand in the working world, differentiating TTK UAS from universities and other professional higher education institutions.

1. TTK UAS staff will be motivated and competent to conduct applied research and perform contract work. TTK UAS will have an effective recognition and remuneration system (see the TTK UAS Incentive System for Research, Development and Creative Activity).
2. TTK UAS will have modern infrastructure to implement RDC activities, and the relevant support services will be in place, e.g. the Technology Transfer Centre (see 3.1.2).
3. TTK UAS will be a dependable cooperation partner participating in both national and international projects.

The effectiveness of RDC activities and the achievement of their objectives are analysed and assessed on the basis of annual reports from the RDC Council and structural units. Calculations and reporting at a teaching staff level are based on the working load agreement. A summary of RDC activities forms part of the report submitted to MER at the end of each calendar year.

Principal partners of TTK UAS are small and medium-sized enterprises (SMEs). The current trend of seeking partners for applied research primarily from among SMEs arises from the RDC funding model (a lack of targeted financing for RDC by government) (Table 42).

Table 42. Number of contract works by TTK UAS, 2011–13

	2011	2012	2013
TTK UAS's contract works	36	98	242

The list of cooperation partners can be found at: (in Estonian: http://www.tktk.ee/ettevotjale/partnerid/). The number of small-scale RDC contracts has increased, e.g. 173 small-scale contract works were conducted in 2013.
Research, development and innovation in SMEs have become motivated by innovation voucher grants of Enterprise Estonia (in Estonian: http://www.tktk.ee/ettevotjale/innovatsiooniosak/). TTK UAS has successfully implemented contractual projects funded under the innovation voucher programme (28 contracts 2012–13).
Publications based on the results of applied research are published in *Proceedings of TTK University of Applied Sciences*, the journal *Inseneeria* and in other journals (Table 43).

Table 43. Publications by classification in ETIS* as of 05.08.2014

1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	3.3	3.4	3.5	4.1	4.2	5.1	5.2	6.1	6.2	6.3	6.4	6.5	6.6	6.7	Σ
8	52	18	0	26	7	9	63	6	27	17	0	4	1	24	0	63	145	2	0	138	46	**656**

*Classification in ETIS (https://www.etis.ee/otsingud/classification.aspx).

The number of publications per member of academic staff calculated in full-time positions was 4.3, 5 and 6.2 in 2011, 2012 and 2013 respectively. In 2013, 1,0 articles were published per academic staff in full time positions. As of 2013, the number of applications filed for utility models and patents was 18, and the number of certificates received was 16.

3.1.2. Monitoring the needs of society and the labour market in TTK University of Applied Sciences

The Technology Transfer Centre (TTC) was established to provide structural units with the support needed for their RDC activities (in Estonian: http://www.tktk.ee/ettevotjale/teadmiste-ja-tehnoloogia-siire/). The TTC serves as a link between enterprises and Faculties: reciprocally mediates technology transfer opportunities, develops business contacts and builds national and international relationships with other similar RDC centres and institutions to exchange technology transfer related information. In order to coordinate technology transfer, a list of services provided by each Faculty has been prepared (http://issuu.com/tarmo181/docs/tsk_eng_/1?e=2869134/6324294), thus mapping TTK UAS's resources for RDC services.
The TTC and Faculties are engaged in contractual research and projects partnering with other higher education institutions, enterprises, associations, local governments and consortiums, both nationally and internationally.
TTK UAS organises thematic seminars for enterprises and professionals (Entrepreneurship Day, Concrete Day, Road Day, Traffic Day, etc.), roundtables, seminars and conferences where professional expert information, directions for development and results of applied research are disseminated and new contacts with enterprises established (see 4.3.1).
While planning its RDC activities, TTK UAS has established productive working relationships with government authorities (Estonian Road Administration, State Forest Management Centre, Estonian Rescue Board, Estonian Defence Forces, City of Tallinn, etc.) as well as with other enterprises, conducting applied research and contract work, based on their needs. Through participation in professional associations, the Estonian Qualifications Authority and field-related clusters (e.g. Estonian Road Cluster); TTK UAS obtains feedback

regarding the needs and expectations of society and, at the same time, promotes its RDC services.

3.2. RDC resources and support processes

3.2.1. TTK University of Applied Sciences has an effective RDC support system

RDC activities of TTK UAS are regulated by appropriate legislation (see Conditions and Procedures for Entering into Contracts for RDC Activities and Implementation of Contract Work).

Coordination of RDC activities is within the remit of the Technology Transfer Centre (TTC) (in Estonian: http://www.tktk.ee/ettevotjale/teadmiste-ja-tehnoloogia-siire/). The TTC offers support services in accordance with the needs of projects, e.g. document management, negotiations, organisation of results' presentation and dissemination. TTC activities are funded from resources of TTK UAS Project for Development of Knowledge and Technology Transfer received for that purpose and from the budget of TTK UAS.

TTK UAS offers its members an opportunity to publish their research results in *TTK UAS Proceedings* which is issued at least once a year (a total of 16 editions from 2001 to 2014). In addition, TTK UAS provides support for publishing research articles in other publications and covers related expenses (implementation of experiments, translations, editing of texts, etc.).

