

A photograph of the Lappeenranta University of Technology campus. In the background, a large red brick building with a glass facade is visible under a blue sky with white clouds. The middle ground features a green lawn with several trees, some of which have yellow and orange autumn foliage. In the foreground, there are large, smooth, reddish-brown rocks and some green plants. The overall scene is bright and sunny.

LAPPEENRANTA UNIVERSITY OF TECHNOLOGY

Report on Sustainability 2014



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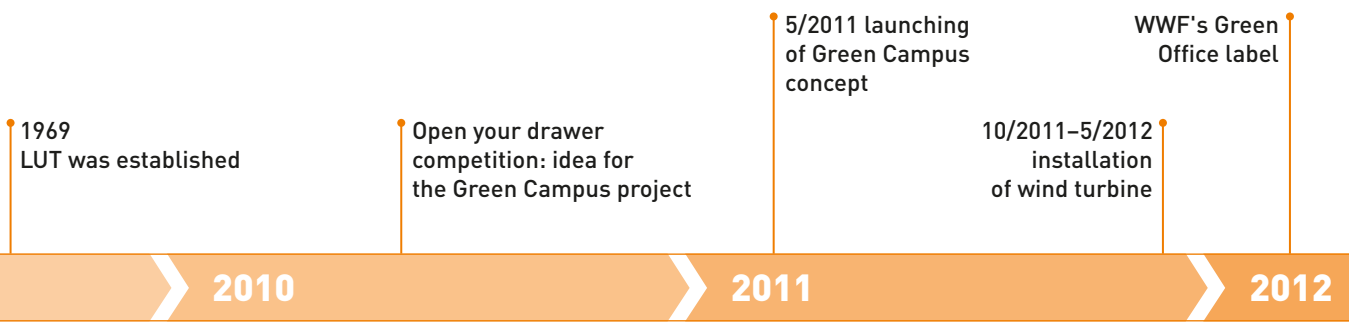
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Introduction

At the end of 2014, Lappeenranta University of Technology (LUT) made a decision about its new strategy extending up to the year 2020. Strategy 2020 addresses four questions for which the university, in a pioneering spirit, is seeking answers through its scientific research activities and academic education:

- Are we going to burn up everything?
- Is humanity condemned to suffer from the water it has polluted?
- Will waste be the grave of our future?
- Will we let Europe degenerate to become the world's backyard?

With its new strategy, LUT will be the path-setter in the areas of energy solutions based mainly on renewable sources, waste-free world, clean water, business models for sustainable development and green growth entrepreneurship. In its operations, the university puts the emphasis on supporting internationalisation of SMEs and their growth, on expertise in Russian affairs in order to make good use of the Russia's economic potential and on data science, that is, data mining and analysis in research.

Already before the new strategy was confirmed, one of the priorities of the university's scientific research and academic

education had been green energy and technology. This has been embodied since 2011 in Green Campus, which reflects our university's ideology and approach while expressing its green values and strong energy expertise as well as providing solutions for global challenges. Green Campus is a unique research and teaching environment where the university's own innovations are put to practical use. By utilising these innovations and by deploying them at the university's own campus, we are building the world the way we think it should be.

In LUT, paying attention to environmental issues and managing them are a part of the organisation's management. LUT, as the only university in Finland, is supported in this task by an environmental system that is in accordance with the ISO 14001 standard. The environmental system was certified in the autumn of 2014, and it covers the university's all activities: teaching, research, social interaction and support functions. Through the environmental system, the university has committed itself to consistently improve its management of environmental affairs and productivity of environmental protection measures. In addition to the environmental system, LUT has since 2012 participated in WWF's Green Office environmental programme, the aim of which has been

LUT KEY FACTS AND FIGURES FOR 2014

- Scientific publications: 892 (2013)
- Master's degrees: 584, of which 392 in technology and 192 in economics
- Bachelor's degrees: 361, of which 236 in technology and 125 in economics
- Doctoral degrees: 63, of which 55 in technology and 8 in economics
- Undergraduate and graduate degree students: approx. 4,800
- Continuing education students: approx. 600
- Open University students: approx. 1,300
- Personnel: 960 in total
- Funding in 2013: Ministry of Education and Culture € 48.4 million and supplementary funding € 34.8 million.
- Of the students who began their studies in autumn 2013, 33% are foreign.



to reduce greenhouse gas emissions of offices and their ecological footprint.

In recognition of the university's environmental expertise, in 2013 LUT was awarded as the top university in the International Sustainable Campus Excellence Award competition's Excellence in Campus category. The awards were given on the basis of solid actions and demonstrations promoting sustainable development and green technology.

About LUT

Since 1969, Lappeenranta University of Technology has been pioneering as a science university combining technology with economics. Scientific research and academic education employ about 6,500 students and experts in our international community.

The strength of LUT is in its way to collaborate across the interfaces of science and units since we are welded together by our open-minded crossing of boundaries and our focus on solutions. Our actions are directed by our courage to succeed, by our passion to innovation through science

and by our will to build well-being. LUT brings up solvers and creates solutions to global challenges related to the environment and economics. We concentrate on topical issues that require action. These include mitigation of climate change and continuous availability of clean water and energy.

LUT's activities are based on high-quality academic ethics. The university promotes usability of scientific findings and cooperation with industries. International accreditations have been obtained for many of the university's degree programmes. These are indications of the high quality of teaching, international approval and continuous development. One-third of the university's students are foreigners.

The highest decisionmaking body of the public university is the board, the tasks of which include deciding about main goals of the university's activities and economy, about its strategy and about the principles of operations management. The activities of the university are directed by the president, who is responsible for the effective management of the university in its tasks. Reporting directly to the president are the provost and two vice presidents who are responsible for research and education.

QUANTITATIVE OBJECTIVES FOR 2015

- 400 refereed publications in international scientific journals
- 50 doctorates in total in technology, economics and philosophy
- 425 Masters of Science (Technology) and 190 Masters of Science (Economics)
- 380 Bachelors of Science in technology and economics in total
- International student exchange: 450 students
- 380 degree students from abroad

With the reform of the Universities Act in 2010, the governing body at the university is the University Collegium. As its statutory duties (Universities Act, section 21), the University Collegium decides, among other things, about the number of the board members as well as the duration of their term of office, elects the members for the university's board, confirms the university's financial statement and annual report as well as decides about discharging the board members and the president from liability. In addition to its statutory duties, the task of the University Collegium is to maintain scientific policy debate at the university and society, and decide about the bases by which to justify the fees to be paid to the members of the board.

With the strategy reform process, LUT has switched into a solution-centred organisation model. Instead of faculties, the university consists of three academic units, schools: School of Business and Management, School of Energy Systems as well as School of Engineering Science. By their structure and activities, the schools resemble departments rather than faculties: they function as the resource centres for education and research and as the home bases for the teaching and research staff. Each academic unit has a head of school and vice-head of school appointed for them.

The areas of expertise of the School of Business and Management are strategy, management and accounting, international business, marketing and entrepreneurship, planning of industrial activities and systems, as well as innovations and software. An academic unit thus brings together, in a unique manner, economic sciences, industrial engineering and management as well as software expertise. The research priority is on the building of sustainable competitive edge and promotion of green technology.

The expertise areas of the School of Energy Systems are energy technology, electrical engineering, environmental engineering and mechanical engineering. The research of the academic units covers the technologies and systems required in the production, transfer, distribution and use of energy, from the production of equipment and fuels to the end use. Among its resources, the academic unit also counts with LUT Voima, a unit serving experimental research. In addition, the School of Energy Systems coordinates the Carelian Drives and Motor Centre (CDMC) research unit.

