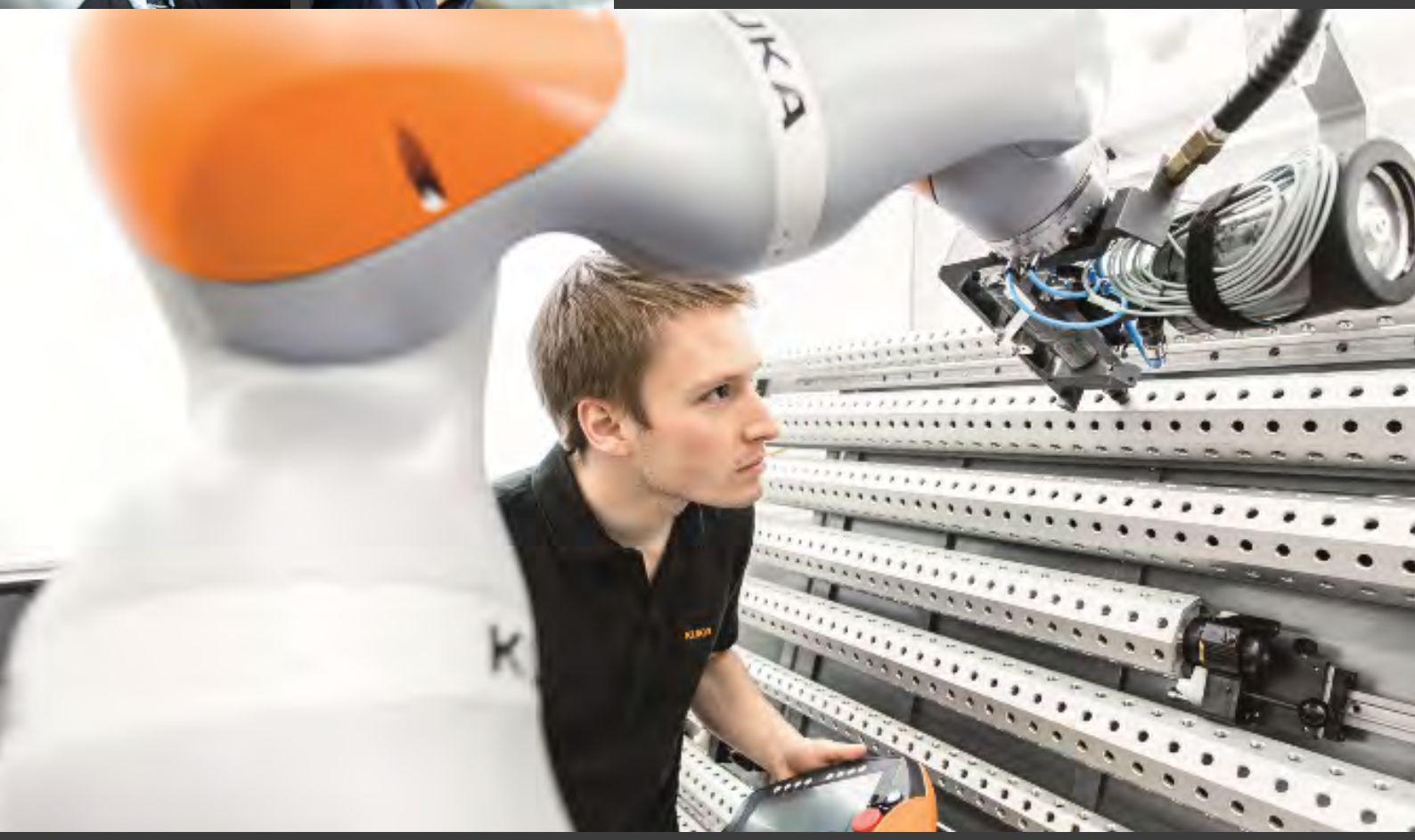
Carl Benz School

Karlsruhe Institute of Technology

Carl Benz School of Engineering

Mechanical Engineering College of the Karlsruhe Institute of Technology

International Mechanical Engineering Bachelor Program & Summer Schools



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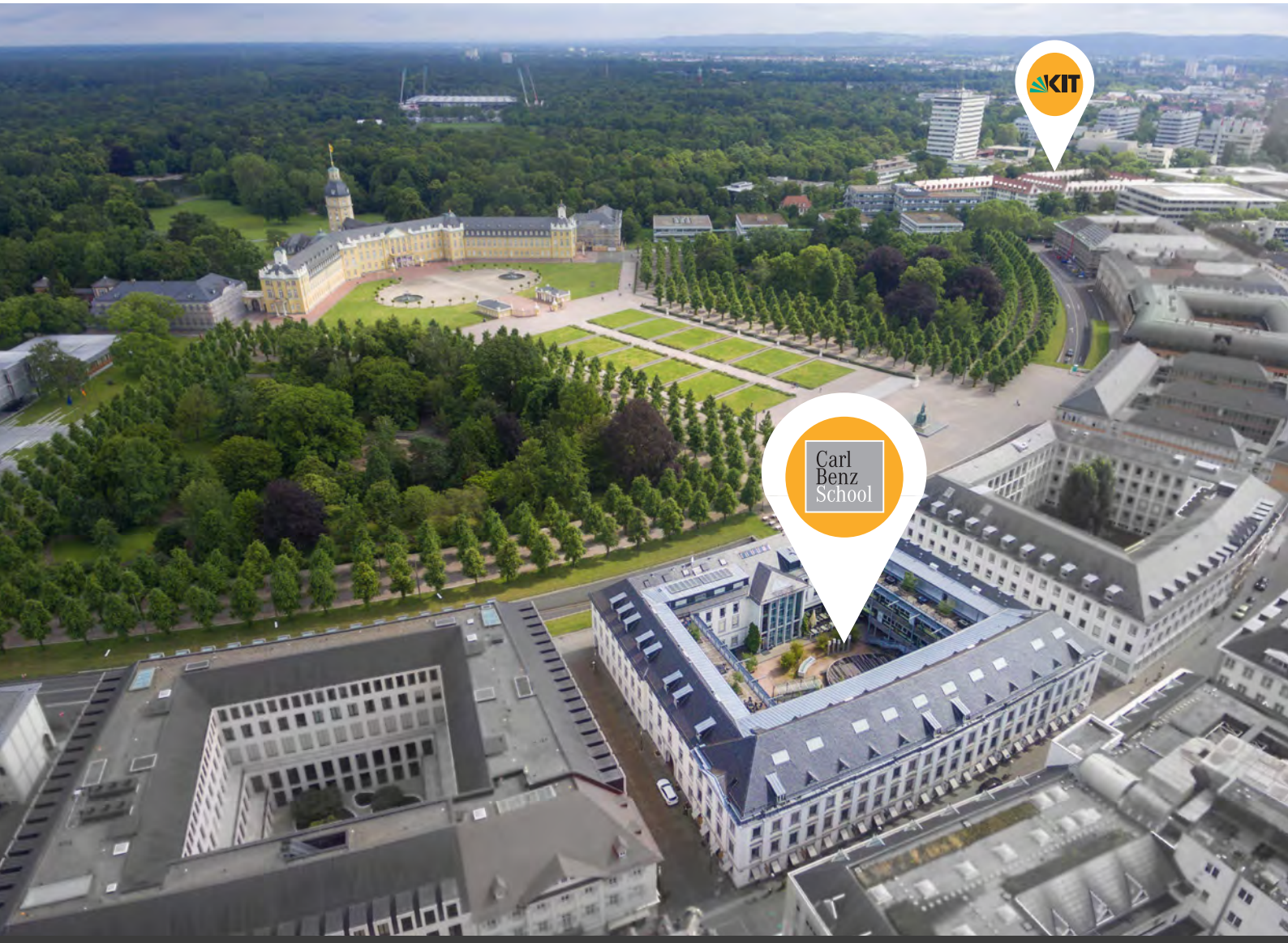


A MESSAGE FROM THE CHAIRMAN OF THE INDUSTRIAL ASSOCIATES BOARD

Prof. Dr. Herbert Kohler

Chairman of the Industrial Associates Board of the International Department of the Karlsruhe Institute of Technology gGmbH

Vice President Group Research & Sustainability

Chief Environmental Officer Daimler AG

Germany is well-known for its developing capability and manufacturing high-end goods of value and quality. German products, especially from the mechanical and automotive engineering industries and those resulting from electrical and optical manufacturing processes, are highly successful on the world market. Mechanical engineers from Germany have always had an excellent reputation and are in high demand worldwide.

Such engineers are the result of a very successful and systematic education in the engineering sciences. German technical universities have been educating and training budding engineers for over 250 years. The Karlsruhe Institute of Technology (KIT) is one of them. Outstanding rankings and evaluations vouch for the standard of research and education at KIT worldwide. It is located in the German federal state of Baden-Württemberg, a leading area with the highest innovation performance in Germany due to its technology centers, Karlsruhe and Stuttgart. These two cities are the top locations for leading companies like Bosch, Siemens and Daimler.

