

STUDYING ENGINEERING

Bachelor's degree in Mechanical Engineering

From a classic degree to a quick-change artist

No other field of studies at German universities is so multifaceted as mechanical engineering. The classic degree course has transformed into some 317 bachelor's degrees and 175 master's degrees with different profiles and specialisations – with many facets including construction engineering, precision engineering, process engineering, automotive engineering, materials engineering, power engineering and production engineering. With its focus on forward-looking technologies the **Karlsruhe Institute of Technology** (KIT) creates optimal conditions for a successful career start in research and industry with its broadly based course.



A student of mechanical engineering is setting up a thermal turbomachine (left); his fellow students have gathered in the KIT library (top).

The dynamic economy, the attractive labour market and the high quality of life in Germany were crucial factors for Etienne Boisseau's decision to start a degree course at the KIT. His foreign language skills were also relevant for the decision: "As German was my first foreign language and I have a German-French 'Abitur' qualification, I was certain from the very beginning that I would go to Germany." Together with almost 3,400 fellow students, Etienne Boisseau is currently studying at the Department of Mechanical Engineering. Like him, 20 percent of the mechanical engineering students are from abroad.



Etienne Boisseau comes from France and is studying mechanical engineering at the Karlsruhe Institute of Technology.

Mechanical engineering is offered as a consecutive course at the KIT. In this way the basic scientific skills acquired in the bachelor's course can be consolidated in the application-oriented electives in the connected master's course. For Professor Martin Gabi, the former dean of the Department of Mechanical Engineering and currently head of the Institute of Fluid Machinery, the advantage of the consecutive degree course is obvious: "It is the best opportunity to study a self-contained curriculum. Although the bachelor's degree is an important half-way point, the regular qualification is the master's degree."

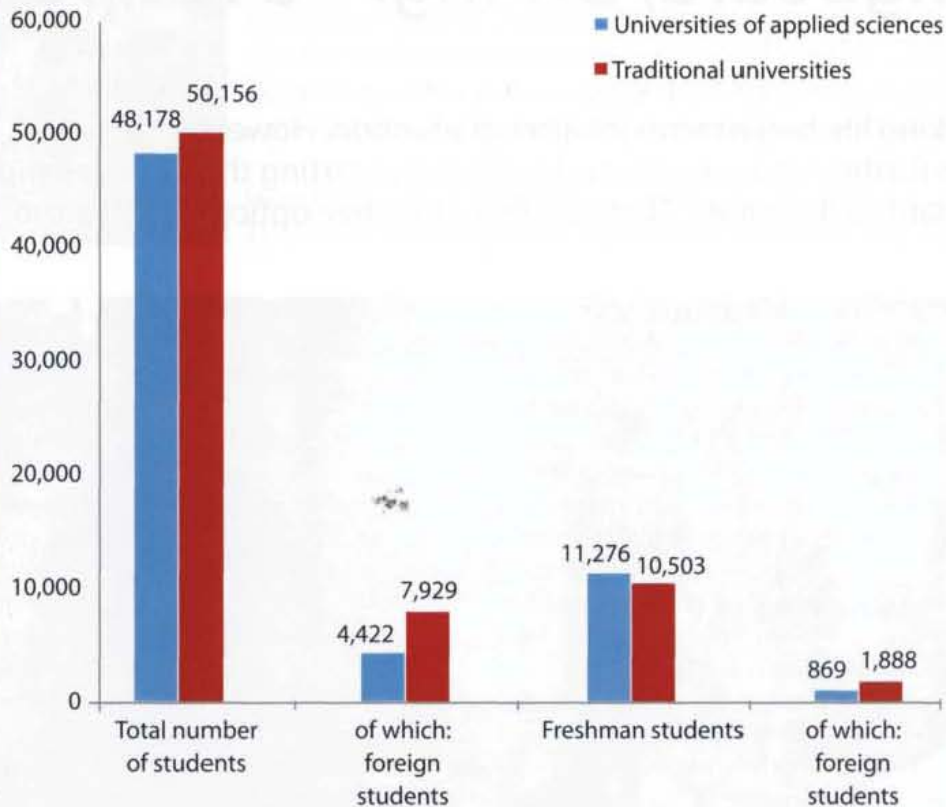
German-French degree

Etienne Boisseau's home university, "Arts et Métiers ParisTech", and the KIT offer several dual degree programmes in the context of a higher education partnership. In these programmes groups of German and French students study together from the fifth semester of their bachelor's degree courses onwards. Each student completes three semesters and an industrial internship abroad.

