Carl Benz School

Karlsruhe Institute of Technology

Carl Benz School of Engineering

Mechanical Engineering College
of the Karlsruhe Institute of Technology



Mechanical Engineering (International) Bachelor Program & Summer Schools

Karlsruhe, Germany | English-Taught

Carl Benz School of Engineering

Carl
Benz
School



Mechanical Engineering College of the Karlsruhe Institute of Technology

A message from the chairman of the industrial associates board

Germany is well-known for its developing capability and manufacturing of 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 in 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 KIT. The college offers outstanding international students the opportunity to study mechanical engineering in English at KIT. Carl Benz School students also have the chance to take part in technological innovations happening in the research facilities 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.



Prof. Dr. Herbert Kohler

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

Former Vice President Group Research & Sustainability

Former Chief Environmental Officer Daimler AG

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



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 a 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.

World-Class 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.

Constantly ranked amongst the top, the KIT is one of the best institutions where one can receive a high quality engineering education for a bright future.

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 Mechanical Engineering (International) Bachelor Program at the Carl Benz School of the KIT.

KIT Resources & the CBS Learning Environment

As students of the B.Sc. Mechanical Engineering (International) at KIT, CBS College Program participants have full access to KIT's academic and student infrastructure, including libraries, dining facilities, sports, music and cultural programs.

Beyond the classroom, KIT offers numerous student-led engineering initiatives where students can apply what they learn in practice. These include teams working on Formula Student, autonomous vehicles, aviation, robotics and other technical projects.

The CBS College Program adds its own dedicated environment to this wider KIT experience. Students benefit from CBS learning and community spaces, an international campus community, academic transition and counseling, professional development activities, industry engagement and access to a network of fellow students and alumni.

This combination allows students to make use of the opportunities of a major research university while also being part of a smaller, internationally focused college community.

* https://www.carlbenzschool.kit.edu/rankings.php

Karlsruhe Institute of Technology

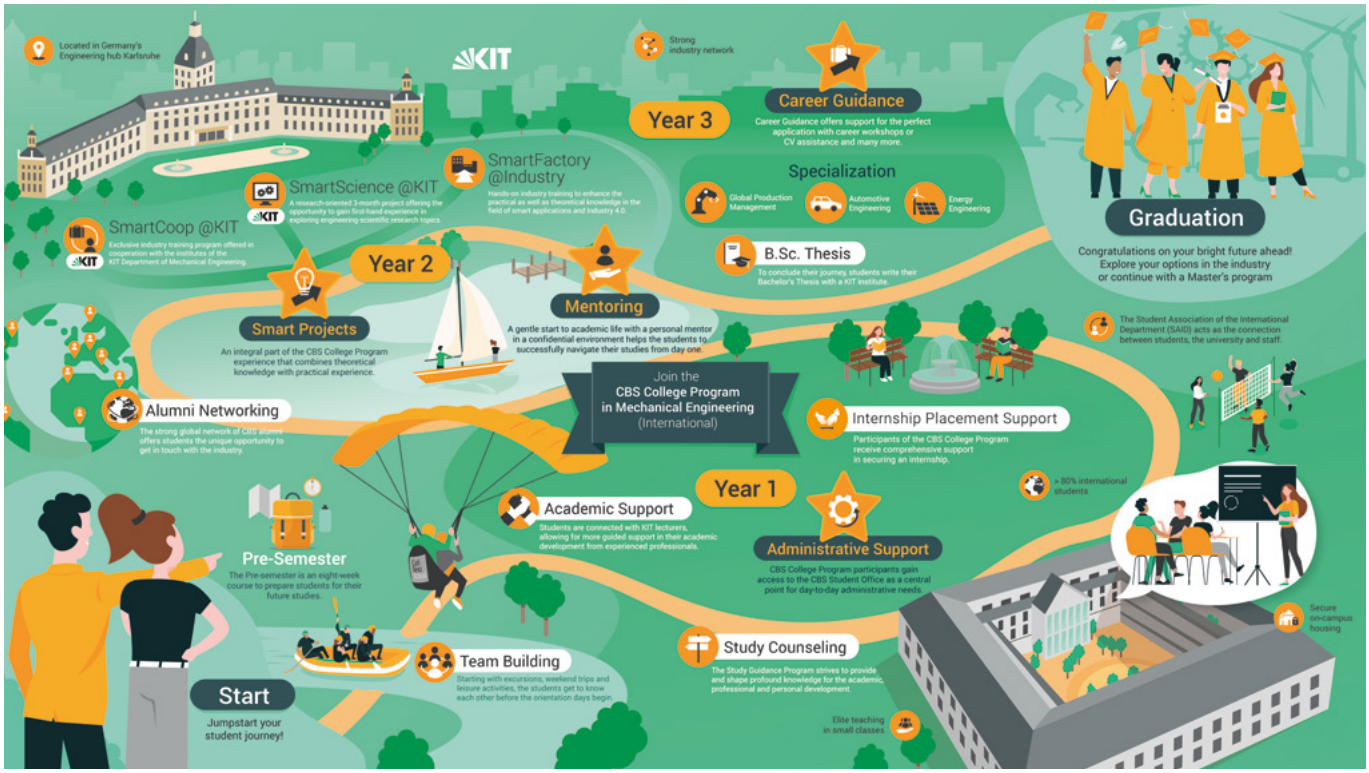
Bachelor Program Mechanical Engineering (International)