The School of Engineering Science acts as an international expert in the fields of separation, treatment and process technologies as well as in the fields of machine vision and pattern recognition, industrial mathematics and physics. The research of the academic unit thus combines technology, natural sciences and engineering. The School of Engineering Science coordinates the Centre of Computational Engineering and Integrated Design (CEID) and the Centre for Separation Technology (CST).

The university also have other bodies supporting the implementation of the strategy: institutes, regional units and

units that produce common services. LUT has regional units in Kouvolaa, Lahti, Mikkeli, Varkaus and Savonlinna.

Environmental policy

As a part of work to build up an environmental system, an environmental policy was drawn up in 2013 for the university. It was signed by the president of the university. The environmental policy reflects the commitment of the university management not only to prevention of environmental degradation and conformance to statutory and other requirements but also to continuous improvement of the university's environmental activities. In the environmental policy, Green Campus is defined as the university's model for thinking and acting. In line with it, cross-scientific research and teaching is utilised, in an innovative way, to reduce the university's environmental load.

” GREEN FOR REAL

The environmental policy is mounted on a frame on the Green for real wall at the university's main lobby among the university's other certificates and awards related to environmental activities. It can also be seen on the university's intranet and internet sites both in Finnish and in English. The environmental policy signed by the president is kept in the university's archives. Communication about the environmental policy and its contents to the staff and students is continuous, for example in connection with environmental training.

Statutory and other requirements

The activities of Lappeenranta University of Technology are guided by many kinds of requirements based either on the law or other common operational principles. The activities of all Finland's universities are conducted in accordance with the Universities Act (558/2009). In addition to this, LUT's activities are based, among other things, on the university's charter, Code of Conduct, strategy and quality management system. This report, however, only deals with the requirements set for the university's management of environmental affairs and the evaluation of the compliance with them.

In accordance with its environmental policy, LUT is committed to comply with the requirements set for it by the law and authorities. From the viewpoint of the management of environmental issues, it is thus important to be aware of the environmental legislation related to the university's activities. This can be divided into the following areas:



IN IT'S ENVIRONMENTAL POLICY, LUT IS COMMITTED TO:

- Consider its environmental responsibility in all of its activities: in scientific research, in academic education, in social interaction and in supporting functions.
 - Direct efforts towards research that promotes the well-being of the environment and give support to sustainable development on the global, national and regional level by training environmentally conscious academic experts and decision makers.
 - Set environmental goals primarily to activities under the control of the university while paying attention to activities the environmental impacts of which can be indirectly influenced.
 - Monitor, measure and regularly review the development of the environmental protection level and reserve resources to ensure continuous improvement.
 - Ensure, by open interaction, that the views of the stakeholders and the changes in the university's field of action are being taken into account.
 - Comply with the requirements set for the university by the law and authorities and develop environmental activities in accordance with its commitments.
-



- Environment and protection of nature
- Waste management
- Chemicals and other dangerous substances
- Protection of soil, air and water
- Noise abatement
- Properties and land use
- Environmental damage

Of the abovementioned areas, the most important for the reduction of the university's environmental load and for ensuring environmentally-friendly activities are protection of environment and nature, waste management as well as chemicals and other dangerous substances. Compliance with the legislation concerning waste management and chemicals is important in the university's operations because a lot of waste is created by the university and because the university carries out laboratory activities in the field of chemical engineering. Keeping track of the environmental and nature protection legislation, on the other hand, provides support to the university's aim to improve its performance in environmental protection activities.

The requirements set by the environmental legislation are brought to the university's attention mainly through its

environmental system. The environmental system based on the ISO 14001 standard supposes awareness and active monitoring of the legislation concerning the organisation's own activities. Knowledge of and compliance with the obligations legislated is the responsibility of all those concerned. Those assuming their responsibilities also tend to do more than obliged by the law. LUT also abides by this principle whenever it is possible.

To evaluate the compliance with the legislative requirements, the university deployed an EHS legislation monitoring service in autumn 2014. On behalf of the university, the legislation monitoring service is carrying out monitoring of Finland's legislation on environment, rescue and occupational safety, changes and modifications in them as well as the development of legislation on the national and EU levels. The legislation monitoring service maintains a database of legislative information containing all legislation pertinent to LUT's activities in the areas of the abovementioned legislation. The collection of legislative information consists of over 100 different acts, statutes and government proposals.

From its various units, the university has selected the users for the legislation monitoring services. Their task is to keep track of the legislative modifications and reforms which



appear in the service and concern their unit. The service is in use in all the units which carry out laboratory activities at the university. Moreover, Environmental Coordinator is one of the service users with the responsibility to ensure that the legislative changes and reforms notified by the legislation monitoring service are observed in the university's activities. Compliance with legislative requirements is also evaluated in official inspections and in connection with notifications sent to the authorities. The official inspections carried out at the university include fire inspections, reviews done by the environmental office of the Lappeenranta region, inspections of air-raid shelters, building inspections, occupational safety inspections and inspections carried out by the Radiation and Nuclear Safety Authority. Notifications to the authorities include those related to noise; these are made for example when outdoor events are arranged at the university. In addition, evaluation of compliance with legislative and other requirements is one of the areas in the environmental system's external monitoring evaluations carried out annually.

In addition to the legislative requirements, the university's environmental work gets guidance in its development from the International Sustainable Campus Network (ISCN) and Nordic Sustainable Campus Network (NSCN), being a member of both of them. Compliance with ISCN's

requirements is assessed in this report, whereas NSCN does not set any special requirements for its member universities in the development of their activities. Also the criteria of WWF's Green Office are taken into account in LUT's activities. WWF is annually reported to about the compliance with these requirements.

On this report

This is LUT's first report concerning environmental activities. The report's information, such as consumption figures, covers the years 2013 and 2014. The information in the report has been obtained from the environmental system's indicator statistics and statistics maintained by the performance guidance and information services.

The report was drawn up by Environmental Coordinator Essi Römppötti together with Development Manager Marko Kasurinen. The aims and objectives related to the environment were created in 2013 when the environmental system in line with the ISO 14001 standard was under construction. This report describes LUT's activities concerning the three principles of ISCN.

SNAPSHOT OF LUT'S SUSTAINABLE COMMUNITY

PRINCIPLE 1



REDUCTION in energy consumption 10 %



INCREASE renewable energy



MINIMISATION amount of waste



LIFE CYCLE MANAGEMENT of chemicals



REDUCE of environmental impacts caused by traffic

PRINCIPLE 2



DEVELOPMENT of the campus



DEMO SPACE project with SYK OY & LUT



UTILISE modern teaching technology



SAFETY PROGRAMME to eliminate hazards



WELL-BEING COMMITTEE to promote student well-being

PRINCIPLE 3



NEW STRATEGY for LUT



SCIENTIFIC RESEARCH on environment



COOPERATION – students, staff, external stakeholders



HIGH-QUALITY academic education

- MEANS TO ACHIEVE THE PRINCIPLES



REDUCTION water consumption 20 %



ENVIRONMENTALLY CONSCIOUS LUT graduates



INCREASE environmental friendly procurement



ACCESSIBLE premises



EQUALITY Plan



HAPPINESS THROUGH HEALTH approach for personnel



REDUCE THE NUMBER OF CARS in the campus



SaLUT sports & welfare service for students



CALCULATION SYSTEM for traffic



GREEN PARTY Science Festival autumn 2014



LUT ASSISTANCE SERVICE – students' short-term work



ENVIRONMENTAL COMPETENCES contained in the curriculum



WWF Green Office



NATIONAL ENERGY SAVING WEEK annually

Sustainability Performance of Buildings on Campus

PRINCIPLE 1: To demonstrate respect for nature and society, sustainability considerations should be an integral part of planning, construction, renovation, and operation of buildings on campus.