Tangible and intangible incentives of RDC activities are described in the Incentive System for RDC Activities. To carry out RDC activities, TTK UAS supports: professional development of staff engaged in research, including their studies in formal education (this will ensure growth of the staff and enhance staff qualifications); participation in conferences, using its own resources as well as other resources, for example, the DoRa programme (in Estonian: http://adm.archimedes.ee/stipendiumid/en/programm-dora); and so on. In addition, students and teaching staff have the opportunity to participate in international programmes and development projects.

To coordinate students' RDC activities, TTK UAS students' voluntary research association Heureka has been established (in Estonian: http://www.tktk.ee/uliopilasele/tudengielu/heureka/). Heureka organises visits to partner higher education institutions and annual in-school research competitions which are regulated by the TTK UAS Statute of Student Research (in Estonian: http://www.tktk.ee/wp-content/uploads/TTK-aasta-tegusa-%C3%BCli%C3%B5pilase-stipendiumi-statuut.pdf). The purpose of this competition is to engage students in research; the best participants will be awarded.

3.2.2. Financial resources needed for RDC development of TTK University of Applied Sciences and the strategy supporting their acquisition

In Estonia there is no targeted state financing of RDC activities in professional higher education institutions. TTK UAS finances its RDC activities through TTK UAS operating subsidies, non-state budget funds and supports from Structural Funds.

The state budget (operating subsidy) partly covers RDC-related wages, business travels, trainings and investments. RDC-related contract work and in-service trainings provide TTK UAS with non-state budget funds to cover some RDC-related costs and further develop its courses of action. RDC activities are also funded through participation in various national and international programmes (e.g. TTK UAS Project for Development of Knowledge and Technology Transfer). While drafting its budget, TTK UAS considers the trends of its RDC activities, analyses opportunities to acquire financial resources and sets objectives regarding revenues earned from contract work.

Expenses for RDC activities (direct and indirect costs) in the period 2011–13 were 10–12% of the total budget of TTK UAS. In 2013, the percentage of RDC-related wages paid from state

budget funds was 14%, on average (calculated based on teaching staff workloads). Revenue from RDC activities fluctuates depending on the number of large-scale applied research projects and the scheduled receipt of funds (Table 44).

Table 44. Revenue from RDC-related contracts and projects, 2011–13 (in euros)

	2011	2012	2013
RDC contracts and projects	340,494	317,200	327,713

Provision of knowledge services and price formation are regulated by the TTK UAS Conditions and Procedures for Providing Fee-Based Services. Ten per cent of funds received from providing RDC fee-based services are allocated to cover TTK UAS's overhead costs; the amount to be allocated to Faculties is decided by the Deans of Faculties (generally at least 5%).

3.2.3. Participation of TTK University of Applied Sciences in RDC networks and projects

The objectives of participating in RDC networks and projects are to promote cooperation and conduct comparative analyses in specific fields of research, both nationally and internationally. TTK UAS participates in the Universities of Applied Sciences Network (UASnet, http://www.uasnet.eu/). The UASnet is an international network for professional higher education institutions (universities of applied sciences) which comprises representatives from 10 European countries and aims to strengthen the field of RDC and the related activities of professional higher education institutions in Europe. In 2011, the network mapped a set of RDC performance indicators and compared them among participating institutions. The results of that project were used as the basis for developing RDC performance indicators of TTK UAS. The Rector of TTK UAS participates in UASnet as the representative of RCUAS and the Vice-Rector for Development of TTK UAS participates as the representative of TTK UAS. In 2011, TTK UAS participated in the international U-Map project (http://www.u-map.eu/estonia/) where the indicators of higher education institutions were compared.

TTK UAS staff participate in national and international RDC networks as regular members and in governing bodies as well. Such networks include the working group for RDC activities of professional higher education institutions, Estonian Road Cluster (http://www.asfaldiliit.ee/estonian-road-cluster), buildingSMART Nordic (http://www.buildingsmartnordic.org/), Estonian Association of Engineers (in Estonian: http://www.insener.ee/) and other professional associations (see Table 48).

Development projects include:

- HAPHE – Harmonising Approaches to Professional Higher Education in Europe (http://www.eurashe.eu/projects/haphe/);
- ENTRETECH – Integrating Entrepreneurship Studies into the Curricula of Technical Studies (http://www.entretech.ee/en/);
- ADOK: *Automatisierung und Deutsch im Online-Kurs*, an LLP project on developing a language course for mechanical engineers, the joint project of the Centre for Humanities and the Faculty of Mechanical Engineering (http://www.tamk.fi/en; in German: http://www.adok-projekt.eu/);
- Formula Student – a product development competition for students in the faculties of Transport and Mechanical Engineering (www.formulastudent.ee/en);
- 7FP: B2B LOCO – Baltic to Balkan Network for Logistics Competence (2009–11) EDUPROF (2008–11) (www.uasnet.eu/);
- LLP – *Leonardo da Vinci CNC Kompetenzzenter mit der multimedialen Software* (2009–11) (http://www.adam-europe.eu/adam/project/view.htm?prj=5858).

Erasmus Intensive Programmes (Erasmus IPs) include:

- Sustainable Refurbishment, Retrofit, Energy Management in Housing (SuReReEnMaHo) – an Erasmus IP at the Faculty of Construction (http://www.sentvk.st.vgtu.lt/en/events/erasmus-ip-sustainable-refurbishment-retrofit-energy-management-in-housing-surereenmaho-registration);
- Renovation of Residential Multi-Storey Apartment Blocks within Passive House Concept and Design – an Erasmus IP at the Faculty of Construction;
- Baltic Entrepreneurial Summer School (BESS) – an Erasmus IP involving all Faculties (needs a Facebook log in to open: www.facebook.com/balticentrepreneurial.summerschool).