A bachelor degree from the Karlsruhe Institute of Technology (KIT), one of the leading 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, international career in the field of mechanical engineering.

The Karlsruhe Institute of Technology (KIT) is ranked #1 in mechanical engineering amongst all German universities and achieves numerous top placements every year. As the Mechanical Engineering College of the KIT, the CBS offers high-quality lectures by excellent professors of the KIT. All students receive an individualized all-in-one service package, support, additional training as study and career 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.



Bachelor Program Mechanical Engineering (International)



...together with the CBS College Program!

B.Sc. Mechanical Engineering (International)
at Karlsruhe Institute of Technology

CBS COLLEGE PROGRAM

Explore
CBS Academy
Explore engineering through university-level learning and hands-on experiences.

Prepare
Pre-Semester
Build your academic foundation for a successful start at KIT.

Study
Academic Framework
A structured framework for navigating your studies successfully at KIT.

Connect
Community
Creating a true college experience at KIT.

Thrive
Industry Qualifications
Build professional skills and industry readiness beyond the degree.

The CBS College Program complements the B.Sc. Mechanical Engineering (International) at KIT with an academic framework, community and industry qualifications throughout the bachelor's degree.

The CBS College Program Alongside your KIT degree

A structured academic framework, an international campus community, and professional development alongside your KIT degree.

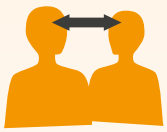
Academic framework

Study strategies and academic guidance



Academic Orientation Program

A semester-long program in your first semester develops effective study strategies through guided work in Advanced Mathematics and Engineering Mechanics. Regular check-ins, feedback, and mock exams help you build independent learning routines.



Focused examination preparation

Intensive practice sessions for key engineering examinations, led by experienced students who have passed the same modules.



Individual academic counseling

Personal consultations on study and exam planning, academic procedures, specializations, and further study.

Community

Your home at KIT



Guaranteed on-campus housing

Accommodation is included in your College Program and guaranteed for your first four semesters.



An international community

Meet fellow students through events, international dinners, and excursions. Enjoy shared learning spaces, a student lounge, and a music room.



Your CBS Student Office

An English-speaking team with practical guidance on arrival, university procedures, accommodation, and everyday life in Karlsruhe.

Industry Qualifications

Preparation for professional practice



Professional Development Series

Structured workshops and certificates across semesters 2-5:

- Data Analytics & AI
- Engineering Management & Communication
- Engineering Problem Solving & Digital Innovation
- Production Planning & Operational Excellence



Alumni & industry insights

Explore career directions in individual alumni consultations and learn about workplaces through company visits and employer dialogue.