The Carl Benz School of Engineering is the Mechanical Engineering College of the KIT. The school offers outstanding international students the opportunity to study mechanical engineering in English at KIT. Carl Benz School students also have the opportunity to take part in technological innovations happening in the laboratories of the outstanding institutes. Besides receiving an excellent education, the graduates will also meet the demands of international companies looking for prospective world-class engineers and scientists.

The Carl Benz School strives to offer the best education and training in mechanical engineering in close cooperation with industry to nurture and prepare new leaders in engineering, development and production.

Carl Benz and Gottlieb Daimler, two distinguished engineers who changed the world by laying the foundation for the production of cars and developing the automobile, also lived in the vicinity of Karlsruhe in their time. Carl Benz was a student at the Karlsruhe Polytechnic College which is now known as KIT. History connects the Carl Benz School to its roots of quality and excellence and provides a network for future graduates. We are proud of our heritage. The institution provides the perfect environment to educate potential future pioneers in new technologies.

Bachelor Program in Mechanical Engineering
The Benefits

A BACHELOR DEGREE FROM THE KARLSRUHE INSTITUTE OF TECHNOLOGY (KIT), ONE OF THE BEST TECHNICAL UNIVERSITIES WORLDWIDE

The Carl Benz School of Engineering (CBS) offers high school graduates the unique opportunity to study internationally renowned German engineering in English. The three-year bachelor program (B.Sc.) aims to prepare future engineers for a successful career in the field of mechanical engineering.

The Karlsruhe Institute of Technology (KIT) is ranked #1 in mechanical engineering amongst all German universities (also see page 6) and achieves numerous top placements every year. As the Mechanical Engineering College of the KIT, the CBS does not only offer high-quality lectures by excellent professors of the KIT. All students receive an individualized all-in-one service package, support, additional training and study guidance in order to develop their professional profile.

Basic criteria for admission include excellent grades in mathematics and physics. Furthermore, applicants must be proficient in the English language. Recommended High School degrees are an International Baccalaureate, A-Level or Abitur.

What`s unique?

Elite Teaching & Small Classes

CBS offers state-of-the-art technology expertise in English programs from one of the most prestigious technical universities in the world. While mechanical engineering classes at KIT allow for 600 students in the 1st-semester, the CBS admits a maximum of 50 students.

Study the Future of Engineering

The B.Sc. is divided into core studies in the general field of Mechanical Engineering, including a specialization in Automotive Engineering, Global Production Management and/or Energy Engineering.

Strong Industry Network

Many graduates are keen to enter the German labor market. To facilitate this, internships are part of the program. As part of the specialization Global Production Management students even participate in the industry training program ***SmartFactory@Industry***.

Secure On-Campus Housing

CBS offers all in one: Campus accommodations and academics as well as leisure facilities (i.e., a music room) can all be found under one roof.

Study & Career Guidance

CBS provides students with support regarding everyday questions with individualized study guidance as well as with a personalized career service.

International Orientation

CBS is diverse, open-minded and very internationally oriented. There are more than 90% international students on campus and our alumni come from over 50 countries around the world.

www.carlbenzschool.kit.edu/bachelorprogram.php

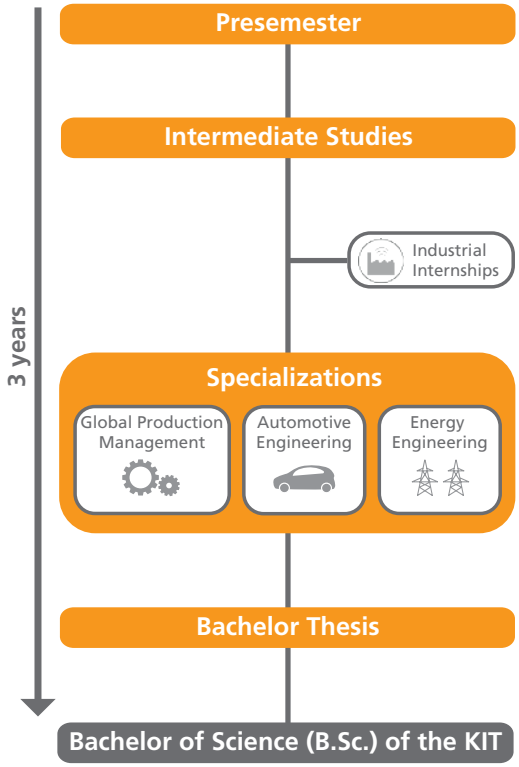
What`s the program all about?