NordPlus projects include:

- Sustainable Water and Energy Management in Environmental Engineering Network – at the Faculty of Architectural and Environmental Engineering (www.nordswem2013.webs.com);
- AluNord Network – a network for cooperation on aluminium education in the Nordic countries – at the Faculty of Mechanical Engineering (www.sites.google.com/site/alunordproject);
- EkoTekNord – a NordPlus network for promoting Nordic-Baltic student and teacher mobility in the fields of business, information technology, engineering, logistics and media (www.ekoteknord.nu);
- NordApparel – a NordPlus network of textile engineering higher education institutions and companies in Scandinavia and the Baltics – at the Faculty of Clothing and Textile (www.nordapparel.com);
- NOBANET – a Nordic-Baltic Network for Internationalisation of SMEs (www.nordicbalticnet.info).

TTK UAS experts and consultants in RDC projects (and their fields of expertise):

- at the Faculty of Construction, Aivars Alt (Building Information Modelling, BIM), Martti Kiisa (structural testing and facility condition assessment) and Sven Sillamäe (road research);
- at the Faculty of Mechanical Engineering, Toomas Pihl (coatings technology), Tavo Kangru and Janis Piiritalo (CAD/CAM systems), Marek Pakkin (metal construction design) and Valdur Veski (CNC training);
- at the Faculty of Clothing and Textile, Margit Kuusk and Merje Beilmann (clothing research);
- at the Faculty of Transport, Aimar Lukk (development of a diagnostic stand), Aimar Lukk and Sven Andresen (development of a training programme on electric and hybrid cars) and Tõnis Hintsov (transport analysis).

3.2.4. Updating the RDC infrastructure at TTK University of Applied Sciences and its effective utilisation

TTK UAS develops its RDC infrastructure considering both the implementation of laboratory work prescribed in curricula and equipment needed for conducting applied research. Investments in laboratory equipment are assessed against the appropriateness of each expenditure for the main activities of TTK UAS, i.e. teaching, learning and RDC activities. Different funding sources are used for upgrading the laboratories: state budget funds, non-state budget funds and support from Structural Funds (Table 45).

Table 45. Financial resources invested in laboratory equipment, 2011–13 (in euros)

	2011	2012	2013
Laboratory equipment	1,431,701*	139,255	96,742

*Including EU Structural Fund resources in amount of 1,370,207 euros.

During the period 2011–13, TTK UAS invested 4,730,681 euros in its work environment, including the construction of new rooms.

In addition, sponsor enterprises are involved in the updating and development of the RDC infrastructure, e.g. long-term sponsors are: Facio Ehitus, Toyota Baltic AS, Abplanalp Estee AS and ABB AS.

Efficiency in the use of infrastructure is measured by analysing the laboratory and academic space utilisation rate and the costs of infrastructure. Approximately 40–50% of laboratory resources of a Faculty are used to conduct compulsory laboratory work prescribed by the Faculty's curricula and the remaining portion is used for conducting laboratory work of other curricula, providing knowledge services and implementing development projects. Collaboration between Faculties (joint projects), joint usage with other educational institutions (EAA, TUT and TPT) and applied research contracted for enterprises, all increase the efficiency of laboratory usage. The Rectorate analyses the optimal use of resources and, in collaboration with heads of structural units, develops measures to optimise investment and operating costs.

3.3. Student research supervision

3.3.1. Student involvement in research, creative or project activities

Students are able to participate in research, creative or project activities within the framework of their studies. The objective is that students' course projects and graduation theses would be linked to issues of the working world. The main obstacles to this may be limitations set by clients (e.g. time limits) or the specifics of the study process. Students usually get their initial assignments to solve application-oriented problems during their practical training at enterprises. In general, most graduation theses topics (about 90%) are based on research problems assigned by enterprises. Graduation theses may also be based on field-related research topics. Research and project activities within the framework of the learning process are complemented by in-house research competitions organised by Heureka.

TTK UAS students take part in RDC competitions, for example:

- The Faculty of Architectural and Environmental Engineering participated in the Isover Multi-Comfort House Students Contest in 2012 and 2013 and, in 2012, it also advanced to the international round. The Faculty was awarded first prize in the Bank of Estonia contest in 2012 for a commemorative coin related to the London 2012 Summer Olympics and second prize in 2014 for a coin to commemorate Estonian composer Miina Härma. In summer 2013, TTK UAS students, in collaboration with EAA students, participated in an event organised by the youth department of the Union of Estonian Architects entitled '1:1 Model of Urban Street on the Example of Mere Boulevard', during which a section of this boulevard in Tallinn city centre was rearranged into a modern bicycle- and pedestrian-friendly urban street for three days.
- The Faculty of Clothing and Textile has successfully participated in the annual Engineers' Fashion Show, e.g. it won first, second and third prizes and the audience favourite award in 2012 and 2014, and first and second prizes in 2013. The competition *Habitus Baltija* is another annual event in which the Faculty participates every year (http://www.bt1.lv/habitus/?link=10000000). In 2012 the Faculty won grand prize at the ERKI Fashion Show hosted by the EAA (http://erki.artun.ee/2014/?lang=en);

- The Faculty of Transport successfully participates in international contests held in the framework of the Formula Student project and held the fifth position in World Ranking 2013.
- Students of all Faculties participate in annual nationwide research competitions.

