

Description of the appointment process of a tenure track position (assistant/associate/full professor)

Heat pumps and refrigeration

Location: School of Energy Systems, Lappeenranta or Lahti campus

The rector has approved the description and initiated the appointment process on 6 May 2025.

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Applied statutes

Universities Act (558/2009)

Government decree on universities (770/2009)

Regulations of LUT University (8 December 2022, amended 5 April 2024 and 17 June 2024)

Rector's decision: Academic career tracks of the Lappeenranta–Lahti University of Technology LUT (16 January 2025)

Additional information

Further information on the duties of the professor is provided by Professor Teemu Turunen-Saaresti, tel. +358 50 539 5733, teemu.turunen-saaresti@lut.fi.

1 Background

LUT University is a challenger university aiming to conduct high-quality research that is relevant to society and industries. As a compact, agile, and highly focused university, together with its partners, LUT contributes to an economically, ecologically, and socially sustainable society in its focus areas.

Clean energy, water and air are life-giving resources for which we at LUT University seek new solutions with our expertise in technology, business and social sciences. We help society and businesses in their sustainable renewal.

LUT University was established in 1969. Our entrepreneurially thinking scientific and international community comprises approximately 8500 students and 1500 experts engaged in scientific research and academic education. There are more than 100 nationalities present on our modern campuses in Lappeenranta and Lahti.

In our schools – the LUT School of Energy Systems, the LUT School of Engineering Sciences, and LUT Business School – we conduct research and provide education that are internationally recognised and relevant to both society and business.

Times Higher Education (THE) has ranked LUT among the top 11 small universities across the globe in 2022. The THE university rankings present the world's top universities for interdisciplinary research.

LUT School of Energy Systems

The LUT School of Energy Systems focuses systematically and broadly on the direct and indirect electrification of all energy use including heating and process heat, thereby promoting the defossilisation of the entire energy system.

The core vision and goal of the school is to deliver leading research on low-carbon energy technologies and the associated complex, net-zero carbon energy systems and markets. The research and education at the school cover energy technology, electrical engineering, mechanical engineering and sustainability science. The strategic focus areas of the school's research are energy conversion and storage, solar economy and smart grids, digital product processes in mechanical systems, and sustainability. The school also includes the experimental research unit LUT Voima, supporting the implementation of proofs-of-concept for research purposes.

We are internationally recognised as a leading centre of energy research, and we have an unparalleled reputation for conducting research that combines academic excellence with an impact on business and society. A key principle in our research is to bridge areas from fundamental theory to empirical work, innovation and close-to-market products, technologies, processes or services that may transform energy systems and improve people's lives globally.

Our school provides bachelor's, master's, and doctoral programmes and has Finland's largest group of researchers in the field of energy. The unit employs 37 professors and more than 400 staff members overall.

2 Vacant professorship

A global shift is occurring from a fossil fuel-based energy system to one that relies on carbon-neutral electricity. Property heating and cooling as well as process heat production are very energy-intensive, and large amounts of energy are used worldwide in these sectors. Heat pumps and refrigeration are key technologies in which research and development play a crucial role in achieving a carbon-neutral society. Heat pump and refrigeration research at LUT has focused on industrial compressors, working fluid selection, process simulation, and related experimental research.

The professorship of heat pumps and refrigeration will be located at the Department of Energy Technology on LUT's Lappeenranta or Lahti campus. The professorship aims to enhance the existing energy conversion research at the department and will focus on heat pumps and refrigeration components, working fluids, design, and applications. The professor will be based at the Laboratory of Fluid Dynamics. The research group led by the professor will collaborate closely with other professors and teams within the Department of Energy Technology. Other professors at the department specialise in areas such as bioenergy, energy and society, industrial energy systems, nuclear engineering, renewable energy, thermal engineering, and thermodynamics.

Applicants must have demonstrated expertise in at least one of the following fields of technology:

- heat pump and refrigeration technology and applications
- working fluids and modelling and/or testing of their properties
- heat pump and refrigeration systems and their components
- industrial and high-temperature heat pumps
- control of heat pumps and refrigeration systems
- application-specific solutions, such as industrial and high-temperature heat pumps, combined heating and cooling, district heat and cooling, and process heat

The appointed applicant must possess a strong scientific research background in at least one of the above-mentioned fields. The research focus of the applicant must support the existing research activities at LUT. Applicants are required to provide evidence of securing competitive research funding, the successful management of research projects, and cooperation with relevant research institutes, companies, and other stakeholders. Applicants must demonstrate their ability to integrate into LUT's energy technology department and to build and lead their own research group. The professorship of heat pumps and refrigeration will include teaching obligations in bachelor's, master's, and doctoral programmes at the Department of Energy Technology.