The B.Sc. program at the Carl Benz School comprises lectures, tutorials, and lab courses with lecturers and tutors coming from different institutes of the KIT. This ensures that the quality of the subjects taught meet the highest standards.

To make sure that the students are well-prepared for the final exams, some subjects even require students to fulfill certain criteria, for example, to score enough points by completing assignments or quizzes in order to register for the examination.

In addition to the academic demands, students are also encouraged to complete an industrial internship. The industry training program ***SmartFactory@Industry*** is new and unique worldwide within the specialization Global Production Management. The traineeship will foster the career perspectives of our students our German industry partners and provide them with an industry network including potential employers at a very early stage of their academic career.

The program is rounded off by supplementary studies, such as language courses, cultural studies, soft skills courses and social events.



Curriculum of the Bachelor Program

The Student Association of the CBS

„The Student Association of the International Department (SAID) is a student led and run organization that acts as the connection between students of the Carl Benz School, the student office, and the accommodation office. We provide students with guidance and support throughout their university studies and initiate strong social interaction through our many educational, interactive and exciting events during the semester. On top of that, the SAID works closely with the student office to provide students with industrial insights through the organization of company visits and talks. Most importantly, we strive to make every student's university experience a memorable one."

Alex Rohregger (1st one from the right)
CBS student and former president of the SAID

Bachelor Program Specializations
The Most Promising Topics in Engineering

SPECIALIZE IN ONE
OF THE HOT SUBJECTS
RELEVANT FOR
THE FUTURE
OF ENGINEERING

Automotive Engineering

The automotive industry is currently experiencing a drastic boost in innovation with regard to the development of marketable electro motors, optimization of combustion engines and light-weight design.

Students who choose to specialize in Automotive Engineering profit from the fact that the automotive industry is Germany's largest industry sector with a turnover of approximately 404 billion Euros in 2015, covering 20% of Germany`s industry revenues overall. Ten out of the 100 largest automotive suppliers have either their headquarters or one of their subsidiaries near Karlsruhe. At the KIT more than 40 institutes with 800 scientists are conducting research for safer, more comfortable and more efficient cars.

Energy Engineering

The specialization in Energy Engineering is the best choice for those who want to pursue a future career in an ever-expanding and increasingly important sector.

Students learn about forms and sources of energy, energy production and storage. They also study the management of energy as well as the utilization of renewable energy sources and learn about economic efficiency in the energy industry and the understanding of technical combustion systems, e.g. engines and turbines.

Global Production Management

Production management is a vital key to the operation of companies. This specialization opens doors to countless career opportunities, including the new dual training program SmartFactory@ Industry.

Students learn about production planning and control, production logistics, distribution centers, the optimization of logistical networks, material flow processes and project management. The evaluation of methods in terms of technical and economic aspects and virtual product development processes (product lifecycle management) are also important.

THE BACHELOR PROGRAM IN DETAIL

FUNDAMENTAL COURSES (SEMESTER 1 - 4)

Advanced Mathematics
Computer Science in Mechanical Engineering
Material Science
Mechanical Design
Engineering Mechanics
Manufacturing Technology
Electrical Engineering & Electronics
Advanced Engineering Mechanics
Advanced Mechanical Design
Technical Thermodynamics & Heat Transfer
Production Operations Management
Wave Phenomena in Physics

ADVANCED COURSES (SEMESTER 5 - 6)

Machines and Processes | Fluid Mechanics | Measurement & Control Systems

SPECIALIZATION + BACHELOR THESIS (SEMESTER 5 - 6)

Global Production Management

Global Production | Global Logistics | Virtual Engineering | Automated Production Systems | Human Factors Engineering | Special: Smart Factory@ Industry

Automotive Engineering

Vehicle Comfort and Acoustics | Electrical Machines | Machine Dynamics

Energy Engineering

Technical Combustion | Heat & Mass Transfer | Fundamentals of the Energy Technology | Energy Economics

SOFT SKILLS COURSES

Mandatory	Supplementary	Language
International Project Management | Working Methods in Mechanical Engineering	Negotiating in an International Environment | Presentation & Professional Application | Academic Writing | Intercultural Awareness	Business English Technical English German A1-C2