Student contributions to RDC activities are calculated in ECTS credits toward completion of their curricula. Teaching staff and Heads of Faculty Chairs are responsible for the calculations. TTK UAS introduces the directions of its RDC research to its students and includes them in the implementation of contract works; student RDC activities are accounted for in their course papers and graduation theses (ECTS credits).

3.3.2. Professionalism, effectiveness and workload of supervisors at TKK University of Applied Sciences

Supervisor professionalism is ensured through the monitoring of qualifications requirements of the teaching staff, assessment of their work results (teaching staff's activity reports, the effectiveness of teaching and RDC activities, student feedback) and periodical evaluation of teaching staff. To enhance supervisor professionalism, TKK UAS supports (see 1.2.1) professional development of its teaching staff (including scholarships to staff in master or doctoral degree studies), participation in professional conferences and seminars, and practising at enterprises. Professional development is undertaken under various national and international programmes, e.g. Erasmus and DoRa (Table 17).
In addition to hours mandated for teaching and RDC activity, annual workloads for the teaching staff include hours for supervision of student graduation theses. World-class professionals from enterprises are also included in supervision of graduation theses as needed. Reviewers from enterprises (the so-called external reviewers) also provide their opinions on graduation theses and, in doing so, indirectly assess supervisors' work as well. Based on feedback from the Diploma Theses Evaluation Committees, the student with the best graduation thesis under each curriculum and his or her supervisor are recognised. Best graduation theses are reflected in *TTK UAS Proceedings*, where both students and supervisors are given credit as authors. Supervisors of student research papers that have received honourable mention at national competitions are recognised as well. In addition, every spring since 2011, the best graduation thesis at TTK UAS is submitted to the scholarship competition, 'Best Graduation Thesis at Professional Higher Education Institutions', organised by RCUAS and the Foundation of Estonian UAS.
In 2012, TTK UAS launched a pilot project to obtain graduate feedback on the process of writing a graduation thesis, which among other things, investigated graduate satisfaction with supervision. Based on the results, pre-defence procedures were improved, for example. Requirements for a graduation thesis and supervision are described in the TTK UAS Study Regulations.

3.3.3. Academic practices, drawing attention to plagiarism and processing plagiarism cases at TTK University of Applied Sciences

Plagiarism has been defined and measures to avoid plagiarism established in the TTK UAS Study Regulations. Students' violation of academic practices and improper conduct include, among other things, the use of aids and materials not accepted by the teaching staff during the examinations and evaluations, and submitting their identical works that have been previously credited or plagiarisms.
To prevent plagiarism, TTK UAS has prepared the TTK UAS Formatting and Style Guide for students (in Estonian: http://www.tktk.ee/uliopilasele/oppetoo/kirjalike-toode-vormistamise-juhend/) which establishes requirements for references and quotations, among other things.

Teaching staff draw students attention to the characteristics of plagiarism and introduce ethical aspects and principles of integrity associated with writing independent papers.
Graduation thesis supervisors have an obligation to monitor adherence to good academic practice (including the avoidance of plagiarism) and the right not to authorise the submission of a thesis unless deficiencies have been eliminated. Diploma Theses Evaluation Committees have an obligation to observe adherence to good academic practice and, when discovering violations, the right to reduce the grade or assess the thesis with a grade of unsatisfactory. In the case of a gross violation of good academic practice detected retrospectively, TTK UAS has the right to revoke the positive grade for that thesis and the related diploma.
In the 2013 autumn semester, TTK UAS conducted a pilot project to identify and describe plagiarism incidents suspected in graduation theses and thus to increase its students, lecturers and supervisors' awareness of citation requirements. The project included 25% of the 2013 graduation theses from each faculty and results were discussed at management meetings as well as among Deans. As a result of the project, a seminar for the teaching staff and students was conducted in the 2014 spring semester presenting the results of the project, and citation requirements were reiterated to enhance the quality of graduation theses. TTK UAS will continue to analyse graduation theses by applying the same methodology.

Table 46. Areas for improvement of RDC activities and expected results

Area for improvement, activity	Expected results
Clarification of key areas of knowledge and technology transfer at Faculties	Each Faculty will have its own key research areas..
Applying for baseline funding of RDC from MER.	Sustainable RDC capacity of TTK UAS will be ensured.
Development of educational infrastructure by introducing SMART technologies.	BIM CAVE virtualisation solutions, an industrial automation laboratory and simulation technologies will be developed.
Improvement of collaboration among Faculties.	Interdisciplinary product development will be implemented through organisational synergy.
Improvement of collaboration among professional higher education institutions in the field of RDC.	RDC activities will be defined, common policies and performance indicators developed and cooperation agreements with enterprises signed.
Personnel development.	The academic staff competencies and motivation in RDC activities will improve.
Provision of high-quality laboratories for every Faculty for their RDC activities.	Every Faculty will have laboratories appropriate to their RDC activities which will be actively used by 2015.
Increasing students' awareness of the requirements for writing and formatting written papers.	Properly formatted written papers will become a regular practice.

4. SERVICE TO SOCIETY

4.1. Popularisation of core activities of a higher education institution and its involvement in social development

4.1.1. System of TTK University of Applied Sciences to popularise its main activities

Marketing and implementation of formal education, lifelong learning and RDC activities in its broad areas of study at TTK UAS are viewed as popularisation of TTK UAS's main activities.

