UNIVERSITÄT DUISBURG ESSEN

Offen im Denken

Information for applicants for the

Junior Professorship

„Multifunctional, Intelligent, Underground Infrastructure for Fluids“

in the Department „Civil Engineering“ of the Faculty of Engineering

Universität Duisburg Essen
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I. THE UNIVERSITY OF DUISBURG-ESSEN

Open-Minded!

We are one of the youngest universities in Germany and think in terms of unlimited possibilities instead of possible limitations. Located in the heart of the Ruhr metropolis, we have 11 faculties working to develop ideas with a future. We are strong on research and teaching, embrace diversity, promote academic potential and fight for genuine educational equality.

Located in the heart of the Ruhr metropolis, the University of Duisburg-Essen (UDE) is one of the youngest and largest universities in Germany. The courses range from the humanities and social sciences over economics and business studies all the way to the engineering sciences and natural sciences (including medicine). It's also wellknown in the international scientific community. This is reflected by the top positions the UDE has recently achieved in international rankings. In a global comparison of the performance of the best universities founded since the turn of the millennium, the UDE came in third. In the Times Higher Education Ranking, it holds down 19th place among the best 150 universities worldwide younger than 50 years old.

The research carried out at the UDE covers a broad spectrum including four cross-departmental main research areas: nanosciences, biomedical sciences, urban systems and transformation of contemporary societies.

More than 43,000 students from over 130 countries are enrolled at the UDE in a total of over 230 courses of study.

An important objective of the UDE's diversity management program is to offer equal opportunities to young people from non-academic backgrounds.

As an academic global player, the UDE cultivates partnerships with more than 100 universities all over the world. It is a member of the University Alliance Ruhr (UA Ruhr), a strategic coalition formed by the three universities in the Ruhr area. The UA Ruhr operates liaison offices in North America, Russia, and Latin America.

More information:
https://www.uni-due.de/imperia/md/content/dokumente/ppt/ppt_praesentation_ude_en.pdf

II. FACULTY OF ENGINEERING
All Engineering Disciplines under one Roof

The Faculty of Engineering Sciences at the University of Duisburg-Essen provides a unique profile. Nowhere else in Germany are engineering sciences as close as at the University of Duisburg-Essen. Four departments teach and research Civil Engineering, Electrical Engineering and Information Technology, Computer Science and Applied Cognitive Science and Mechanical and Process Engineering, including Industrial Engineering, under one roof. As a result, the faculty has an integrated spectrum of engineering disciplines that is unique in Germany and meets all requirements for modern, innovative, and interdisciplinary university education and research in the field of engineering sciences.

With about 11.600 students – about one third of them from other countries – the faculty is a strong partner for the regional and cross-regional industry. Graduates of our study programmes enjoy a high reputation due to their broad professional competence as well as due to the special interdisciplinary and international orientation of our study programmes. Classical study courses such as mechanical engineering, electrical engineering, materials technology, civil engineering and informatics are complimented by modern interdisciplinary study courses such as nano engineering, applied cognitive and media science, medical engineering or industrial engineering. In addition, social skills are addressed that are particularly trained through teamwork and interaction with international students. Our integrated international bachelor's and master's degree programme "International Studies in Engineering (ISE)" with 50% English lectures which is attractive due to its global character and versatility not only for international students but also for German speaking students.

We have developed a sustainable support system for our first-year students that ensures a seamless transition from school to university education. They have the opportunity to learn the contents of their studies in small groups within the first three semesters, enabling them to quickly complete the demanding engineering study at a high level. In addition, there are intensive laboratory experiments that convey how to use the technologies of the future right from the start. The conversion of diploma degree programmes into consecutive bachelor's and master's degree programmes was completed in the winter semester 2007/2008, while maintaining the internationally respected quality of the German diploma degree.