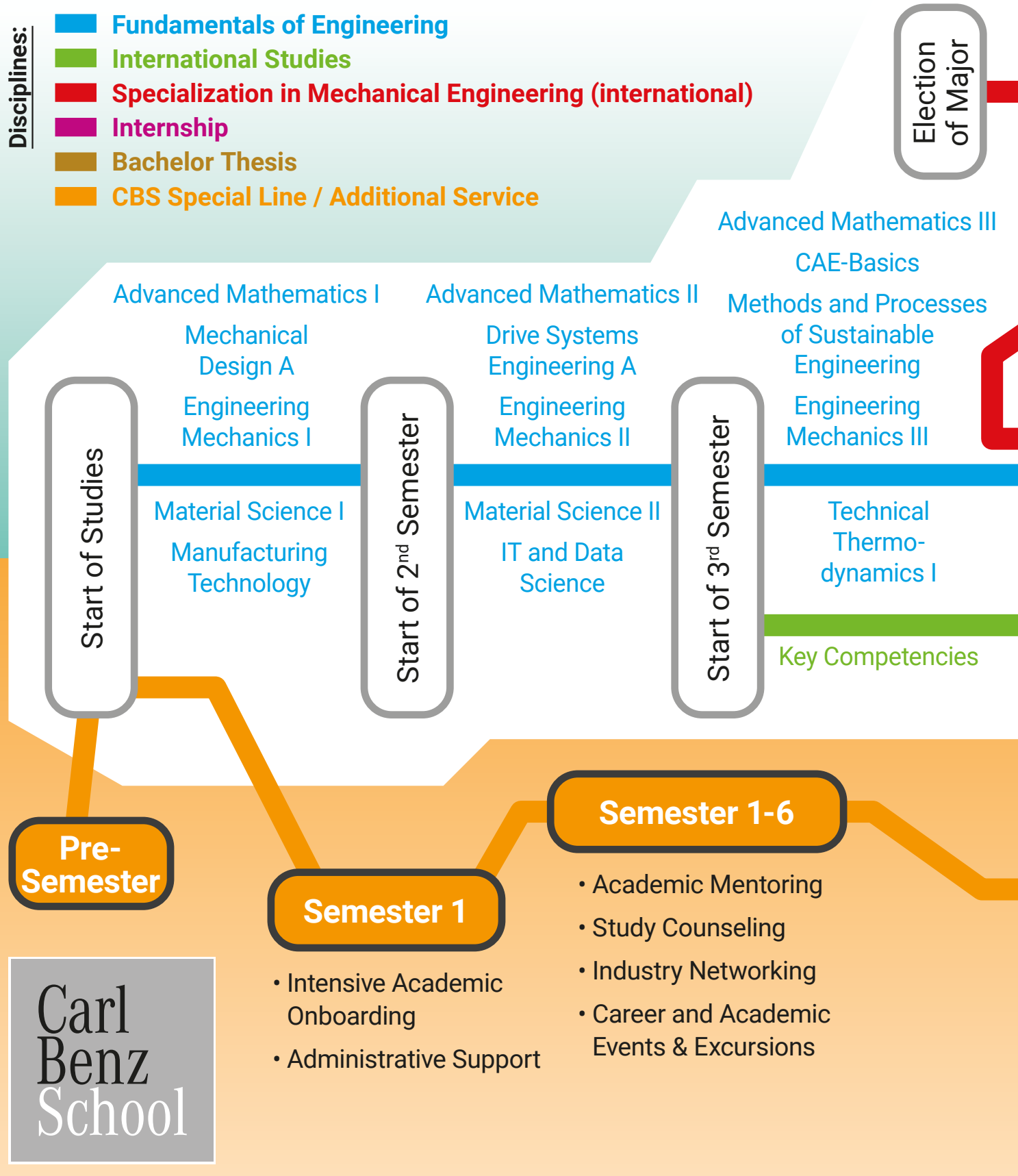


Internship preparation

Build your professional profile, develop your applications, and connect with industry through the CBS network as you prepare for your sixth-semester internship.

Studying B.Sc. Mechanical Engineering (International) MEI*

* Intake 2024 and later



Carl Benz School

Getting on the the fast track with the CBS College Program



Selectable Majors:

- Applied Materials
- Energy
- Global Production Management
- Mobility Systems
- Data Driven Engineering and Robotics

Karlsruhe Institute of Technology

Start of 4th Semester

Fluid Mechanics

EE and Mechatronics

Technical Thermo-dynamics II

Scientific Working Methods

Start of 5th Semester

Measurement and Control Systems

Machines and Processes of Energy Conversion

International Project

International POM

Start of 6th Semester

Internship

End of 6th Semester / End of Studies

Election of Bachelor Thesis

Elaboration & Presentation

Semester 2-6

- Soft Skills Development
- Career Development
- SmartFactory@Industry
- SmartProjects

Semester 5-6

- Internship Placement Support
- Advanced Career Services with contact to Industry

Bachelor Thesis

https://www.carlbenzschool.kit.edu/mechanical-engineering-international.php



Bachelor Program Specializations: The Most Promising Topics in Engineering



Specialize in one of the hot subjects relevant for the future of engineering

Applied Materials

By choosing this specialization, students gain in-depth knowledge of engineering materials, including metals, ceramics, polymers, and composites. The focus is on material selection, processing, and the development of customized properties. Key topics include material simulation, characterization, surface technology, and additive manufacturing. Students learn to develop innovative material solutions that address challenges such as climate change, resource efficiency, and the circular economy.