Structural units responsible for the popularisation of TTK UAS's main activities are: the Department of Communications and Marketing, Open University and the TTC in collaboration with academic units. Such activities are described in the TTK UAS Guidelines for Development of Communications and Marketing 2014–2015.

The main target groups of teaching and learning are potential student candidates and in-service training and retraining participants. To market its curricula, TTK UAS has signed cooperation agreements with general education schools and vocational education institutions within the framework of which TTK UAS hosts pupil visits, and also visits schools. TTK UAS organises open houses and workshops and participates in Estonian and international education and professional fairs, e.g. Teeviit (http://teeviit.ee/?lang=en?p=81&keel=en), Intellektika (http://www.intellektika.ee/?act=9), Orientiir (http://noortek.ee/index.php?page=3&) and Tuleviku Kompass (in Estonian: http://rajaleidja.ee/saaremaa-infomess-tuleviku-kompass/). TTK UAS is regularly represented at the International Weeks of partner institutions.

The impact of traditional marketing methods is decreasing among young people, therefore in recent years TTK UAS has been focusing more on online and social media marketing (see 1.1.5). Based on the results of admission surveys, TTK UAS has upgraded its website, including the admissions section, and has started to give emphasis to social media channels because a major part of student candidates look for information on educational institutions through those media. Promotional publications are produced which are addressed to different stakeholders.

A student shadow programme for school-leavers as prospective students has been created, in which 18 young people participated in 2013. Under this programme, each could take part for one day in studies of the curriculum he or she was interested in – accompany a current student, attend lectures, visit the library and participate in all parts of student life of that day (in Estonian: http://www.tktk.ee/sisseastujale/tudengivari/). Popular engineering projects are used in marketing, e.g. Formula Student (http://formulastudent.ee/en), Engineers' Fashion Show (in Estonian: http://kultuuriklubi.ee/?page_id=124), Tehnocum (in Estonian: http://www.inseneeria.ee/tehnocum-aitab-leida-tee-tehnikavaldkonna-juurde/), CADrina (in Estonian: http://www.cadrina.ee/cadrina/) and Logistics Seminar (http://www.logistikaseminar.ee/en). Furthermore, to popularise technical education and promote the institution, TTK UAS's members participate in television and radio programmes as professional experts, e.g. the *Huvitaja* radio show on the Vikerraadio station of the Estonian Public Broadcasting introducing different fields; the *Seitsmesed uudised* news programme on the private television channel TV3; and the TV show of the public broadcasting channel entitled *Kooliproov* which introduces professional higher education institutions and the specialties taught in each. TTK UAS's laboratories and field-related technologies are introduced in various television programmes, e.g. the *Nurgakivi* construction show on TV3, and the *Rakett 69* [Rocket 69] show on ETV which was recognised as the best education show at the Eurovision TV Summit 2012.

To popularise its research, development and creative activities; TTK UAS organises and participates in professional seminars and conferences, presents its RDC results, publishes specialty-related articles and introductions to research results in popular scientific magazines (Table 47), and collaborates with its partners from other higher education institutions, enterprises and organisations. TTK UAS is engaged in ongoing cooperation with the *Inseneeria* journal which publishes articles of general interest by staff and news about the school.

Table 47. Popular science articles in ETIS as of 08.01.2014*

6.3	6.4	6.5	6.6	6.7
135	2	0	127	44

*Classification in ETIS (in Estonian: https://www.etis.ee/otsingud/classification.aspx).

4.1.2. Participation of employees of TTK University of Applied Sciences in activities of professional associations and, as experts, in social advisory boards and decision-making bodies

TTK UAS as a leading provider of technical professional higher education has strong partnerships with several professional associations, its members actively participate in advisory and decision-making bodies and have a say in shaping national and regional strategies (Table 48).

Table 48. Selection of most important participations in professional associations

Structural unit	Professional associations / advisory and decision-making bodies
Faculty of Architectural and Environmental Engineering	Union of Estonian Architects, Arhitektuurikoda [a civil law partnership uniting main actors in the field of architecture], Baltic Architects Unions Association.
Faculty of Construction	Estonian Association of Engineers; Estonian Association of Civil Engineers; Qualifications Board of Estonian Association of Civil Engineers; buildingSMART Nordic; Sector Skills Council for Construction, Real Estate and Geomatics at the Estonian Qualifications Authority; Estonian Road Cluster; Qualifications Board of Association of Estonian Surveyors; Estonian Union of Scientists; Geological Society of Estonia; Estonian Slate Union; Estonian Society for Nature Conservation; Estonian Fund for Nature.
Faculty of Mechanical Engineering	Federation of Estonian Engineering Industry; Estonian Association of Electrical Enterprises; Society of Estonian Mechanical Engineers; Qualifications Board of Society of Estonian Mechanical Engineers; Sector Skills Council for Engineering, Metal and Machine Industry at the Estonian Qualifications Authority; Council of the Faculty of Mechanical Engineering of Tallinn University of Technology; Curriculum Council of the Faculty of Mechanical Engineering of Tallinn University of Technology.
Faculty of Transport	Estonian Purchasing and Supply Chain Management Association PROLOG; Estonian Logistics and Freight Forwarding Association; Union of Car Vocational Studies; Qualifications Board of Automotive Engineers; Association of Estonian International Road Carriers; Estonian Driving Schools Association.
Faculty of Clothing and Textile	Estonian Clothing and Textile Association; Sector Skills Council for Light Industry at the Estonian Qualifications Authority; Curriculum Council of the Technical Teacher Education Master Degree Curriculum at Tallinn University

	of Technology.
Other structural units	Estonian Employers' Confederation; Estonian Chamber of Commerce and Industry; Estonian Qualifications Authority; Sector Skills Council for Engineers at the Estonian Qualifications Authority.