Hands-On Industry Training: SmartFactory@Industry

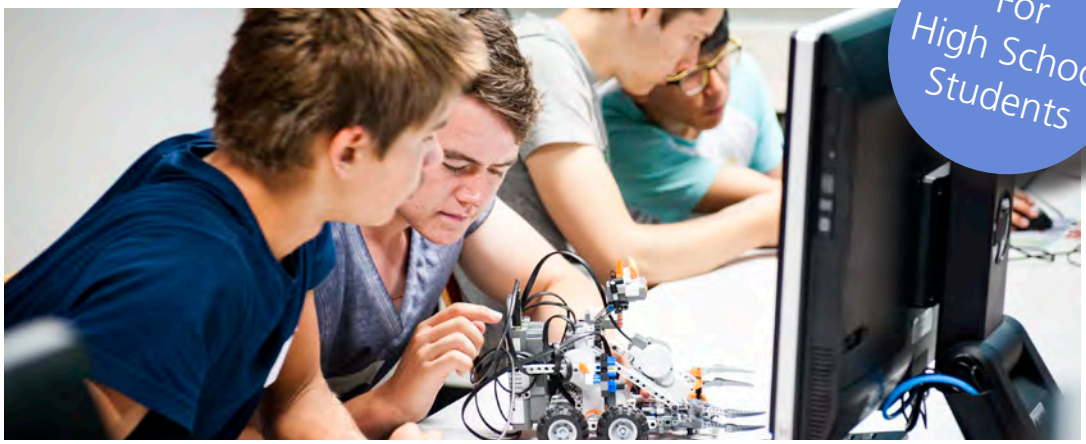
The smart factory is already part of today's production industry, which means that engineers need know-how for the integration and extension of these digitalized factories. In cooperation with industry partners, CBS offers the integrated industry unit Smart Factory@Industry within the specialization Global Production Management.

This dual training program aims to enhance the technical and interdisciplinary profile of mechanical engineering students. Students will be able to build up networks with potential employers at a very early stage of their academic career.

BOSCH DAIMLER ZEISS

Summer Schools
Sneak preview into Mechanical Engineering

THIS SUMMER
IS YOUR CHANCE
TO DISCOVER
ONE OF THE MOST
EXCITING PROFESSIONS
IN THE WORLD!



Each year the CBS summer program provides high school students with a passion for mathematics, physics, and technology (ages of 16 - 19) with an inside view of mechanical engineering studies in Germany. Students are taught by highly qualified professionals and benefit from a full range of activities, cultural trips and workshops. In addition, students are well supervised by a team of summer school counselors who make sure students are safe and happy at all times as well as making sure the summer school is fun, full of laughter and that all students make friends from around the world.

Germany: The Carl Benz Summer School

The aim of the one-week course is to offer s unique combination of engineering courses and leisure activities. The lectures and excursions focus on railway system technology, automobiles, robotics, energy and virtual engineering. Participants also have the chance to experience various hands-on activities during the workshops. The visit to the world-famous Daimler AG completes the academic agenda.

Many exciting excursions acquaint students with Karlsruhe and the German culture. The highlight of the excursions will certainly be the visit to the most popular theme park in Germany – the Europa-Park in Rust.

The Carl Benz Summer School is a great opportunity to gain first impressions of student life in Germany and to learn more about a possible future career in engineering!

China: Carl Benz Engineering Academy

Starting in 2017, the Carl Benz School is hosting the four-day Engineering Academy for future engineers at the KIT Branch in Suzhou, China. Exciting workshops, lectures and industry visits provide great insights into the world of mechanical engineering. Lecture topics focus on the compelling subjects of mechanics, mathematics and thermodynamics and are exemplified within practical workshops.

Additionally, insights into the specifics of what it will be like to study mechanical engineering at an international university are offered. The young talents learn about future job perspectives of an engineer with an international profile. Parents of the bright students are also invited to the last day of the summer school to listen to a separate, exclusive presentation and are welcome to ask any questions about studying, engineering or life as an international student.

www.carlbenzschool.kit.edu/summerprograms.php

Carl Benz– A Passion for Engineering
Now & Then: Mechanical Engineer Careers

"THE THINGS I HAVE ASPIRED TO AND CREATED ALL HAVE ROOTS WHICH LEAD BACK TO THIS INSTITUTION."

Carl Benz, looking back on his studies in Karlsruhe

The CBS as the Mechanical Engineering College of the KIT is very proud to be named after Carl Benz. At the roots of his studies, the school aims to educate bright engineers with an innovative mind-set to follow in his footsteps, and influence the technological developments of tomorrow.

