



[FSI]

VEHICLE TECHNOLOGY

A Center of Excellence of European Automotive Engineering

In September 2003 a cooperation agreement was concluded between Graz University of Technology and the auto-industry supplier MAGNA to establish the FSI as a private-public partnership. Since that time this unique institute has developed into a center of excellence of European automotive engineering which provides a bridge between science, education and economy. The latest research findings flow into teaching and technological development, and students benefit from close-up practical experience.

How valuable the FSI is for Graz University of Technology and MAGNA is demonstrated by the extension of the contract in 2014. The FSI comprises the institutes of Automotive Engineering, Tools and Forming, and Production Science and Management, and is an independent scientific establishment which is part of the Faculty of Mechanical Engineering and Economic Sciences of Graz University of Technology. The three institutes pursue their respective independent focuses in research and teaching. Altogether, more than 900 scientific articles have been published in the ten-year success story of the FSI.

OUR AREAS OF FOCUS

- Tools and forming
- Production science and management
- Automotive engineering

TRAINING PROGRAMS

The four-semester master's program in Production Science and Management is offered at the FSI in the institute of the same name. About 100 students per semester participate in the course, which is held in English. Especially talented students who write their final papers at the FSI (diploma, master's or doctoral thesis) are eligible for FSI merit-based scholarship awarded by Magna.

CONTACT

email: fsi@tugraz.at

► www.fsi.tugraz.at



© TU Graz/Lunghammer



© TU Graz/Lunghammer

OUR HIGHLIGHTS IN RESEARCH AND TEACHING

The avowed aim of the FSI is top performances in teaching and research in the field of automotive engineering at the highest international level.

TOOLS AND FORMING

The teaching focus is on providing a basic knowledge of forming technology and non-cutting manufacturing. A variety of technical services and consulting are also offered to industry. Research focuses include tool technology, materials, simulation, cutting and joining. Among other things, the Institute of Tools and Forming developed and built the prototype of an induction furnace for the automobile industry. The induction furnace was meant to speed up the production of component parts with ultra-high strength properties and considerably reduce energy expenditure.

PRODUCTION SCIENCE AND MANAGEMENT

Since the 2007 winter semester the Production Science and Management master's program has been held in English. 18 experts from a variety of industrial backgrounds make up part of the training program and incorporate their know-how and practical experience in the lectures. More than 200 diploma and doctoral theses have been completed at the FSI institutes since 2005. Students and companies take advantage of the service of the Institute of Production Science and Management to propose topics and projects for final papers in cooperation with industry.

AUTOMOTIVE ENGINEERING

Further teaching focuses at the FSI include automotive engineering and vehicle dynamics. Specialization lectures are offered in commercial vehicle engineering, tire engineering, innovative vehicle drivetrains and integrated safety. The laboratory carries out independent research projects for clients from industry and scientific partners. Fields of expertise include establishing mobile measuring techniques in vehicles, test-rig superstructure for running gear and brakes, production of prototypes, carrying out experiments and data analysis as well as solving complex special applications of measurement technology.



© TU Graz/Lunghammer



© TU Graz/Bergmann

[FSI] Institutes



AUTOMOTIVE ENGINEERING

At the Institute of Automotive Engineering research focuses embody future challenges in the field of mobility. We focus on the new mobility and its development tools for vehicle concepts, e-mobility, driving dynamics and driver assistance systems as well as energy management of vehicles, work on automotive mechatronic systems and virtual development. In this field, important elements converge for the successful development of engineers and their products. Scientific principles are combined with the practical orientation of industry. What's more, the TU Graz Racing Team packs an emotional punch when it comes to racing.



PRODUCTION SCIENCE AND MANAGEMENT

The Institute of Production Science and Management cooperates intensively with the Institute of Industrial Management and Innovation Research and supports its eponymous master's program in Production Science and Management. In teaching, topics such as production management and social economics are addressed. Additionally, external university lecturers are appointed to impart practical knowledge. One example of this is the "Product Innovation Project", in which students develop product concepts in cooperation with partners from industry. In research, Industry 4.0, ramp-up management and agile manufacturing, count among the focuses of the institute.



TOOLS AND FORMING

Sustainable lightweight construction and overall optimized production processes go to form the framework of orientation for the Institute of Tools and Forming as well as its focuses lightweight materials and forming of metallic materials. Against this background, it must be understood that lightweight construction represents special challenges for the automobile industry. Taking into account sustainable production, new materials and manufacturing processes are researched and developed at the Institute, and tools systems, forming systems and processes are optimized as are joining and cutting technologies. One of the focuses here is on body engineering.

© [FSI] May 2014



© TU Graz/Lunghammer



© TU Graz/Lunghammer