The aim of participation in professional associations is to tie the development of TTK UAS's main activities with relevant trends in the working world. In a narrower sense, this translates into participation in the development and updating of professional standards, mapping needs for in-service training and having a say in shaping higher education and economic policies. Through participation in professional associations, TTK UAS gains access to potential visiting lecturers and members of Diploma Theses Evaluation Committees and further promotes a dual education system. We consider our representation in organisations outside of TTK UAS optimal. Several employees participate, or have participated, in the activities of expert committees for external evaluations of higher education institutions and enterprises, for example:

- from the Faculty of Construction, Sirle Künnapas is an assessor of testing laboratories and certification institutions at the Estonian Accreditation Centre and Anneli Ramjalg is a member of the working group for evaluation of online courses at the Estonian e-Learning Development Centre;
- from the Faculty of Transport, Sven Andresen participated in accreditation processes of Kehtna School of Technology and Economics, and Viljandi Joint Vocational Secondary School in 2014.

4.2. In-service training and other educational activities for the general public

4.2.1. In-service training and lifelong learning

Strategic objectives for lifelong learning are described in the TTK UAS Development Plan and in the TTK UAS Guidelines for Development of Lifelong Learning 2013–2015 (http://www.tktk.ee/wp-content/uploads/Directions-of-Development-of-Life-Long-Learning-of-TTK-UAS-for-2013-2015.pdf). In-service training policies are provided for in the TTK UAS Procedures for Provision of In-service Training and Settlement of Tuition Fees. TTK UAS has made in-service training and retraining available to all, guided by a strategy of lifelong learning and taking into account development needs of the labour market. Such trainings are aimed at employees of enterprises and non-active members of the labour market. In addition, TTK UAS provides trainings for teachers of vocational education institutions and preparatory courses for pupils. In-service training is offered in all broad areas of formal education taught at TTK UAS. Both the numbers of trainings offered and the numbers of participants in these trainings have shown a growing trend over the years (Table 49).

Table 49. In-service trainings: revenues, numbers, hours and participants, 2011–13

	2011	2012	2013
revenue (in euros)	269,291	271,605	317,195
number of courses	56	59	64
number of academic hours	2,498	2,637	3,150
number of learners	1,035	1,062	1,226

Training programmes are developed in Faculties and Centres and professional associations' approval is obtained as appropriate. In addition to TTK UAS's teaching staff, professionals of the corresponding fields are also involved as lecturers. All learners have access to the Library and the Moodle digital learning environment of TTK UAS. TTK UAS works closely with other higher education institutions regarding lifelong learning. TUT Open University has been

a long-term partner, for example, with whom joint projects have been implemented to develop vocational teacher training programmes and IT-based professional trainings. A cooperation agreement for specialty-related vocational teacher training with Tallinn University has been signed.
Arising from the lifelong learning strategy, TTK UAS also supports open learning which is gaining popularity (Table 50). All people with at least secondary education have access to open learning to improve their professional knowledge by taking courses chosen from formal education curricula.

Table 50. Learner numbers and ECTS credits earned in open learning, 2011–13

	2011	2012	2013
number of learners	8	13	25
ECTS credits	81	159	207

Information about in-service trainings and lifelong learning is available on the Open University webpage (in Estonian) http://koolitused.tktk.ee. Open University provides counselling to adult learners in the fields of in-service training.

4.2.2. Planning the in-service training in TTK University of Applied Sciences

TTK UAS's in-service training programmes are outcomes based, take into account requirements of professional standards and are directly linked to the enhancement of professional qualifications. In-service training programmes have been developed in collaboration with key partners (e.g. Estonian Association of Construction Entrepreneurs, Estonian Woodhouse Association, State Real Estate Ltd, State Forest Management Centre, Estonian Logistics and Freight Forwarding Association, Association of Estonian International Road Carriers, Estonian Tax and Customs Board, Estonian Plastics Association and Estonian Road Administration), including organisations that award professional designations; professional associations; employers; government and local government authorities and educational institutions. We base our forecast of the need for in-service training on labour market monitoring and labour demand forecasts, on the one hand, and proposals by employers' organisations and professional associations, on the other.
TTK UAS's role in conducting regulated in-service training courses can also be highlighted. For example, the Faculty of Transport has education licences granted by MER for training motor vehicle drivers instructors and motor vehicle drivers; an education licence by the Estonian Ministry of Social Affairs for conducting trainings in occupational health and safety; and licences by the Estonian Ministry of Economic Affairs and Communications for conducting the road transport manager professional competency training and the train driver training. The Estonian Logistics and Freight Forwarding Association has chosen the Chair of Transport and Logistics to be a provider of freight forwarding training that complies with minimum standards for the FIATA Diploma. The FIATA Diploma in-service training programme produced by TTK UAS was accredited in 2007. TTK UAS has an international licence to provide professional competency trainings for road transport managers in collaboration with the Estonian Logistics and Freight Forwarding Association (in Estonian: http://www.tktk.ee/kursus/fiata-koolituse-oppemoodulid). The Estonian Association of Construction Entrepreneurs has chosen the TTK UAS Faculty of Construction to be a trainer of construction site managers. In the field of mechanics, TKK UAS has an effective training-related cooperation with the Federation of Estonian Engineering Industry. In the field of clothing and textile, TTK UAS partners with the Estonian Clothing and Textile Association. Table 51 lists trainings conducted under education licences and the numbers of participants in the period 2009–13.