Carl Benz - The Inventor of the Automobile

Carl Benz was born in Karlsruhe, Germany in 1844. Benz was able to study Mechanical Engineering at the KIT – at that time, the Polytechnical College. He graduated in 1864 with a degree in Mechanical Engineering.

Early business misfortunes did not prevent him from developing new types of engines and from patenting key engine components. These patents, among them the patent for the first internal combustion engine, soon led to substantial revenue increases. Carl Benz's true genius became obvious thanks to his successive inventions, registered whilst designing what would become the production standard for his two-stroke engine. After years of testing and modifications, Benz created the first commercial vehicle, the Model 3, an automobile with a four-stroke engine of his own design between the rear wheels. It was gasoline-powered, the power being transmitted by means of two roller chains to the rear axle with wooden wheels. This became the first production automobile.

What followed has been the birth of the success story of one of the global key players in the automotive industry, the DAIMLER AG.

Brilliant Career Perspectives Nowadays

Being a mechanical engineer can be very exciting these days as graduates can be a part of technological innovations such as the development of next generation electric cars and new technologies for robotics. As a mechanical engineer, they can get involved in the processes of design, manufacturing, testing and in even in the sales department of a product or device.

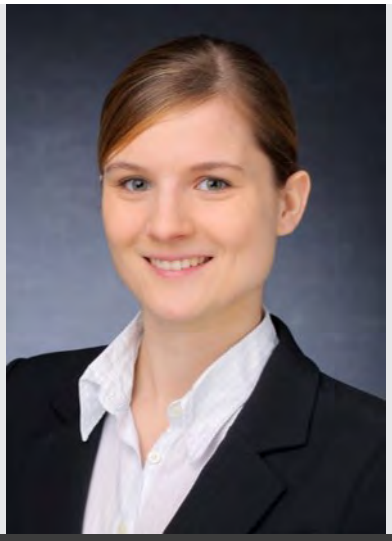
Employment of mechanical engineers is expected to grow about as fast as the average for all occupations until 2024. But mechanical engineers can work in many industries and on many types of projects. As a result, their growth rate will differ depending on the industries that employ them. Students are therefore advised to carefully choose education programs regarding the most recent advances in technology.

Mechanical engineers often work on the newest industrial pursuits. The fields of alternative energies, remanufacturing, and nanotechnology may offer new opportunities for occupational growth. Nanotechnology which involves manipulating matter at the tiniest levels for example, may affect the employment of mechanical engineers because they will be needed to design production projects on the basis of that technology. Nanotechnology will be useful in areas such as healthcare and designing more powerful computer chips.

Stepping Stone to an International Career

„Studying at the CBS was my stepping stone towards an international and diverse career start. Being immersed in a multi-national study environment has nurtured my passion about connecting people with different backgrounds in order to form a strong team. Besides the valuable set of soft skills with regard to leadership, I truly learned to dive deep into technical topics and develop my own approach to engineering. Currently, I am an active trainee for Daimler's top talent program called "CAReer". My projects are spread around the globe and took place on three continents. My company offers exactly the balance between international opportunities and high-level engineering which fascinated me about the CBS. All in all, I can only recommend starting your academic path in Karlsruhe as it equipped me with all skills necessary to succeed in my professional life."

Anna Schmitt, CBS Alumna



The Karlsruhe Institute of Technology (KIT)
Study with the Best

CONSTANTLY RANKED AMONGST THE TOP PLACES, THE KIT IS ONE OF THE BEST INSTITUTIONS WHERE ONE CAN RECEIVE A HIGH QUALITY ENGINEERING EDUCATION FOR A BRIGHT FUTURE

The Karlsruhe Institute of Technology (KIT) is one of the leading universities for mechanical engineering in Germany and Europe. Outstanding rankings and evaluations vouch for the standard of research and education at the KIT*. This is without any doubt the most beneficial result of the 2006 merger of the Karlsruhe Research Centre and the former University of Karlsruhe, which dates back to 1825. Currently, the KIT is one of the largest research and teaching institutions in the world. Students also rate mechanical engineering studies in Karlsruhe among the top programs in Germany due to a systematic, balanced curriculum and excellent teaching staff.

QS Employability Ranking
worldwide | Germany

Mechanical Engineering at the KIT

The Department of Mechanical Engineering at the KIT comprises more than 20 institutes, which manage student courses and research in the various branches of engineering. The department is consistently awarded top reviews for all its activities.