Energy

This specialization prepares students for a career in the rapidly evolving energy sector. Students explore technologies and engineering principles supporting the transition to renewable energy. The focus is on analyzing energy systems, evaluating different technologies, and understanding their advantages and limitations. Key topics include thermodynamics, energy conversion, and sustainable energy solutions, enabling students to contribute to the development of future energy systems

Global Production Management

This specialization provides students with essential knowledge of modern production management and industrial processes. Key topics include production planning and control, logistics, supply chain optimization, and material flow management. Students also explore digital manufacturing, product lifecycle management, and economic evaluation methods. Practical experience through the **SmartFactory@Industry** training program prepares students to optimize production systems and manage complex industrial operations.

Mobility Systems

This specialization focuses on developing innovative solutions for future mobility challenges. Students explore the engineering principles behind vehicles and transportation systems, including cars, trains, and commercial vehicles. Key topics include vehicle dynamics, drive systems, energy conversion, and vehicle components. Students gain the technical expertise to design, analyze, and optimize mobility systems, contributing to more efficient and sustainable transportation solutions.

Data Driven Engineering and Robotics

Explore the intersection of robotics, artificial intelligence, and data-driven engineering. Learn how to analyze technical data, apply machine learning, and develop intelligent robotic systems. Gain hands-on experience through Python programming, robot control, and collaborative engineering projects.

Hands-On Experience: Smart Projects

The Smart Projects are an integral part of the CBS College Program experience that combine academic study with practical experience to develop a versatile academic and professional profile - in a smart way.

A variety of options are available to meet your individual needs and long-term goals. Students will participate in exclusive training programs with partner companies, academic institutes and more.

Smart Factory@Industry

is a hands-on industry training, which, together with industry partners, aims to enhance the practical as well as theoretical knowledge of CBS College Program students in the field of smart applications and Industry 4.0.



Smart Factory@Industry was a direct enabler for my job.

Isha Ghandi, CBS Alumna, Project Manager at Daimler AG

Photo: Daimler AG

SmartCoop@KIT

is an exclusive training program offered in cooperation with institutes of the KIT Department of Mechanical Engineering, whose innovation-driven research interlinks joint projects with industry partners. The research-oriented 3-month project offers select CBS College Program participants the opportunity to gain first-hand experience in exploring fundamental engineering-scientific research topics as a part of a student assistant program.



By doing the SmartCoop project, I was able to gain new skills and apply the theoretical knowledge I gained in lectures to solve a real life task. As well as having gained practical knowledge, I was also able to improve my problem-solving skills.

Abdelrahman Elbadawi, Intake 2019 Student in the CBS College Program

SmartScience@KIT

The research-oriented 3-month project offers select CBS College Program participants the opportunity to gain first-hand experience in exploring fundamental engineering-scientific research topics as a part of a student assistant program.



In this project, I was able to apply my knowledge and improve my problem solving and research skills. It has been the perfect opportunity for me to delve deeper into concepts taught in my engineering degree and gain a better understanding of them.

Shreyas Karthik Ravichandran, Intake 2018 Student in the CBS College Program

For High School Students









This is your chance to discover one of the most exciting professions in the world!

»Normally, when you have holidays, you forget about what you learned in school. At the summer school you can practice and use what you have learned every single day. This experience also helped me to get a clearer idea of what path to follow in my future.«
Nester from Spain

»The CBS Summer School was a really good balance between hands-on activities and lectures. I got a really good taste of what mechanical engineering at CBS is like. My favorite part was the trip to the Mercedes Benz factory. It really showed what you can do with engineering.«
Toby from England

https://www.carlbenzschool.kit.edu/summer-programs.php

CBS Summer School

Each year the CBS summer program provides high school students (ages of 16 - 19) with a passion for mathematics, physics, and technology 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.