Table 51. Trainings conducted under education licences, 2009–13

Education licence granting body	Title of training	Learners
Ministry of Social Affairs	Occupational Health and Safety Training	403
Ministry of Economic Affairs and Communications	Safety Advisor for the Transport of Dangerous Chemicals by Road or Rail Course	117
Ministry of Economic Affairs and Communications	Road Transport Manager Training	1,709
Ministry of Education and Research	Motor Vehicle Drivers Instructor Training	216
Estonian Logistics and Freight Forwarding Association	FIATA Training	75
Estonian Association of Construction Entrepreneurs	Construction Site Manager III	421

Since 2009, TTK UAS has been collaborating with Eesti Töötukassa [Estonian Unemployment Insurance Fund] providing in-service training to the unemployed under training vouchers. There were 189 learners who completed such training courses in the period 2009–13. In addition, TTK UAS acts as a training partner in several training projects (Table 52).

Table 52. Participation in training projects, 2009–13

Year	Title of project, key words
2009–12	The METLOG project – comprehensive training of the unemployed and their deployment in the engineering and metalworking industries, and logistics (112 learners).
2011–13	Partnership of the Faculty of Construction and Open University in the TUT's IT-ACT project. A model for the development of in-service training in the fields of engineering and technology based on the example of specialty-related information and communication technology trainings. Five in-service training programmes were developed (76 learners).
2009–13	The programme, 'Substantive Development of Vocational Education 2008–2013': 1. Faculty of Clothing and Textile participated, through public procurement, in training vocational teachers in the field of clothing and textile and in the field of marketing (68 learners); 2. Faculty of Transport participated, through public procurement, in training instructors of motor vehicle drivers (49 learners).
2013	Carrying out a pilot training under a curriculum development project for Logistics and Supply Chain Management (62 learners).
2013	Participation as a trainer of teachers in the international LogOnTrain project, led by Valga County Vocational Training Centre (30 learners).

In 2011 Tallinn University awarded TTK UAS a letter of recognition 'Training Partner 2011' and the University of Tartu recognised the institution with a letter of appreciation for cooperation in 2011.

4.2.2.1. Participant satisfaction with the quality of in-service training

Surveys are conducted among in-service training participants to learn about their satisfaction with the content, organisation, lecturers and the training environments of courses. The

feedback received is used for organising trainings and improving the quality of teaching and learning. Based on feedback surveys, in-service trainings conducted by TTK UAS are valued highly. In 2013, out of 551 respondents 47% assessed TTK UAS's training courses as 'excellent', 46% as 'very good', 6% as 'good' and less than 1% as 'satisfactory'. Learners' opinions are taken into account, while managing in-service training activities.
Management and improvement of in-service training have two main goals: 1) development of new in-service training courses; and 2) improvement of the existing courses based on the results of satisfaction surveys and feedback from cooperation partners.

4.3. Other public-oriented activities

4.3.1. Public-oriented activities

The objectives of public-oriented activities are to popularise the field of engineering and professional higher education and to share public resources with the community. The Department of Communications and Marketing coordinates these activities, involving other structural units during implementation. The Department of Communications and Marketing prepares annual activity plans for marketing and public-oriented activities, which are reflected in the action plans of academic units. As a rule, students are involved in organising public events.
TTK UAS has established a non-profit organisation, TTK UAS Development Centre, which aims to provide services to society and unite its alumni by creating and disseminating knowledge and by contributing to community development. The Development Centre carries out the development of cultural activities and strengthens social cohesion. Specialty-related thematic seminars are aimed at TTK UAS members and participants from outside of the institution and address acute problems encountered in the development of relevant fields. TTK UAS includes professional associations, enterprises and other higher education institutions when organising such events. Spare-time activities include sports as well as cultural, art and other activities not associated with the main activities of TTK UAS, but through which TTK UAS increases its visibility in society (Table 53).

Table 53. Public-oriented events and participants, 2011–13

	2011		2012		2013	
	Events	Participants	Events	Participants	Events	Participants
public lectures	3	286	4	320	2	254
theme days	2	200	3	420	5	395
conferences	3	317	2	105	2	245
seminars	4	519	4	436	7	440

4.3.2. Contribution of TTK University of Applied Sciences to the enhancement of community welfare, and sharing of its resources

TTK UAS shares its resources with the community and general public: public use of its Library; public online courses; TTK UAS Repository; professional literature compiled by its teaching staff; and the TTK UAS Café. It is possible to participate in various group exercises, hobby activities (e.g. the Savijalakesed Folk Dance Group has performed for 30 years, the TTK UAS Chamber Choir and the drama club) and to use the sports complex; for example, the Flora and Kalev football clubs use the TTK UAS sports hall for training. The Savijalakesed Folk Dance Group performs in Estonia as well as abroad (in Estonian: http://www.savijalakesed.ee/archives/category/esinemised/olnud-esinemised). TTK UAS Chamber Choir performed in the London Sangerstevne 2013 festival, for example.
TTK UAS has representative teams in three ball games (volleyball, basketball and floor-ball) whose activities are supported and student athletes are rewarded for outstanding results. The

best team players are selected to participate in various tournaments, e.g. traditional Spring Tournaments with partner higher education institutions from Riga, Vilnius and Kotka, having done this for 54 years. In 2013 the TTK UAS team participated in the 9th European Universities Futsal Championship. As part of development activities regarding physical culture, the fitness studio and the group exercise room of the sports complex in the main building will be reconstructed by autumn semester 2014, trainings are also open to TTK UAS staff and general public.