MANAGEMENT APPROACH TO PRINCIPLE 1

Responsibilities concerning the university's properties

The premises of Lappeenranta University of Technology are owned by the University Properties of Finland Ltd (SYK Oy) (buildings 1–5 and 7) and by Lappeenrantaan Tieto-sähköala Oy (building 6). The total area of the university's properties is 67,022 m², and the area of the whole campus, including its outdoor areas, is 175,168 m². As far as SYK Oy's properties are concerned, the owner of the buildings carries the responsibility for basic waste management and property maintenance. The university itself is responsible for special waste components, such as hazardous waste, electrical and electronic scrap, confidential papers to be exterminated, wood waste as well as metal waste created by research activities. Water and heating are included in the rent, but electricity is paid by LUT itself. SYK Oy has employed an energy manager to look after and improve energy-related matters in its properties.

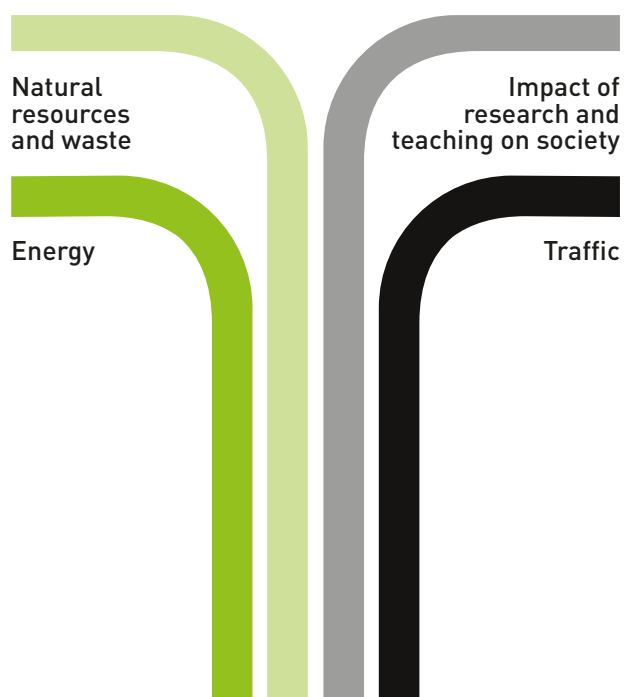
Concerning Tieto-sähköala, the university takes the responsibility for the building's maintenance. That includes property maintenance, heating, cleaning, electricity and water payments as well as waste management.

Some of the university's premises have been sub-let to the Saimaa University of Applied Sciences. In addition, among the property's tenants are Sodexo (restaurant services), Aalef (bookshop), YTHS (Finnish student health service – FSHS), Mehiläinen (occupational health service), a massage service and students' guilds (guild rooms). The rent includes water, heating, electricity, property maintenance and waste management.

Environmental objectives, aims and programmes

The environmental objectives, targets and programs of Lappeenranta University of Technology are based on the university's environmental considerations. While constructing its environmental system, the university identified the environmental aspects of its activities, the importance of which was evaluated in 2013 with the help of surveys, interviews and workshop. Both the university staff and its students have participated in the evaluation of the environmental aspects.

The most important environmental considerations for LUT can be divided into four categories:



The environmental considerations of the university are largely similar to those in offices, where energy consumption, acquisitions, paper consumption, waste and recycling as well as commuting often form the most important environmental aspects. Scientific research and academic education as well as laboratory activities related to these bring unique considerations to the university's environmental aspects. For example, electricity and water consumption in research projects can be quite large, and this is shown as distinctive consumption peaks for certain months. Also, hazardous chemicals are handled for example in the chemical engineering laboratories.

In 2013, the president of Lappeenranta University of Technology approved the following objectives for the most important environmental considerations.

Energy:

- Reduction in energy consumption
- Increase in the utilisation of renewable energy

Waste and utilisation of natural resources:

- Minimisation of the amount of waste generated in LUT's operations
- Reduction in water consumption
- The life cycle management of chemicals
- Increase in environmentally friendly procurement

Impact of research and teaching on society

- High-quality research, which improves the state of the environment, is carried out and published in LUT
- LUT's graduates are environmentally conscious academic experts and decision makers
- Commitment of the staff, students and partners to the development of Green Campus

Traffic:

- Reduction of environmental impacts caused by traffic

Environmental objectives and both short term and medium term environmental goals have been created for the most important environmental aspects. The figures from 2012 function as comparison data. Based on these aims, environmental programmes have been drawn up for the university. These programmes include measures planned for achieving the environmental goals, defined responsibilities as well as indicators with the help of which the achieving of those goals is being monitored. Both the university staff

and its students have participated in the design of the environmental programmes.

In the environmental goals that LUT has set for itself, it has committed itself, among other things, to:

- Cut the overall consumption of electric power, by the end of 2015, by 10% of what it was in 2012
- Produce, by 2020, at least 5% of the consumed electricity by renewable forms of energy
- Cut the overall consumption of water, by the end of 2020, by 20% of what it was in 2012
- Develop waste sorting
- Eliminate emissions that do not belong to municipal sewage network
- Increase the share of environmentally-friendly procurement
- Increase the awareness about more environmentally-friendly forms of moving around and support their use
- Develop the Green Campus model approach and infrastructure jointly with the people at the campus

Key tools in the implementation of environmental responsibility and policy as well as in the implementation of set goals are the indicators used in the monitoring of the activities. With the help of monitoring, the university's environmental impacts can be consistently evaluated. Monitoring data is published, among other things, about the amount of self-produced energy, consumption of electricity, water and heating as well as the amount of waste created. These indicator data is published both in the university's internet as well as on Green Campus web site. New monitoring targets will include attention to environmental aspects in the university's acquisitions as well as quantitative data about traffic, about research publications that promote the wellbeing of the environment as well as about theses and study units related to the themes of sustainable development. The collection of this information will start during 2015.

Energy consumption

Lappeenranta University of Technology regularly monitors its own electricity and heat consumption as well as the amount of energy it itself produces. In 2014, the university's electricity consumption was 6,779,394 kWh, that is 92.4 kWh/m². Thus the consumption of electrical power was 6.3% less than in 2013. The amount of electricity purchased in 2014 decreased by 7.9% compared to the amount in 2013. The

positive peak for purchased electricity was reached in June 2014 when the university bought 19% less electricity than in August 2013 (Figure 1).

Since October 2014, 100% of electricity bought by LUT has been produced from renewable energy sources. This is one of the targets in the university's environmental programmes and was to be reached originally by the end of 2015 (Figure 2).

In 2014, the university's heat consumption was 7,965 MWh, that is 116 kWh/m². The consumption of heat energy

decreased by 7.6% in comparison with its consumption in 2013. The biggest factor in the university's energy consumption is ventilation. Property maintenance and SYK Oy have inspected and developed the university's building automation as well as its ventilation controls. The operation times and controls of the ventilation equipment as well as optimisation therefore exert a significant effect on the reduction in energy consumption (Figure 3).

In addition to reduction in energy consumption, one of the university's environmental objectives is to increase



Figure 1. LUT's monthly electricity consumption in 2013 and in 2014.



Figure 2. The amount of purchased electricity in 2010-2014.

utilisation of renewable energy. The university has its own 210 kW solar power plant and 20 kW wind turbine. Since March 2014, daily production figures of the wind turbine have been published. Also the solar power plant's daily production figures are recorded. Metering of the electricity generated by the university's solar power plant and wind turbine began from April 2014 onwards (Figure 4).

During 2014, the university's own electricity production was 117,126 kWh or about 1.8% of the electricity it consumed. The positive peak was reached in July 2014 when the

university's own production covered about 4.6% of its electricity consumption. Thus, in July, the university's own electricity production came close to the target recorded in its environmental programmes: electricity production based on renewable energy forms covering 5% of the electricity consumed by the university by 2020 being the goal.