Nationwide, the KIT is one of the universities most strongly engaged in research. Nevertheless, admidst all the research and teaching activities of the department, the importance of practical relevance is stressed. Main aspects are energy and environmentally-friendly technologies, automotive research and technology, materials science and technology, product design and development, production technology and mechatronics, and micro systems technology. A particular specialty is theoretical mechanical engineering. This fundamental and methodological research in mechanical engineering is counterbalanced at the KIT and complemented by application-oriented research. The department benefits greatly from its international connections and its many research collaborations with the industry.

This priority represents the perfect basis for an English-taught International Mechanical Engineering Bachelor Program at the Carl Benz School of the KIT.

KIT Infrastructure

Carl Benz School students benefit from the comprehensive university infrastructure of the KIT. For example, they have access to the 24/7-Library, the cafeteria or the KIT culture, music and sport offerings. As a university with a long mechanical engineering tradition the KIT has numerous student organisations related to engineering where students can put the theory from their lectures into practice. There is for instance a formula student team (KA-RaceIng), a group working on autonomous model cars (KITcar), students building and flying sailplanes (Akaflieg) or a team for innovative field robots (KaMaRo Engineering e.V.).

Learning and cooperating of multi-modal robots

*www.carlbenzschool.kit.edu/KITrankings.php

Karlsruhe - In the Heart of Europe
A Great Place to Live and Study

DID YOU KNOW...?

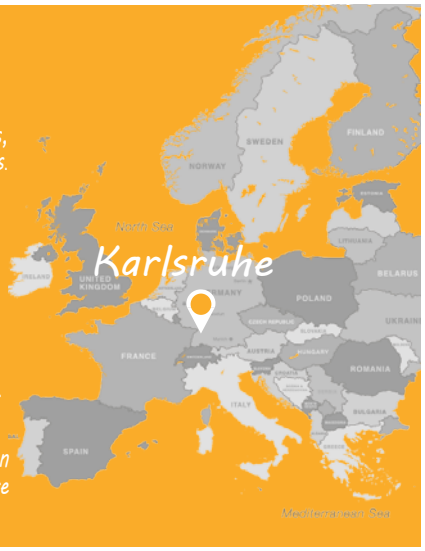
Karlsruhe's Location:
In the heart of Europe, it offers easy access to mountains, lakes, rivers, forests, castles, skiing and other outdoor sports.

City's population:
300,000

Students at the KIT:
25,000

What's special about Karlsruhe?
Its unique fan-shaped city architecture was a role model for Washington DC in the USA

Karlsruhe is also called „the city of justice", since the German Federal Constitutional Court and Federal Court of Justice are seated there



FIGURES OF INTEREST

Frankfurt Airport as Europe's 4th largest airport is only one hour away by train

The Technology Region Karlsruhe is one of the leading commercial and innovation regions in Europe

The federal state Baden-Württemberg, where Karlsruhe is situated in, is one of the safest states in Germany

EXTENSIVE CULTURAL & SPORTS OFFERING

Karlsruhe offers something for everybody`s taste with its academic centers of excellence in music, art, design, media and technology.

Museums & Galleries
The world-famous Center for Art & Media Karlsruhe, called „ZKM" is located there.

Music Festivals
„DAS FEST" in July each year, for example, is one of Germanys largest open-air festivals.

Trade Fair Center
Innovative events & international trade fairs

Sports
Karlsruhe has more than 1,500 sport clubs that offer 60 different kinds of sports. Awide variety of sport clubs are also based within the KIT for students.

WEATHER

25,5°C
Max. average monthly temperature (July)

One of the warmest & sunniest places in Germany:

1,935
Annual hours of sunshine

MOBILITY

It is the most bicycle-friendly metropolis in southern Germany (ADFC 2015)

High frequency tram network for a car-free city center

Comfortable & fast to reach via train from all over Europe: Paris 2.5 hours, Amsterdam 5.5 hours, London 6 hours, Prague 7 hours

COST OF LIVING
(Monthly expenses as a student)

Public Transportations (if necessary)	120 €
Food	170 €
Rent	300 €
German Health Insurance	70 €
Entertainment, Leisure & Sport	150€

TECHNOLOGY REGION WITHIN A LEISURE PARADISE

Karlsruhe offers direct access to the world renowned **Black Forest**, it is surrounded by numerous **lakes** for swimming, the **Rhine**, one of Europe's most important rivers, runs through it, and it has a direct view of the **French Alsace region**.

Students therefore enjoy a high quality of living with a wide variety of leisure activities and are surrounded by nature.