With an investment volume of more than 60 million Euro for equipment infrastructure the Faculty of Engineering has excellent opportunities to develop cutting-edge technologies and conduct basic research. With seven concluded and one running DFG-Collaborative Research Centers as well as six DFG funded research units the faculty is the best address for research in the fields of nanotechnology and material sciences. Beside of that the topics

- Nanotechnology,
- Combustion Science,
- Mechatronics,
- Communication Systems,
- Microelectronics and Medical Technology,
- Information Technology,

- Product Engineering and Materials Technology,
- Civil Engineering,
- Computational and Cognitive Sciences,
- Industrial Engineering,
- Logistics

are the focus of research activities.

By focusing on these areas, the faculty has achieved a high international reputation, which is documented by numerous research projects. In addition, there are the affiliated institutes and other associated Institutes:

- Development Centre for Ship Technology and Transport Systems (DST),
- Institute for Mobile and Satellite Communication (IMST),
- Institute for Energy and Environmental Technology (IUTA),
- IWW Water Center (IWW),
- Center for Fuel Cell Technology (ZBT),
- Fraunhofer Institute for Microelectronic Circuits and Systems (Fraunhofer IMS),
- Gas-und Wärme-Institut (GWI),
- Center of Rotating Equipment (CoRE),

which collaborate closely with the faculty and have an annual total revenue of more than 35 million Euro. The Faculty and the affiliated and associated institutes have proven to be excellent partners for complex technological solutions and for the recruitment of excellently trained engineers.

In order to promote cooperation between the departments and institutes and to increase visibility the faculty has established four research profiles, which are “Tailored Materials”, “Human-Centered Cyber-Physical Systems”, “Smart Engineering” and “Energy and Resource Engineering”.

III. DEPARTMENT OF CIVIL ENGINEERING

The Department of Civil Engineering has their teaching and research profile continuously developed and adapted to the constantly changing requirements. The subject areas of the department cover the whole range of constructions science aspects. This starts with basic research sciences like engineering mathematics, mechanics and computational mechanics on geotechnical engineering, structural engineering and materials science, up to application-oriented sciences such as massive construction, metal and lightweight construction and building operations and construction management. With issues of infrastructure, especially in conurbations deal the subject areas of hydraulic engineering, water and waste management, urban planning and construction as well as road construction and transport. The focus of research activities are new, intelligent materials and building systems, energy optimization, urban development, supply and technical issues and further topics. It is cooperated closely with leading companies in the construction industry, commercial enterprises and regional authorities.

The study of civil engineering in the Department of Civil Engineering of the Faculty of Engineering is based on internationally accredited Bachelor of Science and Master of Science degree programs and stands for modularization, internationalization as well as for integrating economics content in the basic studies. The seven semester Bachelor programme of Civil Engineering is based on four optional specializations in the three semester Master of Science degree program: Structural Engineering, Construction Management and Infrastructure Systems, Material Science and Applied Mechanics and Computational Mechanics. In addition to the present study programme of civil engineering it is offered the Bachelor of Science and Master of Science degree programs Industrial Engineering with the focus construction. The plan is an international Master of Science degree program which is called “Membranbau”.

The Department of Civil Engineering is involved with services in the education for teacher post and building technology. Furthermore, the Department of Civil Engineering within the Faculty of Engineering is involved in the Master of Science degree programs Systems Engineering, Public Transport Management, Transnational Ecosystem-based Water Management, Water Science and Management and Technology of Water and Wastewater.

In the course of the international teaching exist partnerships in double degree programs with universities in Japan, Malaysia and Indonesia.

By including industry representatives of major German companies in the Ruhr region in the "Advisory Council of Civil Engineering" the connection of the university operation in teaching and research is guaranteed to meet the needs of the labour market.

The teaching and research areas of the Department of Civil Engineering are manifold, whereby the third-party funded research plays an important role.