Water consumption and waste

The total amount of waste produced by LUT in 2014 was 205 tons, the amount of waste decreasing by 11% in comparison

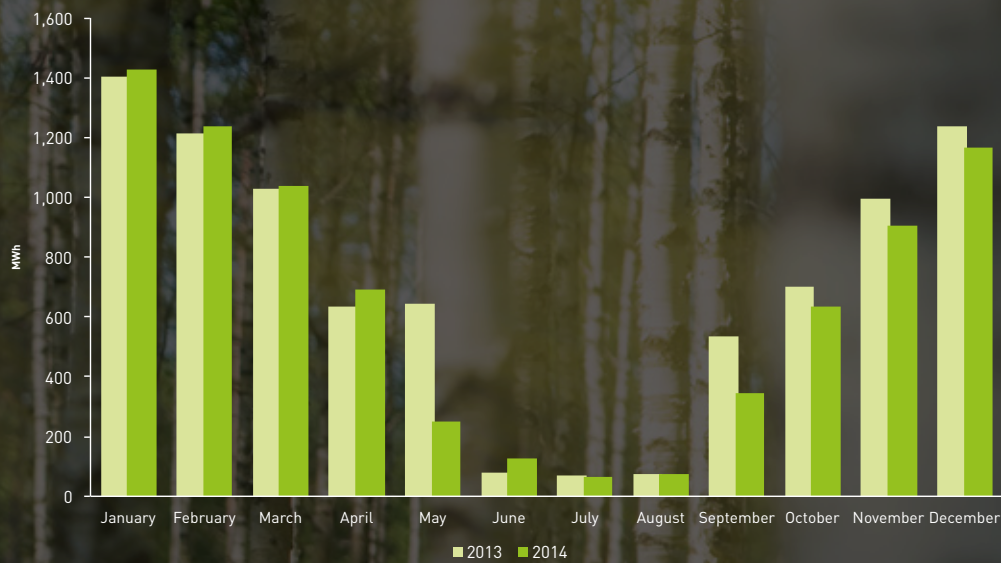


Figure 3. LUT's monthly heat consumption in 2013 and in 2014.

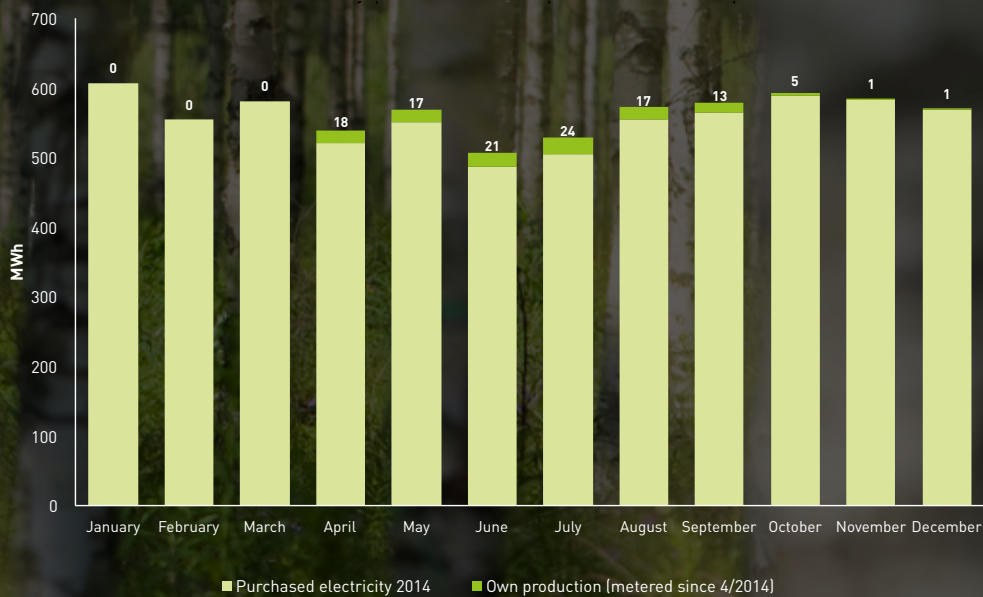


Figure 4. LUT's own energy production (MWh) compared to the amount of electricity purchased in 2014.

with the year 2013. The biggest reduction was in the amount of paper waste: the amount was up to 42% less than in 2013. The biggest single waste component is dry waste, and the amount of it produced in 2014 was 80.5 tons. Currently, dry waste is taken by a waste collector to a local recycling company, which sorts 90% of that waste into energy waste. In other words, only 10% of the dry waste ends up in a landfill (Figure 5).

In future, the university will give up nearly all of its dry waste collection. Instead, LUT will put its efforts in sorting

at the source of waste. The idea behind is to reduce waste creation and, on the other hand, give a boost to waste reuse and recycling. Half of the university's total waste ends up in material recycling, 46% is turned into energy and the rest 4% are taken to a waste dump (Figure 6).

The university's main restaurant has monitored the amount of created biowaste since April 2013. In the monitoring, only the waste produced by diners is taken into account; the waste produced in the kitchen is not included. In 2014, one diner produced 0.42 kg biowaste on average during a

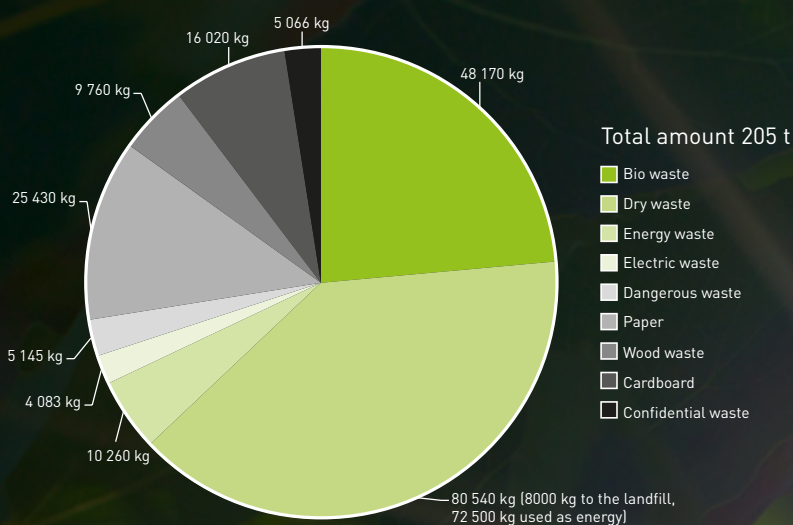


Figure 5. LUT's waste production by waste component in 2014.

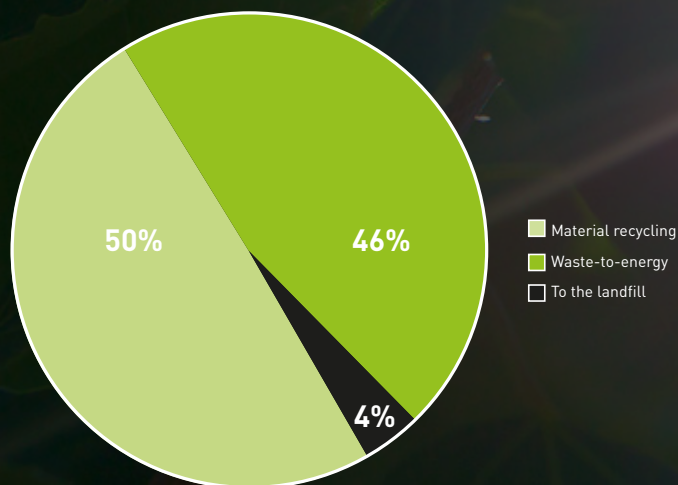


Figure 6. Recycling rate of waste in 2014. Does not include dangerous waste.

month. In 2013, the corresponding figure was 0.46 kg. The monitoring of biowaste at the university's main restaurant is carried out by Sodex (Figure 7).