The professorship will include the following duties related to its field of study:

- planning and execution of master's and doctoral programmes, including online and classroom teaching
- supervision of final theses and doctoral studies
- producing high-level international scientific publications
- personnel and financial management of one's own research group
- acquisition of external competitive research funding and preparation of related research projects at LUT and on a national and international scale; leading these research projects when required
- production of relevant new knowledge for the specific needs of Finnish industries
- close cooperation and interaction with LUT's research groups
- networking and research collaboration with universities and companies to increase the international impact of LUT's activities
- networking and cooperation with Finnish universities, research institutes, and industry

- societal interaction in the field of heat pumps and refrigeration
- general administrative duties related to the university's operations
- strong industry collaboration

The position is at the assistant/associate/full professor levels of the tenure track system and will be filled through an open call for a fixed four-year term for the assistant/associate levels or permanently for the full professor level. LUT's tenure track system offers researchers a possibility to advance to a full professorship. LUT is committed to providing tenure track researchers the possibility to advance to the next level, provided they meet the requirements in the promotion reviews, are suitable for the position, and conduct research that fits LUT's strategy and operation.

More information on the LUT tenure track system:

<https://www.lut.fi/en/research/research-career-lut/tenure-track>

The position starts with a six-month trial period.

3 Qualifications

According to the administrative regulations of LUT University, adopted on 8 December 2022 (amended 5 April 2024 and 17 June 2024), assistant/associate/full professors are required to have a doctorate, high-level scientific qualifications, experience in heading scientific research, the ability to acquire funding, the ability to provide high-level instruction based on research, the ability to supervise final theses, proof of international cooperation in their field of research, and when relevant to the duties of the position, practical experience in the field of the professorship.

Practical experience in the field is not a requirement in this position, but it is considered an advantage. Applicants should demonstrate in their application how they have collaborated with industry.

Applicants must have research and teaching merits, proof of effective research and the acquisition of external research funding, and international experience. The appointed applicant will be the immediate supervisor of a research group and may need to perform other demanding management duties assigned by the university. Therefore, related skills will be taken into consideration in the appointment, and attention will be paid to the applicant's merits as defined in LUT's tenure track system (Annex).

Under the universities decree (770/2009), persons in teaching and research positions at universities are required to master the language, Finnish or Swedish, in which they teach. According to the university regulations, section 28, foreign or naturalised Finnish citizens may be appointed to teaching or research positions even if they have not demonstrated skills in Finnish and/or Swedish. Applicants for professorships may demonstrate their language skills with a language certificate accepted by the academic council and/or in an interview.

According to the university regulations, section 28, professors are required to have the language skills needed for the successful completion of their duties.

In this position, spoken and written fluency in English is required. Other language skills are considered an advantage. The appointed person is encouraged to acquire the necessary Finnish skills during the employment relationship. For that purpose, LUT offers in-house Finnish language courses to staff members.

4 Applying for the position

Application

The application must specify the tenure track level applied to. The deadline for applications is indicated in the vacancy announcement. The application and material for expert assessors should be submitted through the online recruitment system mentioned in the vacancy announcement.

All application documents must be in English and in PDF format. The application must include the following:

- a curriculum vitae (max. 10 pages)
- a copy of the applicant's doctoral diploma
- a full list of publications, including the total number of publications in the Scopus database, the total number of citations, the h-index and Scopus ID, and equivalent information from the applicant's Google Scholar profile
 - a separate list of the 10 publications selected for expert evaluation
- the 10 publications mentioned above
 - a teaching portfolio or an equivalent account of the applicant's teaching qualifications, presenting courses taught by the applicant, related feedback, the applicant's pedagogical training and teaching philosophy, and courses that the applicant can or prefers to teach
- an account of the applicant's merits and activities of significance to the vacancy (max. 3 pages)
- an account of the applicant's vision on the development of education, research and projects in the field of the professorship at LUT University (max. 3 pages).

Contact information

Applicants must give the university an email address at which they can be reached. Applicants who do not wish to be contacted by email must give a postal address at which they can be reached during the appointment process. The university prefers email.

5 Expert evaluators

Selection of experts

Before the selection of expert evaluators, the applicants must be provided the possibility to comment on their possible disqualification.

Based on the proposal of the selection committee, the dean invites at least three experts of an international level to submit a statement on the qualifications of the applicants. The university's staff members may not be invited as expert evaluators. To the extent possible, the experts should be chosen with the applicants' fields of specialisation in mind and with a view to impartiality.

Sections 27–29 of the Administrative Procedure Act (434/2003) apply to the disqualification of an expert evaluator.

Applications forwarded to expert evaluators

The selection committee may limit the number of applications forwarded to expert evaluators if there are four applicants or more. At least three applications must be forwarded to the experts. The applications may be limited to the most suitable candidates for the position in the view of the person making the decision. The selection committee must present grounds for its decision. The applicants will be informed if any applications are excluded from the evaluation.