TTK UAS teaching staff organise public-oriented personal exhibitions and participate in group exhibitions; there are about ten such exhibitions every year. Employees of the Faculty of Architectural and Environmental Engineering have participated in competitions of architectural and creative designs and received several awards and recognitions (Table 54).

Table 54. Awards and recognitions received at national and international competitions

	2009	2010	2011	2012	2013
number of awards/recognitions	13	10	7	19	23

There have been many years of productive cooperation between the TTK UAS Faculty of Architectural and Environmental Engineering and the Tallinn Culture and Heritage Department under which students survey buildings and the details of their heritage conservation value, which will serve as a basis for future conservation of such monuments and provide a significant contribution to their mapping.

With regard to the Applied Architecture Curriculum, an important traditional output for students' creative activities is the annual exhibition of their graduation theses at the Museum of Estonian Architecture. Students of the Faculty of Clothing and Textile participate in the TTK UAS and TUT joint project, 'Engineers' Fashion Show', and have won several awards (see 4.1.1 and 3.3.1). The Student Christmas Morning Charity has become a tradition since 2009; it is organised within the framework of a course and the proceeds are donated to charity (in Estonian: http://www.tktk.ee/?s=j%C3%B5uluhommik&lang=et). In this charity, students have supported a variety of organisations, e.g. Nõmme Shelter for Mothers and Children, Tallinn Shelter for Animals, Tallinn Zoo, Keila SOS Children's Village and Käo Basic School.

The TTK UAS facilities are used for:

- organising conferences of partners of professional associations;
- conducting the elections of local governments, the Estonian Parliament and the European Parliament (TTK UAS staff also participate in the work of electoral committees);
- conducting donor days twice a year in cooperation with the Blood Establishment of North Estonia Medical Centre;
- holding meetings of the Estonian Association for the Club of Rome comprised of economists and public figures (in Estonian: http://roomaklubi.wordpress.com/).

TTK UAS contributes to the betterment of community welfare by involving students:

- in 2010, in collaboration with the New World Community [a non-profit organisation uniting people of a Tallinn district] a temporary improvised bicycle trail was opened during a neighbourhood street festival;
- in 2011, an entrepreneurship seminar, 'Green Transport as a Business Opportunity', was held, focusing on the issue of electric cars;
- in 2011, 2012 and 2014, Bicycle Theme Days were held at TTK UAS;
- in summer 2013, students of the Faculty of Architectural and Environmental Engineering participated in an event organised by the youth department of the Union of Estonian Architects entitled '1:1 Model of Urban Street on the Example of Mere Boulevard' (see 3.3.1);

- in 2013, the Road Safety Information Day was held, aimed at local governments across Estonia as well as students and teaching staff.

A cooperation agreement between TTK UAS and the City of Tallinn for improving the community welfare is signed and will include collaboration in fields of applied research, development, creative activities, teaching and learning, and public relations.

Table 55. Areas for improvement of other public-oriented activities

Area for improvement, activity	Expected results
Cooperation among all professional higher education institutions to enhance outside activities.	The attractiveness and competitiveness of professional higher education institutions will increase.
Cooperation with professional associations.	Cohesion with society will improve – directing the development of TTK UAS and contributing to national economic development through its expert knowledge.
Cooperation with local area career counsellors, upper secondary schools and vocational education institutions.	Informed choice and admission of motivated student candidates will increase.
Developing the potential of social media in marketing activities.	Target groups will have better access to information aimed at them and appropriate information will be offered to guide their education choices.
Creating a database of in-service training.	By 2015 the In-service Training Information System will be in place, being part of the Study Information System.
Increasing the amount of e-learning support of in-service trainings. Creating e-courses for in-service trainings.	There will be online materials supporting in-service training It will be possible to complete in-service training courses through e-learning.
Continuously providing lifelong learning opportunities which meet the demands of partners and the society.	In-service training will be offered under all TTK UAS curricula and the number of participants will increase.
Improving knowledge transfer.	TTK UAS will be a promoter of local area development.
Intensifying cooperation with the Alumni Association.	Alumni will be involved in TTK UAS activities and TTK UAS will offer recreation activities to its alumni, e.g. sports activities.
Developing local area cooperation.	Another project will be implemented in collaboration with the New World Community.
Improving welfare of local communities with supports from EU Structural Funds.	In collaboration with the Environmental Board, a birdwatching tower will be designed and installed. And in collaboration with the Tallinn City Government, air quality (pollution) monitoring will be performed at the intersection of Liivalaia tn and Pärnu mnt, and an electronic panel displaying real-time data will be installed on the wall of the TTK UAS main building.