In 2014, the university's water consumption was 25,680 m³, that is 373 dm³/m². In comparison with 2013, LUT's water consumption decreased by 13.9% in 2014. The highest positive peak occurred in December 2014: at that time, up to 38% less water than in December 2013 was used (Figure 8).

Equality and accessibility

The approach to the equality by Lappeenranta University of Technology derives from everyone's responsibility to promote equal study and work. The responsibility for the realisation of equality in teaching and research is carried by the president of the university, and in matters related to the university as an employer the responsibility belongs to the HR Development Director. The heads of the units are responsible for the realisation of equality in their own units. The HR Committee monitors and evaluates the realisation

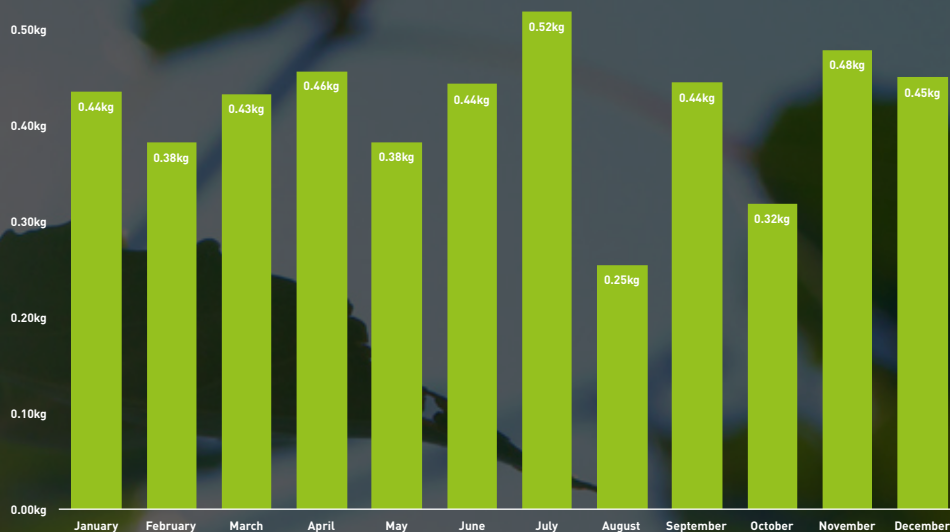


Figure 7. The amount of biowaste produced by diners at LUT's main restaurant in 2014.

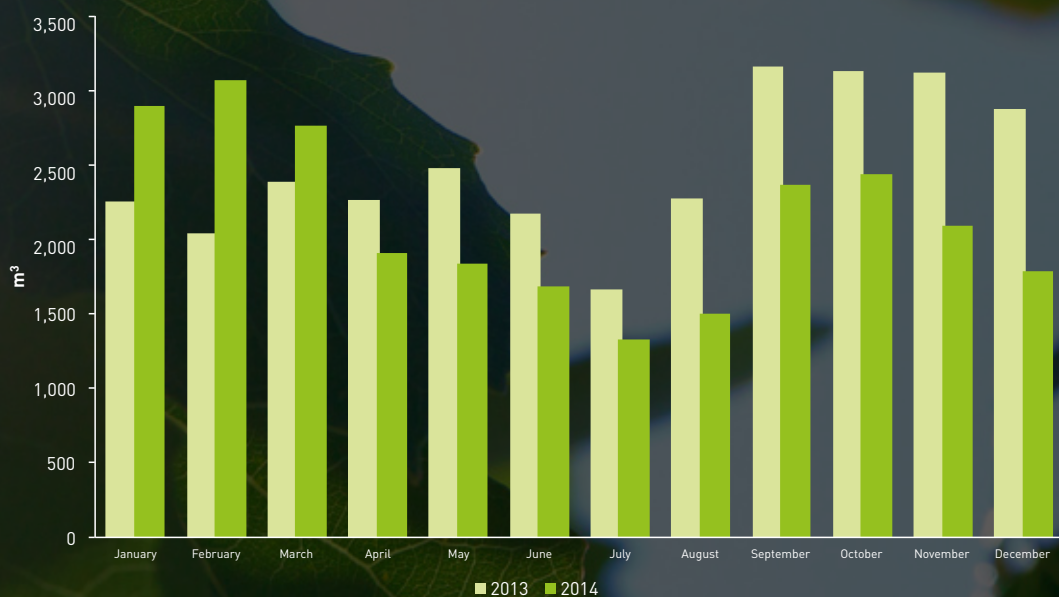


Figure 8. LUT's monthly water consumption in 2013 and in 2014.



of equality with the help of various statistics and studies. For example, a work well-being survey, the results of which are utilised in the promotion of equality, is carried out annually.

An equality plan was drawn up for the university in 2012. The equality plan is action-based and aims to promote equality in all organisation's activities. The plan creates equal rights, responsibilities and opportunities for the staff to take up various tasks and advance in their career and self-improvement. It also allows them to influence decision making as well as development of teaching and research and to participate in them. In this way, the equality plan expands gender equality into equality among the whole university community regardless of a person's gender, age, origin, nationality, language, state of health, disability or sexual orientation.

The equality plan is updated every three years. There is a yearly track-up on the progress of the development measures, and a report about the monitoring is prepared for the university community. The equality plan is available to all on the university's intranet and the students' Uni portal.

In addition to equality, accessibility is taken into consideration at the university. Based on the initiative of the

well-being committee and the university's staff, LUT carried out an accessibility study in 2006. The study examined both structural and social, attitudinal obstacles. The accessibility study that was updated in 2012 is available on the university's intranet.

The basic thing in accessibility is access to premises to enable the use of the university's services and functioning in the academic community in general. Therefore, the accessibility study examines the university's common spaces and evaluates accessibility to them from the viewpoint of special groups. In addition to obstacles in the built environment, obstacles can nevertheless also present themselves for learning, access to information, activities and participation if accessibility has not been taken into account.

In the renovation of building 1 as well as in the modification work of the labs of buildings 2 and 3, matters of accessibility will be considered during the design of the spaces. The current measures to improve accessibility are quality-mapping of induction loop in the university's premises as well as taping of stairs if their edges are hard to distinguish from the floor due to their colour for example.

Table 1. Summary of LUT's activities related to Principle 1 objectives.

TOPIC	OBJECTIVE AND IMPLEMENTATION		RESULTS	
	Objectives	Measures	Performance level 2014	Performance level 2013
Reduction in energy consumption	By the end of 2015, reduction in the total energy consumption of electric power by 10% of what it was in 2012.	Publication of the amount of energy consumed on a monthly basis at Green Campus oasis. Monthly/real-time publication on the website and the intranet.	The university launched its new intranet, sites include Green Campus and environmental management system. House info produced by Granlund Manager was taken into use.	The university renewed its consumption measurement system in order to obtain building-specific information about electricity and water consumption.
		National Energy Saving Week will be organized annually. Distribution of so-called wall-charts to the staff and an internal communication campaign to increase awareness.	National Energy Saving Week was arranged at the university. The communication unit of the university distributed wall-charts to the staff and carried out an email campaign.	National Energy Saving Week was arranged at the university. The instruction by the IT Services about electricity saving in work stations was updated.
		Intensification of cooperation with the owners of the buildings in order to reduce energy consumption.		SYK employed an energy manager to look after energy matters for the university's properties and to carry out long-term efforts to improve energy efficiency.
		Control of the use of facilities via space reservations, especially during vacation periods. Monitoring of consumption in individual buildings. Cooling equipment switch-off in halls (where possible) if the halls are not being used.	During summertime, computer classrooms were closed and their cooling systems turned off when the classrooms were not in use.	During summertime, university attendants switched off cooling equipment during their hall rounds if the halls were not in use. Computer classrooms were closed for the summer.
Increase in the utilisation of renewable energy	By 2020, LUT will produce a minimum of 5 % of the electricity it consumes with renewable sources of energy.	Ensuring that the capacity of the solar power plant under construction will be achieved.	The 210 kW solar power plant was completed. Solar panels have been installed on flat roofs, carports and façades.	Of the solar panels, 55 kW were put in place as flat roof installations and 110 kW as carport installations.
	100% of purchased electricity will be produced by renewable energy forms by the end of 2015.	Search for opportunities to increase the utilisation of renewable forms of energy in cooperation with the owners of the buildings.		
		Examination of the possibilities to purchase electricity produced by 100 % renewable forms of energy	100% of university's purchased electricity has been produced by renewable forms of energy since October.	

