

**Description of the appointment process of a tenure track position
(assistant/associate professor)****Mechanical engineering, especially laser processing and additive
manufacturing**

Location: School of Energy Systems, Department of Mechanical engineering

The rector has approved the description and initiated the appointment process on 9 October 2026.

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TENURE TRACK APPOINTMENT CRITERIA	ERROR! BOOKMARK NOT DEFINED.

Applied statutes

Universities Act (558/2009)
Government Decree on Universities (770/2009)

Regulations of LUT University (8 December 2022, amended 7 April 2026)
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 Timo Kärki, professor, tel. +358 40 770 8791, email timo.karki@lut.fi.

1 Background

LUT University is a globally connected research university and a member of the European university alliance EULiST. With strong performance in international university rankings and extensive global partnerships, LUT offers an excellent environment for conducting impactful research and collaborating across borders to address some of the world's most pressing challenges.

LUT seeks solutions to global issues with its expertise in technology, business, and social sciences. LUT is a trailblazer in promoting the energy transition and the regenerative use of natural resources and helps build resilient communities, industry, and businesses through data, research, and education. LUT's campuses are in Lappeenranta and Lahti, Finland, but its impact is global.

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.

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

The professorship in laser processing and additive manufacturing is situated in the Department of Mechanical Engineering at the LUT School of Energy Systems. The department also has professors in machine design, machine dynamics, intelligent machines, production engineering, fibre composites, packaging technology, welding technology, steel structures, mechanics of advanced composites, mechanics of materials, dynamic systems and control, and sustainable mechatronics.

Since the beginning of 2018, welding technology, laser processing, and steel structures have operated under the Laboratory of Welded Metal Structures (WMS). Combining the strengths of these fields has created a leading Finnish cluster of expertise in the design, simulation,

testing, and production of welded and 3D-printed metal structures, utilising modern digital development and production environments.

The professorship contributes especially to research and education in laser-based production engineering and manufacturing technology. It is highly relevant for advancing manufacturing technologies and materials engineering and for strengthening industrial competitiveness and sustainability both nationally and internationally. Through innovations in laser-based processes, it contributes to the development of next-generation production systems, resource-efficient manufacturing, and high-value engineering solutions.

The professorship supports the widest range of academic education in its field in Finland at the bachelor's, master's, and doctoral levels for both Finnish and international students. The degree programmes also offer distance and multimodal courses in the Moodle learning environment in Finnish and English. The significance of laser processing is reflected in the fact that it has its own international organisation, which promotes and coordinates the development of industrial laser technology in collaboration with national actors. The processes are mainly applied in industries that use laser technology.

The research of the professorship and WMS focuses on the following areas:

- Management and implementation of a digital, comprehensive design, simulation, testing, manufacturability, and production chain for laser-based processes
- Laser-based metal additive manufacturing
- Laser systems and optical arrangements
- Digital product and process development chains
- Design aspects for laser manufacturing
- Simulation-driven manufacturing
- Process monitoring and digital twins
- Manufacturability analysis
- Production system integration
- Techno-economic assessment and profitability of laser solutions
- Industrial implementation of laser technologies

Applicants are expected to have expertise in more than one of the areas above.

The focus areas include carefully selected research questions that reflect strong links with industry. The professorship is also closely connected to the life cycle design of metal structures and to their reliability and durability in use. Additive manufacturing integrates several disciplines.

The professorship involves the use of several methods, which is why its processes can be implemented in different fields and applications. The duties emphasise research, which will focus on areas such as sustainable energy systems of strategic importance to LUT, including the manufacture of machines and devices for energy production and consumption. Related products are manufactured in both SMEs and large corporations in Finland. Therefore, research and education in this area can help strengthen national well-being. Overall, the entire technology industry can benefit from the professor's expertise.

Laser processing and additive manufacturing is a challenging and multidisciplinary research area encompassing laser–material interactions, beam phenomena, melt pool dynamics, solidification behaviour, and metallurgy. The strong integration of physics, materials science, manufacturing engineering, and digital technologies creates significant opportunities for breakthrough innovations and extensive collaboration across scientific disciplines and industrial sectors. Typical collaboration partners are found within mechanical engineering, particularly strength of materials and materials technology. The professorship also collaborates actively with electrical engineering, especially in transport electrification, where advanced

manufacturing and laser-based processing technologies contribute to the development of electric machines, powertrain components, and next-generation energy systems. Other collaboration opportunities exist in measurement technology, control engineering, energy technology, heat transfer, nuclear engineering, separation technology, industrial engineering and management, and business studies at LUT and internationally. In addition, LUT has decades of experience in laser processing – especially laser welding and additive manufacturing, which connect to the professorship through WMS's collaborative projects.

Laser welding and other laser applications in beam machining technology have been research themes for decades, but the most significant recent research has focused on additive manufacturing – especially methods in which the laser is an integral part of the process. Overall, digitalisation, together with modelling, simulation, and new, challenging materials and processes, is a central theme of the professorship.

The person appointed to the professorship must present strong research achievements in the focus areas above as well as proof of successful project work and research collaboration with research institutions and relevant industry. In addition, applicants must demonstrate experience in leading a research group or organisation and in the acquisition of funding from competitive sources.

The duties related to the field of research also include the following:

- planning and implementation of distance and contact teaching at the bachelor's, master's, and doctoral levels
- supervision of final theses and doctoral studies
- acquisition of research funding
- cost-conscious leadership and project management of the laser laboratory
- preparation of national and international projects
- increasing awareness in a way that serves industries
- close collaboration and engagement with businesses in the field
- taking part in the preparation of projects in other LUT units as an expert
- general administrative work related to the university's operation

The position is situated at the assistant or associate professor level of the tenure track. It will be filled through an open call for a fixed term of four years. The tenure track offers researchers a possibility to advance to a full professorship. LUT is committed to providing tenure track researchers the possibility to progress 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. The position is based in Lappeenranta and may require travel to the university's other locations as needed.

3 Qualifications

According to the administrative regulations of LUT University, adopted on 20 December 2022 (amended 7 April 2026), assistant and associate 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 strong evidence of industrial research and development projects is considered an advantage.

The applicant 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 a part of the existing 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).

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, oral and written fluency in English is required. If the appointed person is not fluent in Finnish, acquiring Finnish skills during the employment relationship are encouraged. 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 primarily 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 all the following documents:

- a curriculum vitae (max. 10 pages)
- a copy of the applicant's doctoral diploma (no other diplomas)
- 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 up to 10 publications submitted for expert evaluation
- the 10 above-mentioned publications as separate attachments
- a teaching portfolio or an equivalent account of the applicant's teaching qualifications, including 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

The experts must be impartial. 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 internationally recognised experts to submit a statement on the qualification 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 provost 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 provost must present grounds for the 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 the agreed timeframe. More specific dates will be sent to the evaluators along with instructions. In their statements, the experts must evaluate especially the scientific qualification of the applicants and, if possible, any 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 statements must be submitted 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 and provost. The dean and provost then make a joint 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 of 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 and provost, 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 publications a year with a national Publication Forum rating.
- Proof of participation in international cooperation.
- Successful acquisition of external funding and acting as, e.g., a project manager in externally funded projects.
- Applying for post-doctoral researcher posts of the Research Council of Finland.
- 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.