Expert statements

The expert evaluators must give their statements in writing within eight weeks. More specific dates will be sent to the evaluators along with instructions. In their statement, the experts must evaluate especially the scientific qualification of the applicant, and if possible, also other merits related to the professorship, and rank the applicants in order of preference.

Expert evaluators may not take part in the appointment process at a later stage.

The statement must be sent or e-mailed to the university (separate instructions issued) by the deadline.

6 Interview and trial lecture

Applicants deemed qualified for the position by the experts will be invited to an interview. The selection committee may ask the applicants to give a public trial lecture.

7 Appointment

The selection committee makes an appointment proposal to the tenure track committee, which then makes its own proposal to the dean. The dean then makes a proposal to the rector on filling the position or leaving it vacant. The proposal shall be based on the merits presented by the applicants, expert statements, possible trial lectures and other related matters.

The evaluation of the applicant's qualifications considers scientific publications and other research results with scientific value, pedagogical expertise, teaching experience, teaching-related merits, a trial lecture if needed, the number of supervised dissertations, and management and leadership skills. In addition, the applicant's activity in the scientific community, success in raising research funding, scientific work abroad and international positions of trust are considered.

The rector decides either to appoint an applicant or to leave the position vacant.

The appointment proposal may be made or let lapse even if all the experts have not submitted their statements, provided that the time limit for the statements has expired, at least three experts have submitted their statements, and the impartial treatment of the applicants is not compromised by doing so.

After the rector has made the appointment decision, an employment contract is concluded with the appointed person. If no employment contract is concluded, the rector may, based on the proposal by the dean, make a new decision and appoint another applicant. The rector may also leave the position vacant. When the employment contract is concluded with the person appointed, the final decision is made known to all applicants.

Tenure track appointment criteria

The positions below require a doctorate in an applicable field, a research field that fits the LUT strategy (see LUT Strategy 2030), a goal-oriented plan for the work in question, teaching experience and an up-to-date account of teaching merits (teaching portfolio).

LUT has joined the international CoARA Agreement on Reforming Research Assessment (<https://coara.eu/agreement/the-agreement-full-text>), which emphasises qualitative assessment in recruitments and promotions to specialist positions. This is highlighted especially in the assessment of peer-reviewed scientific publications. We require high-level publications. The quality of publications is evaluated based on their content, such as novelty and impact. High-level publications have also passed a high-level peer review, where only the best manuscripts are accepted for publication.

In the tenure track criteria below, we apply the classification of the Finnish Publication Forum (JUFO) as a guiding indicator of high-level publications (ratings 2 and 3), but applicants always select their best publications for a qualitative evaluation by experts. The applicant's work will be evaluated in light of LUT's high ethical standards for research.

In international recruitments, the evaluation must consider that applicants from beyond Finland and Europe may not have been involved in Finnish or European research projects and may not have taken into consideration the Finnish Publication Forum classification. Such applicants are evaluated in terms of their success in acquiring competitive funding through their own national channels or through international ones, and in terms of impact factors of scientific journals in their own field. Only in promotion and tenure reviews are the same criteria be applied to them as to Finnish persons.

The following qualifications are to be considered in the recruitment of researchers for different levels.

Assistant professor:

- peer-reviewed scientific publications
- contacts with the international scientific community in the field
- the ability to take part in applying for external funding in the research group and for fellowships of the Research Council of Finland
- the ability to participate in teaching and final thesis supervision

Associate professor:

- successful publication history after the doctoral defence, target of three high-level publications a year
- proof on international cooperation
- successful acquisition of external funding and acting as, e.g., a project manager in externally funded projects
- applying for the Research Council of Finland's research fellow positions
- participation in the supervision of doctoral students
- participation in the commercialisation of research results
- participation in teaching, the development of teaching and the supervision of final theses

Full professor:

- proof of the successful performance of duties
 1. Scientific research
 - publications: target of three high-level publications a year; emphasis on publications from recent years
 - supervised dissertations: target of approximately one doctorate a year
 - other scientific publications, such as books and chapters
 - citations
 - important keynote/plenary presentations and scientific awards
 - editorial work in scientific journals
 2. Academic teaching experience
 - high-quality teaching proven in different ways, such as feedback received
 - up-to-date teaching portfolio
 - development of teaching modules
 - supervision of final theses
 3. Academic leadership
 - establishing and heading a research group
 - other leadership experience and feedback received
 4. Acquisition of external funding
 - EU, ERC, Research Council of Finland, and Business Finland
 5. Work in the scientific community
 - international scientific societies and expert advisory duties
 - duties with an impact on the scientific community
 6. Societal impact
 - presence in societal dialogue
 - corporate funding and external funding not referred to in point 4 above
 - professional experience beyond universities
 - innovations, patents, collaboration with companies (e.g., board memberships)
 - activity in the university's stakeholder groups