TOPIC	OBJECTIVE AND IMPLEMENTATION		RESULTS	
	Objectives	Measures	Performance level 2014	Performance level 2013
Minimisation of the amount of waste generated in LUT's operations	Development of the recycling and waste system in cooperation with SYK, while ensuring that LUT's staff and stakeholders at the campus comply with the waste sorting instruction.	Review of the present waste system in cooperation with SYK.	The review of the current waste system was carried out together with several waste companies. SYK began an examination of the waste system with a waste consultant they had employed.	A biowaste table for monitoring the amount of biowaste was installed at LUT's main restaurant. The monitoring is carried out by Sodexo.
		Updating of the university's recycling guidelines. Addition of a map about the locations of sorting containers.	The recycling guidelines were updated and a map of the sorting containers was drawn up.	
		Improving the recycling possibilities at the campus. Cooperation with the cleaning service employed at the LUT's premises.	Collection of glass and recyclable metal and collection of returnable bottles were carried out at the university.	
		Together with SYK, defining the information needed to calculate the actual environmental impacts of waste produced in LUT.		
Reduction in water consumption	By 2020, reduction in total water consumption by 20% of what it was in 2012.	Examination of possibilities to utilise water circulation systems in laboratories. Water consumption of individual buildings is examined. A method to collect information about water-intensive research tasks and their performance is created.	The installation of consumption meters for individual buildings was completed. The method to collect information about water-intensive research tasks was created.	
Chemicals' life cycle management	Elimination of emissions that do not belong to the municipal sewage network.	Updating of The Department of Chemical Engineering's safety instructions, which also contain instructions about disposal of chemicals. Training and informing the staff about the new instructions.	Negotiations with the property owner over sewerage safety devices have been initiated.	A chemical registry was built for and deployed by the university. The updating of the safety instructions of the Department of Chemical Technology was carried out.
Increase in environmental friendliness of the acquisitions	Updating of the procurement instruction with an item about taking into account environmental aspects. Creation of a monitoring method dealing with the consideration of environmental aspects.	The principles for considering environmental aspects in acquisitions will be included in procurement instruction. Development of a procurement monitoring system which shows how the environmental criteria is taken into account in procurement processes.	Consideration of environmental aspects was included in the procurement instruction. Information about consideration of procurement was added to the university intranet. A monitoring method was developed, and the monitoring will start during 2015.	





Campus-wide Master Planning and Target Setting



PRINCIPLE 2: To ensure long-term sustainable campus development, campus-wide master planning and target setting should include environmental and social goals.

MANAGEMENT APPROACH TO PRINCIPLE 2

Participatory campus development

The Green Campus of Lappeenranta University of Technology embodies its strong expertise in the energy sector and its research into sources of renewable energy. It is a thinking and acting approach that concretely manifests green values and energy efficiency at the university's campus. For example, renewable energy is not only a subject of research at LUT, it is also produced and used in the campus area. There is a wind turbine and solar power plant built for the university. The electricity generated by them is used not only for research but also for charging the university's electric cars and bicycles.

The "greenness" of the Green Campus is seen not just in its green values and environmentally-friendly applications, but also in the surroundings of the university. The Green Campus with its plants and parks increases the attraction of the university – located on the scenic shores of Lake Saimaa – as a place to study and work.

Currently, the big topics under consideration in LUT's campus development include the renovation of building 1 of the university and the modification work of the laboratories in buildings 1 and 2. The intention is to intensify the use of the university's premises and improve the utilisation of its spaces. For example, there is a need to find room for heavy laboratory activities for mechanical engineering. Working groups have been named for space requirements planning. In addition to building development consultants and architects, also members of the university community are involved. The purpose of the renovation is not limited only to the repair of premises and compacting of space use, it is also intended to increase work well-being and to provide support for new ways of working, studying and operate.

During 2014, SYK Oy and LUT carried out a joint demo space project. Three different spaces, for which the equipment and furniture were then designed, were selected from the university for the project. The project is a part of the joint University of the Future project by nine universities. LUT's topic in it is modern learning environments. The aim has been to develop a common work and learning environment for students, teachers and other staff.

The demo areas are spaces that utilise modern teaching technology. They enable the use of more flexible and diverse spaces for teaching, study and work. The demo space project created spaces for small groups and teaching areas for the staff as well as a video conference and meeting room. Among other things, smartboards and smart panels as well as electric tables have been acquired for the spaces. The planning and design of these areas resulted from the cooperation between the university's staff and students.

Occupational safety and health

Occupational safety is a part of the university's everyday life, and it is the responsibility of the whole work community. The aim of occupational safety is to reduce and eliminate hazards and inconveniences in the work environment and in work itself. It also aims to promote the health, safety and work satisfaction of the staff. Occupational safety at the university is coordinated by the occupational health and safety manager, who is helped by occupational safety representatives elected by the employees.

An occupational safety programme has been drawn up for the university. The goal of the programme that is updated yearly is to create for the university a constantly improving



” HAPPINESS THROUGH HEALTH

safety culture, which is based on preventive action and promotes occupational safety, working environment, work ability and equality of all members of the work community. Most of the university's activities consist of investigative work in office environments, where the main occupational safety challenges are to take care of mental well-being and to make improvements in ergonomics. However, the university also has laboratory areas, which must be taken into account in occupational safety and which pose challenges to it.

Mehiläinen Oy takes comprehensive care of the health of the university's staff. There is an occupational health care nurse available to see patients and visitors twice a week at the premises located at the university's campus. An occupational physician can also be visited at the campus twice a week. In addition to the campus branch, Mehiläinen's occupational health care services are available at their city centre practice.

To improve the staff's wellbeing, LUT is deploying its *Happiness through health* approach. It consists of employer-organised activities geared towards work wellbeing, and it is realised together with the staff of the Saimaa University of Applied Sciences located beside the university. All university's employees can participate in the Happiness through health activities. Participation is usually free of cost; fee-based activities are always announced separately.

Happiness through health offers diverse activities to boost physical, psychological and social well-being. Employees can, among other things, participate in guided group exercise sessions, in a food circle, in a culture circle and in life style reform groups. The activities also include various kinds of exercises and well-being campaigns, which are meant to aid in increasing both communal as well as private well-being. The vision behind these activities is a work community which enjoys wellbeing and where its members feel satisfied in their work.

The health of the university's students is being looked after by the Finnish Student Health Service (FSHS). FSHS offers general health, mental health and oral health services for students in universities and higher educational institutions. There is a FSHS branch at LUT's campus. Its services

are available for all undergraduate students in LUT once they have paid the Student Union's membership fee, in connection of which a health care payment is charged.

LUT's students are entitled to the services of a study psychologist at the campus. Through discussions, the study psychologist provides confidential help for study challenges. Among other things, the study psychologist guides students in problem situations related to study and learning and acts as an expert for learning and for support in other guidance activities. For LUT's undergraduate students, visits to the study psychologist are cost-free.