IV. REQUIREMENTS FOR THE POSITION ‘Multifunctional, Intelligent, Underground Infrastructure for Fluids’

1. Research

Currently the Department of Civil Engineering, which is part of the faculty of engineering, concists of 12 institutes. The person filling the position announced here, will be responsible for research and teaching in the field of “Multifunctional, Intelligent, Underground Infrastructure for Fluids“.The main focus will be:

- the modeling and optimizing of underground infrastructure systems in urban areas open-channel and pressure-operated systems
- the interfaces of fluids with innovative materials, connected information systems and the support of planning, constructions, operations and maintenance processes of the infrastructures
- the modeling of mechanical, thermal and chemical-biological interactions between the fluids, suspended solids, the materials and the environment
- the development of concepts for a multifunctional use of the underground infrastructure for fluids also in context of new materials

Research areas should include theoretical and application-oriented topics. Cooperation with companies and / or other institutions are expected. Applied research can be conducted in close cooperation with the affiliated institute IWW Centre Water. An internationally visible research activity at a high level is desirable.

The person who fills the position should be able to show his/her capability of interdisciplinary research.

The willingness to represent the department on a regional and national level, as well as the acquisition of third party funding is crucial.

2. Teaching

The junior professor will hold classes in the accredited bachelor and master study of Civil Engineering and Computational Mechanics.

The person who fills the position is also expected that he / she uses new media during lectures and keeps up to date in the matter of teaching methods. This includes the willingness to teach in English and to participate in didactic qualifications.

Desirable are applications from professionals with high scientific qualification and didactic aptitude, which can meet these requirements.

3. Further requirements

Non-university work experiences would be desirable, as well as experience in leadership.

4. Relevance of the Professional Activities and Time Involved

The junior professor will be expected to teach four hours in the first phase and five in the second phase of the junior professorship (45 minutes).

Participation in the self-administration of the university is required.

V. STAFFING AND FACILITIES

Details shall be agreed in the course of the appeal and agreed. The following staffing includes half a TV-L 13 personal.

VI. LEGAL FRAMEWORK

The Law on the Higher Education in North Rhine-Westphalia (Higher Education Act - HG) from 16.09.2014, the university system has been fundamentally reshaped from 1.10.2014.

The universities are defined by the state supported, unincorporated public bodies. State funding is based on their duties, the agreed objectives and the services provided. They have a global budget and are not subject to transfer relationship with the Ministry of Innovation, Science, Research and Technology of North Rhine-Westphalia.

Legal status of the high school teachers and university teachers

Professors are employed by the statutory requirements, basically public officers for life. Professors can also be employed on a contract under private law.

Junior professors are appointed for a period of three years to public offer in time. The public officer status of junior professor is to be extended with his or her consent during the third year for another three years if he or she has proved to be a university professor. Otherwise, the public officer can be extended with the consent of the junior professor by up to one year. During the sixth year the public officer of a junior professor can be extended with his or her consent by one year if he or she has proved to be a university professor. Junior professors are also engaged in a contract under private law.

For further information, (laws, directives etc.), please visit https://www.uni-due.de/verwaltung/organisation/peo_professoren.php (in German)

VII. SALARY

On 1 January 2005, the C-grade for professors was replaced for all newly appointed professors by a performance-oriented remuneration. It is part of the service law reform. The formerly standard seniority grades in the salary scale W (W for 'science') replaced by a system of basic salaries (W2, W3) plus "performance bonuses". The W salary scale shall apply from 1 January 2005 for all newly appointed professors and those who transfer to the W salary.

The current pay tables for grades W1, W2 and W3, see http://www.lbv.nrw.de/beztab/beso.php (in German).

In addition, performance-related salary components, so-called performance bonuses. You can on the occasion of appointment and tenure negotiations (appointment and tenure bonuses), for outstanding achievements in research, teaching, art, training and professional development (special performance bonuses) and for the performance of functions or specific tasks within the university self-management or the university management (functional performance bonuses) will be awarded. For third-party funds, research and teaching allowances may be paid in certain circumstances.

Temporary performance bonuses are subject to the conclusion of target and performance agreements within the framework of appointment and tenure negotiations.

In the framework of appointment negotiations, any appointment-related performance bonuses are negotiated individually with the Rector of the University of Duisburg-Essen.

Information and legal bases the W salary scale available on the Internet at the following address: http://www.hochschulverband.de/cms/index.php?id=296 (in German)