Unlike students spending one or two semesters studying abroad via the EU education and training programme, ERASMUS international students like Etienne Boisseau can study abroad for up to two years and gain a binational double degree in addition: "After the consecutive bachelor's-master's course at the KIT I will gain the internationally recognised 'Master of Science', the 'Diplom-Ingenieur' and the 'Diplôme d'Ingénieur' qualification which is established in France."

"The dual degrees have the big advantage that the achievements at the higher education institution and in the students home countries are recognised as equivalent," Professor Gabi says, emphasising one of the important advantages of the binational degree course. Besides France, there are partnership programmes with South Korea, the USA and Bulgaria. "As internationality plays an important role at our institution, we want to expand this offer further, for example in China and South America," Professor Gabi reports, speaking about the current plans of the institute in Karlsruhe.

Students of mechanical engineering winter semester 2010/2011



Source: Statistisches Bundesamt (Federal Statistical Office), Wiesbaden 2011

Deciding your direction yourself

"In contrast to the French 'grandes écoles d'ingénieur' system, in which the degree course is highly structured with respect to content and organisation, in Karlsruhe I am responsible for what I study myself," Etienne Boisseau knows from his own experience. Whether product development and construction, energy and environmental engineering, mechanics, thermodynamics or materials for high-performance systems – the student of mechanical engineering values the varied courses on offer at the KIT and the resulting options: "This means that I can decide the direction of my studies myself."

Etienne Boisseau has not yet chosen a topic for his bachelor thesis. At the Insti-



Professor Martin Gabi is the head of the Institute of Fluid Machinery at the Karlsruhe Institute of Technology.

tute of Product Development (Institut für Produktentwicklung – IPEK) of the Department of Mechanical Engineering he is spoiled for choice at any rate. The IPEK provides the opportunity to test new technologies and to choose one of the many exciting research projects. "The students simulate the entire product development process, starting with the initial idea and going right through to its production. And in the process they learn all the relevant aspects of project management such as budget planning or staff organisation," Professor Gabi explains.

The professor of mechanical engineering is grateful for the financial support from large corporate groups and medium-sized companies, which make projects of this kind possible. "Our cooperations with companies ultimately constitute the economic basis of the department for conducting research on a high level." Thanks to the financially strong economic partners, the institute's equipment includes a robot factory of its own and a 3D scanning vibrometer for non-contact measurement of surface vibrations.

One degree – lots of opportunities

Professor Gabi predicts that the graduates will have a successful future: "At the KIT students of mechanical engineering acquire not

only the mere ability to apply methods, but also the competence to develop engineering processes. In this way we prepare our graduates perfectly for managerial positions in an international environment and are proud when they promote innovations in industry later on."

Etienne Boisseau, too, wants to get off to a flying start as a driver of innovation after graduating and has recognised the importance of the interdisciplinary work: "I want to acquire a broad specialist knowledge and eventually be able to link different fields together, for example as a project manager."



INFORMATION

Karlsruhe Institute of Technology (KIT) – Department of Mechanical Engineering

www.mach.kit.edu

KIT DeFI – German-French Initiative at the KIT (Deutsch Französische Initiative im KIT)

www.defi.kit.edu

IPEK – Institute of Product Development at the KIT (Institut für Produktentwicklung am KIT)

www.ipek.kit.edu

International double degrees at German higher education institutions

German higher education institutions cooperate with many partner institutions of higher education all over the world. In the context of these partnerships there are frequently double-degree or joint-degree programmes. It is often worth enquiring at your own university or college about any existing cooperation agreements.

At www.daad.de/international-programmes > Advanced search options > Joint Degree Programme you can search for engineering courses leading to a joint degree.