SaLUT is a joint higher education sports and welfare service for students of Lappeenranta University of Technology and Saimaa University of Applied Sciences offering diverse services for students in the area of sports and welfare. The aim of its activities is to promote and provide support for students' wellbeing and coping with their studies as well as create communal spirit between degree programmes and higher education institutions. To be able to take advantage of the services offered by SaLUT, the student must have a fee-based sports pass or a group sports pass. The sports pass allows one to use the gym and participate in ball game and sports sessions, whereas the group sports pass entitles participation in group exercise sessions.

Wellbeing and exercise services are also offered by the Student Union of Lappeenranta University of Technology (LTKY) together with LUT and the Saimaa University of Applied Sciences. Each year, LTKY organises several exercise-spirited events, to which the members of the Student Union have free access. The Student Union also participates in the Well-Being Week organised annually by the university's wellbeing committee. The event is meant for the students and staff at the campus. The biggest event of the Well-Being Week is the Well-Being Expo, during which there are, among other things, various presentations of sports and well-being services as well as experiments involving various types of exercises.

The president of the university has set up a well-being commission for LUT, the aim of which is to promote

especially students' well-being at the campus. For this purpose, the collaborating partners meet at regular intervals at the campus. In addition to LUT, the well-being commission includes representatives of Saimia, FSHS, the Student Union of Saimaa University of Applied Sciences (SAIKO) and LTKY as well as campus priests. The central themes in the activities of the well-being commission are students' health and health care services, exercise and sports, tutoring and the well-being of the entire campus community.

Traffic

Traffic is one of the most important environmental considerations for Lappeenranta University of Technology. Therefore, LUT's campus deployed a calculation system for traffic in the autumn of 2014. Traffic calculation points powered by solar panels have been installed in four different locations at the university campus. With the help of these traffic calculators, real-time information about daily traffic at the campus area can be obtained. In this way, traffic calculation helps in evaluating the environmental impacts of traffic at the campus area, and this aids in finding more environmentally-friendly forms of travel to promote.

The number of parking spaces at the university will decrease due to the renovation of the university's building

1 and modification work of laboratories in buildings 2 and 3. For this reason, the Facility Services did a parking survey directed at all the people at the university. The purpose of the survey was to chart the current state of parking at the campus area and find solutions for future parking challenges. When compared to all Finland's universities, LUT has a great number of parking spaces in view of the number of persons they serve. The problem thus does not lie in the number of parking spaces, but in how they are used.

LUT's aim is to reduce the number of cars at the campus area. The idea is not to make parking more difficult but to make it more efficient, especially for those for whom the use of a private motor vehicle is necessary. Therefore, the university collaborates with the City of Lappeenranta, SYK Oy, Lappeenranta Student Housing Foundation (LOAS) and Saimaa University of Applied Sciences in search for solutions for the parking problem. During 2014, SYK began to work on national survey on parking at universities.

Some of Finland's universities have begun to charge fees for all parking spaces. This is probably what will happen in several other university campuses. LUT is aiming to solve its parking problem in a way that excludes fee-charging, for example by favouring public transport and cycling.

Table 2. Summary of LUT's activities related to Principle 2 objectives.

TOPIC	OBJECTIVE AND IMPLEMENTATION		RESULTS	
	Objectives	Measures	Performance level 2014	Performance level 2013
Traffic	Decrease in car traffic at the campus area by increasing the awareness about more environmentally-friendly forms of moving around and by supporting their use.	Building of a monitoring system for car traffic.	A traffic monitoring system was deployed at the campus. The system monitors the amount of traffic arriving in and leaving the campus.	The university participated in the Car Free Day event arranged in each autumn. The event encourages people to leave their car at home for a day and move around using public transport or by other means.
	Promotion of the best possible modes of transport, from the viewpoint of environment, in commuting.	Cooperation with the City of Lappeenranta to improve public transport.	The City of Lappeenranta invited tenders for public transport. The pricing practices were changed to promote the use of public transport.	
		Together with SYK, investigation of parking space arrangements and consideration of deployment of fee-based parking spaces.	A survey by SYK on the campus's parking arrangements is under way.	
		Examination of the results of a distance work pilot and promotion for initiation of distance work.	Currently, all those whose work tasks allow it can do distance work a maximum of 2 days per week with supervisor's permission.	
			The university participated in the Let's Go by Bus event arranged each autumn. The event encourages people to use public transport.	





Integration of Facilities, Research and Education



PRINCIPLE 3: To align the organization's core mission with sustainable development, facilities, research, and education should be linked to create a "living laboratory" for sustainability.

MANAGEMENT APPROACH TO PRINCIPLE 3

Education, research and cooperation

In 2014 THE rankings LUT was ranked as one of the world's 300 best universities. In the internationally recognised Times Higher Education World University (THE) ranking, LUT's position was among the best 276–300 in autumn 2014. According to this ranking, LUT is therefore globally among the university world's top two per cent, as it is estimated that there are about 17,000 universities in the world.

The ranking of the Times Higher Education World University, which ranks the world's 400 best universities, is among the world's best recognised university rankings. The areas assessed are research, teaching, international outlook, and funding. The listing is based on 13 indicators, most of which are scaled in proportion with the size of the organisation. LUT participated in the THE ranking for the first time in 2014, and, in addition to LUT, there were only two other Finnish universities among the 300 best universities.

Education

LUT, which is a recognised, international scientific community in the field of technology and economics, is known for its high quality academic education and scientific research. With its new strategy, LUT is undergoing an educational transformation which is based on comprehensive development in education. The intention is to create competitive, internationally attractive educational products which epitomise the university's strategy. Priority is given especially to specialised Master's programmes

and doctoral programmes. The goal of the educational transformation is yearly graduation of 500 Master's in technology and 200 in economics.

With this educational transformation, LUT aims to train curious, enterprising solvers who assume their responsibility and have initiative to change working life. In addition to providing good education, the university also intends to improve students' employment prospects. In practice, the educational transformation means, among other things, deployment of the latest teaching methods. The use of blended learning methods, cooperation with companies and international learning environments are brought along to provide support for learning. For example, multiform study units as well as demo spaces built for the university function as blended learning environments, where students can study independently.

In addition to the educational transformation, before the end of 2015, in accordance with the university's environmental programme the university will evaluate the environmental competences contained in the curriculum. This will be realised, for example, by collecting information about the study units that contain themes on sustainable development and about the number of theses related to the themes of sustainable development as well as by evaluating the feedback from the university graduates that is related to the environment and skills in sustainable development. LUT's aim is to train environmentally conscious academic experts, which means that environmental skills and knowledge as well as the basic principles of sustainable development must appear also in the university's teaching. The role of the university as a higher education institution that promotes sustainable development is brought to light by monitoring



sustainable development as it appears in the university's study units and theses and in the feedback from the graduates of the university.

Research

The task of Lappeenranta University of Technology is to produce solutions to world-wide challenges by means of scientific research. LUT's scientific research is of a high quality, which is shown by that the high academic level of the research is both relevant and applicable. A lot of research is conducted with partners from the academic world and industry. The research carried out at the university is thus both international and competitive. Moreover, the quality of LUT's postgraduate degrees is prominent: that is, dissertations for doctoral degrees are of high international level and the completion times are in accordance with the target dates set.

With the new strategy, the quality, effectiveness and visibility of LUT's research are increased. Also the amount of competed funding will be increased. To set a so-called research acceleration in motion, LUT intends to find the best possible international partners and recruit the best experts by means of an international call for applications. This will allow research across the boundaries of science. It will be genuine joint research in future; this goal is supported for example by spaces dedicated for team work. The goal aligned with the research acceleration is that 50 doctoral degrees will annually be completed at LUT.