B.Sc. International Mechanical Engineering

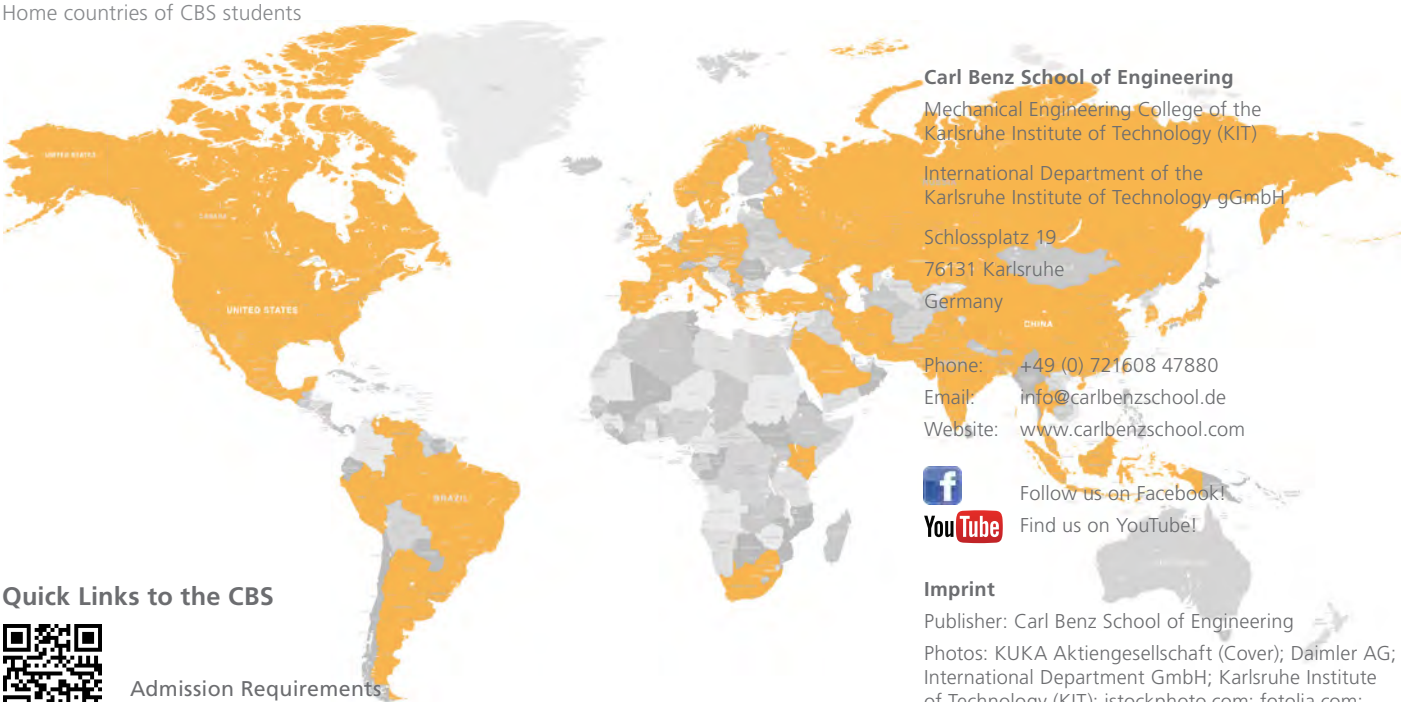
What you should know!

Degree	Bachelor of Science (B.Sc.) from the Karlsruhe Institute of Technology (KIT)
Specializations	Global Production Management, Automotive Engineering, and/or Energy Engineering
Key Facts	■ Study Mechanical Engineering in English at one of the best technical universities worldwide ■ Optimal international study environment with safe on-campus housing, mentoring & service ■ Exclusive hands-on industry training at e.g. the DAIMLER AG, Robert Bosch GmbH or Carl Zeiss AG
Academic Requirements	■ High school degree recommended: IB, A-level, Abitur ■ Excellent grades in Mathematics & Physics (e.g., HL or AP) ■ SAT (Math & Evidence-Based Reading and Writing; at least 1.200 points) ■ English proficiency test (e.g. TOEFL, IELTS or TOEIC) ■ Proficiency in German not required, German language classes are offered
Program Start	October each year (winter term); we recommend the participation at the CBS pre-semester from August - September each year for an ideal study preparation.
Application	Applications can be submitted starting in November each year

Please visit the Carl Benz School website for additional information.

www.carlbenzschool.kit.edu

Home countries of CBS students



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Quick Links to the CBS

Admission Requirements
www.carlbenzschool.kit.edu/admissions_requirements.php

Application Portal
https://carlbenzschool.applicationportal.org/home.html

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