

PhD in Machines and Mechatronics under Energy Optimization, KU Leuven, Belgium

The Department of Mechanical Engineering of KU Leuven at the Technology Campus Bruges has a full-time academic vacancy (professor) in the domain of machine design. The Department of Mechanical Engineering is one of the key players in the field of mechanical processing and mechanical design within Europe. The department is involved in a large number of national and international research projects and has acquired a unique research infrastructure. It has a strong link with the university's tech transfer office LRD and with Flemish and European research institutes for technology transfer. The department has also been very successful in the creation of spin-off companies, illustrating the socio-economic relevance of its research. Many of these spin-off companies (like NIKON-Metrology, Materialise, 3DSystems-Layerwise, Siemens Industry Software) are technology leaders within their domain, and their products and services are renowned internationally. The research activities on machine design and mechatronics are a multi-disciplinary collaboration, called group-M, between the technology clusters on Electronics Technology, Computer science and Mechanical Engineering Technology on the KU Leuven campus Bruges. With this vacancy, the Mechanical Engineering Department is strategically reinforcing the mechanical engineering research aspects in the research group Machine design and Mechatronics at Campus Bruges. This campus is one of seven remote KU Leuven campuses of the Faculty of Engineering Technology and is evolving to a strong industrially related research center with the appropriate expertise and infrastructure with respect to machine design. Through the integration in Campus Bruges and in the Mechanical Engineering Department in Heverlee you will have access to a solid research infrastructure, an extensive international research network, connections with industry and non-profit organisations, a steady offer of talented PhD researchers and a supporting work environment embedded in a multi-disciplinary network with other KU Leuven research departments.

Duties

Research

A holistic approach in machine design requires a full integration of mechanical, electronic and software components to develop a functionally performing, flexible, robust and reliable system. Moreover, ecological pressure puts an increasing emphasis on durability and low energy consumption. This vacancy targets the design, integration and implementation of novel technology to increase the energy efficiency. You are expected to pursue developing applied research activities in this domain while relying on a strong mechanical engineering expertise. The focus can be on the development and integration of machine control methodologies with targeted energy efficiency optimization. Examples of potential research tracks that contribute to this goal are: development of energy accumulation systems (KERS, hydraulic, electric...); load levelling and peak shaving technology at the level of both individual machines and complete production plants; machine controls under energy optimization; dynamic configuration and operation of machines. Other research tracks in the domain of advanced machine design and mechatronics are also possible.

The candidate will:

set up and coordinate a research programme at international level within one or several of the above-mentioned research tracks.

develop an international partnership, as part of your research programme, within the academic world as well as with regional and international industry.

take the lead in setting up close cooperation with the current members of the campus, the department, and with researchers at the other KU Leuven departments and campuses.

strive for excellence in your research and provide a contribution to the continued development of the research group, its infrastructure and industrial services to the community and Flemish and European industry.

have the capability to acquire competitive funding, both project-based government funding as well as bilateral industrial funding.

engage in targeted scientific research, resulting in PhD's and publications that meet international standards and lead to broad international recognition and collaboration.

give substantial attention to valorisation on behalf of government and business in applied research.

Education

You contribute to the education within the academic programmes of the Faculty of Engineering Technology. The academic programmes offered by this faculty aim at educating engineers with a strong focus on industry-ready technological development and problem solving.

Your teaching activities primarily take place at Campus Bruges. You ensure high-quality education within the area of machine controls and system design (example courses in this area are system theory, controls, dynamics, kinematics), as well as courses in the bachelor and master engineering technology linked to mechanics.

You have a clear commitment towards the quality of the programme as a whole, and you contribute to the pedagogic project of the Faculty of Engineering Technology through the supervision of bachelor and master theses and as a supervisor of PhD students. You develop your teaching in accordance with KU Leuven's vision on activating and research-based education and make use of the possibilities for the educationalist professionalization offered by the faculty and the university.

Service

You are prepared to provide scientific, societal and internal services.

In particular, you are willing to provide services to the Government and to (regional) industry in the context of applied research assignments. Therefore, you stay up-to-date with both scientific state-of-the-art and with industrial state-of-practice in the field of polymer processing.

You play an active role in profiling the Faculty of Engineering Technology towards new students and the industry sector by, for example, participating in information days and events.

Profile

You have a PhD in Mechanical Engineering (Technology) or a similarly related degree, and demonstrable expertise in the field of the vacancy (e.g. via the subject of your doctoral thesis, research projects and publications).

You have a strong research track record in the discipline, evidenced by your publications and by your research experience with industry. International experience is an important advantage.

You have a vision on providing high-quality academic education. Teaching experience is an advantage.

You possess organisational skills and have a cooperative attitude. You also possess leadership capacities. You are willing to coordinate a research group and educational activities within KU Leuven.

A good command of English is required. KU Leuven provides courses in academic English.

The official administrative language used at KU Leuven is Dutch. If you do not speak Dutch (or do not speak it well) at the start of your employment, KU Leuven will provide language training to enable you to take part in meetings.

Before teaching courses in Dutch or English, you will be given the opportunity to learn Dutch resp. English to the required standard. After three years, most courses will have to be taught in Dutch.

Offer

We are offering full-time employment in an intellectually challenging environment. KU Leuven is a research-intensive, internationally oriented university that carries out both fundamental and applied scientific research. The alma mater of acclaimed scholars such as Erasmus, Andreas Vesalius and Georges Lemaître, KU Leuven has a rich scientific tradition and history. Its internationally renowned research and educational programmes cause it to consistently rank among the best 50 universities worldwide. It is highly inter- and multi-disciplinarily focused and strives for international excellence. In this regard, it actively works together with research partners in Belgium and abroad. It provides its students with an academic education that is based on high-quality scientific research. For education, the profile of the different engineering curricula is attuned to the socio-economic needs.

You will work in Bruges, a historical, dynamic and lively city located in the West of Belgium, around one hour from Brussels, the capital of the European Union, and less than three hours from Paris, London and Amsterdam.

Depending on your record and qualifications, you will be appointed to or tenured in one of the grades of the senior academic staff: assistant professor, associate professor, professor or full professor. In principle, junior researchers are appointed as assistant professor on the tenure track for a period of 5 years; after this period and a positive evaluation, they are permanently appointed (or tenured) as an associate professor.

Interested?

For more information on the contents of the job, please contact: o Prof. dr. ir. Joris De Schutter, Chair Department of Mechanical Engineering, mail: joris.deschutter@kuleuven.be, tel.: +32 16 32 24 79 o Prof. ir. Frederik Desplentere, Campus Chair Campus Bruges, mail: frederik.desplentere@kuleuven.be, tel.: +32 50 66 48 56 If you have problems submitting your application online, please contact solliciteren@kuleuven.be. Please add a research statement (no more than 2 pages) to your motivation letter, demonstrating your added value for the research programme. In addition, please outline

your vision on academic education in a teaching statement (no more than 2 pages). KU Leuven is committed to creating a diverse environment and is therefore an equal opportunity employer. It explicitly encourages candidates from groups that are currently underrepresented at the university to submit their applications.

You can apply for this job no later than October 01, 2018 via the online application tool

KU Leuven seeks to foster an environment where all talents can flourish, regardless of gender, age, cultural background, nationality or impairments. If you have any questions relating to accessibility or support, please contact us at diversiteit.HR@kuleuven.be.