The environmental programme related to the impact of the university's research and teaching on society defines as its goal LUT conducting and publishing high-quality research that will improve the state of the environment. To achieve this goal, before the end of 2015 a method to evaluate the amount and quality of LUT's research that should improve the state of the environment will be developed. In practice, this means that the university will annually report on the amount and publication types of research publications related to the topic of sustainable development. The university has long traditions about conducting research which supports the improvement of the state of the environment and promotes sustainable research, and the new monitoring method will give more prominence for this kind of research.

Cooperation

The staff and the students of the university have an important role in the development of LUT's environmental activities and in the development of the Green Campus operation model. The university's environmental responsibility touches all those working and studying at the university: therefore, the participation opportunities provided commit the campus people into environmentally-friendly ways of action. The university staff has participated in the

definition of the university's most important environmental considerations and given their input for the creation of environmental objectives, goals and programmes. Also, members of the university staff have taken part in the internal audits of the environmental system and thus have been evaluating its workability. Also students have participated in these audits.

The students are able to participate in the Green Campus activities through the LUT Assistance service, for example. The university's internal service that has been in place since 2011 channels units' work assignments to the university's degree students registered in the service. The units will get help in their work, and the students will have an opportunity to earn a bit of money during their studies. For some particular events of a general nature, such as the freshman orienteering (fuksisuunnistus), the energy saving week and the Science & Working Life event, students have been employed through the LUT Assistant for short-term work assignments with the Green Campus theme. For example, during the Science & Working Life day, two workshops focusing on recycling and environment were held. On the other hand, the assistants employed during the energy saving week organised by the Green Campus collected feedback and development proposals for the improvement of Green Campus activities.

For the management of the university's environmental affairs as well as for the development of Green Campus, it is important that LUT cooperates not only with its students and staff but also with external stakeholders. The cooperation partners of the university include the University Properties of Finland Ltd. (SYK), Sodexo that provides restaurant services, SOL providing cleaning services, Lappeenranta Student Housing Foundation (LOAS), the City of Lappeenranta and WWF, which all, for their part, have been contributing towards the development of an environmentally-friendly way of action at the university's campus or in its neighbourhood.

SYK Oy, which is the main owner of the university's buildings, looks for solutions with LUT for the development of the university's waste management and in energy matters. With the cooperation, the university has deployed consumption meters for individual buildings. These provide more detailed information about electricity, heat and water consumption in different buildings. On the other hand, Sodexo takes environmental aspects into account in their production of food services, for example by measuring the amount of biowaste created at the main restaurant of the university. In addition, Sodexo participates in the Steps to Organic programme that increases the use of organic products in professional kitchens. With this, Sodexo has started to use only organic flour in the production of its baking products at LUT's main restaurant. SOL, providing cleaning services, has participated in increasing awareness of the correct sorting of waste at the university.



To increase the environmental awareness of its students, LUT collaborates with LOAS. As a result of this collaboration, LOAS has deployed meters for individual buildings to monitor water and electricity consumption; new inhabitants are informed about environmental matters taken into account. LUT has also closely collaborated with the City of Lappeenranta in the field of energy matters, among other things. The City of Lappeenranta has, in addition, built a waste collection point near the university and, for the use of local people, a small park around the wind turbine at the campus area.

Cooperation with WWF is evidenced by the participation of LUT in WWF's Green Office environmental programme. In addition, LUT has given a commitment to invest on the use of renewable energy in WWF's global renewable energy campaign. Consideration of environmental matters in the activities of the university is ensured by the fact that Secretary General of WWF Finland is the member of the university's Senate.

LUT annually celebrates the national energy saving week, which is divided into different theme days. During the autumn 2014 energy saving week, the staff and

the students could, in addition to giving Green Campus feedback, learn energy saving tips, service their bicycles at the bike workshop, as well as familiarise themselves with the exhibition stands of Sodexo, SOL and Staples, which is a supplier of office equipment. To end the week, it was possible to spend a day doing distance work if allowed by other work tasks.

In the autumn of 2014, LUT organised the Green Party science festival at the university's campus. The festival was open to all and free of charge. The event placed scientific research amidst the general festival atmosphere with its musical presentations. During a single evening, it was possible to familiarise with the Green Campus solar power plant and a hybrid bus under construction, to find out, with the help markups, about the research conducted at the university, to listen to musical performances, to do shopping at the recycling market and to participate in various activities for children. There were also some LUT's partners at the event: among them, the City of Lappeenranta, Sodexo and WWF. In the past years, LUT has organised similar events presenting science and technology at its campus.



Table 3. Summary of LUT's activities related to Principle 3 objectives.

TOPIC	OBJECTIVE AND IMPLEMENTATION		RESULTS	
	Objectives	Measures	Performance level 2014	Performance level 2013
Research	50 doctoral degrees annually.	Development of a method to report annually the amount and publication types of research publications related to the field (book chapters, conference publications, articles).	63 doctoral degrees, of which 55 in technology and 8 in economics	57 doctoral degrees, of which 50 in technology and 7 in economics.
	Before the end of 2015, development of a monitoring method to evaluate the amount and quality of research improving the state of the environment.			
Education	700 Master's degrees, of which 500 in technology and 200 in economics.		584 Master's degrees, of which 392 in technology and 192 in economics.	615 Master's degrees, of which 428 in technology and 187 in economics.
	Evaluation of the environmental competences contained in the curriculum to be accomplished by the end of 2015.	Creation of criteria for courses that contain sustainability themes. Collection of information about these kind of courses on curriculum work. Creation of criteria for annual publication of the amounts and subjects of the theses related to the themes of sustainable development.	The criteria was created; information collection starting during 2015.	
		Addition of questions to the graduates' feedback questionnaires (at Bachelor's or Master's level). The questions are related to environmental or sustainability skills.	Questions related to the environmental and sustainability skills were added to the Bachelor's level, Master's level and doctoral level feedback questionnaires. The feedback questionnaire for Masters in Economics was excluded from this.	

TOPIC	OBJECTIVE AND IMPLEMENTATION		RESULTS	
	Objectives	Measures	Performance level 2014	Performance level 2013
Cooperation	Development of the Green Campus model approach and infrastructure jointly with the people at the campus. Increase in the environmental awareness of the staff and students as well as development of internal and external communications at the Green Campus.	Creation of Green Campus event calendar and model templates for presentation rounds and various events.	Model templates for presentation rounds have been drafted.	
		Creation of an eco-guide for the university that contains information on saving energy and water, sorting of waste, environmentally friendly procurement and environmental impacts due to traffic, among other things.	The eco-guide was substituted with a wall chart and an email campaign. A Green Campus video about the university's environmental objectives was made.	
		Tightening of cooperation in Green Campus communications and in the development of environmental activities with guilds and the Student Union.	The members of Student Union Board have been informed about current Green Campus topics.	The guilds' press officers and chairmen have been met. The guilds' press officers have been informed about current Green Campus topics.
		Introduction of Green Campus's external newsletter. The letter is sent once a month.	Green Campus newsletter was introduced, and it is published monthly. The newsletter is published both in Finnish and English.	
		Reporting on social responsibility in accordance with the instructions by ISCN, starting from 2014, and in accordance with the instructions of GRI from 2017 onwards.	The first report on sustainability has been written with the instructions by ISCN.	
		Making Green Campus a part of the study path of all students in the very beginning. Familiarisation of tutors to their role as envoys of the Green Campus. Lecture called "Welcome to Green Campus" will be held during the Fresher's Week.	A Green Campus training was held in autumn for the tutors of both Finnish-language students and those of international students. Green Campus has its presentation pages in the Freshers' Guide and its own installation stand at Fresher's Fair. The "Welcome to Green Campus" lecture was held for new students.	

GREEN PROGRESS.

- www.greencampus.fi
- **Facebook:** LUT Green Campus
- **Twitter:** @LUTgreencampus