The aim of the one-week course is to offer a 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.

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 a village called 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!

CBS Winter & Spring School: Sneak Preview into Mechanical Engineering

Join the Carl Benz Winter or Spring School to experience a glimpse of student life and explore the Mechanical Engineering (international) study program at KIT. Secure your spot by registering today!

An insight into mechanical engineering studies

This one-week mechanical engineering program offers high school students an engaging and immersive experience in the field of engineering, with a focus on both historical context and modern innovations, particularly in sustainability.

Students will experience state-of-the-art technology firsthand through visits to historical museums, which provide a glimpse into the legacy of German engineering, and excursions offering insights into contemporary production in the era of Industry 4.0.

The program introduces core concepts and current trends in mechanical engineering while providing a glimpse into academic and professional opportunities at the Karlsruhe Institute of Technology (KIT).







Key Features

Historical Insights and Innovations:

Students will explore Germany's rich engineering heritage through visits to notable institutions like the Mercedes-Benz Museum and the Porsche Museum, providing a historical perspective on the evolution of automotive technology and its industry impact.

Focus on Sustainable Technologies:

The program highlights advancements in sustainable engineering through lectures and a visit to Daimler Trucks Wörth, where students will see how E-Vehicles can shape the future of trucking. Insights into cutting-edge renewable energy technologies and sustainable practices will be emphasized.

Hands-On Experience:

Interactive workshops and practical sessions allow students to work on engineering projects and solve real-world problems. These hands-on activities simulate the engineering design process and provide a practical understanding of mechanical engineering principles.

Academic and Professional Exposure:

Participants will engage with current KIT students and faculty through seminars and discussions, gaining valuable insights into the academic environment and research opportunities at KIT. A campus tour will familiarize students with student life and the institute's facilities.

Cultural and Social Experience:

The program includes cultural excursions and activities to provide a well-rounded experience. Students will explore local landmarks, engage in cultural activities, and experience life in Southern Germany, enhancing their understanding of the context in which engineering advancements are made.

Overall, this program is designed to inspire and educate high school students about mechanical engineering, offering a comprehensive view of historical achievements and future possibilities. It aims to spark interest and provide a foundation for those considering a future in engineering and to choose an engineering study program after high school. As this is an academic program, not a residential camp, and acommodation must be arranged individually, it is geared toward students 16 years of age and older.

Dates 2027

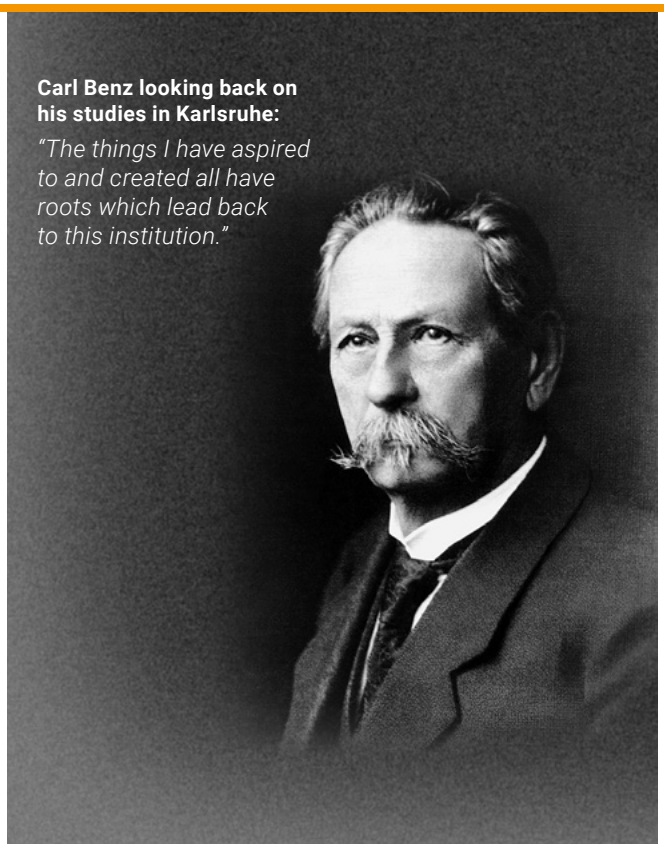
- **Winter School: January 25th-29th**
- **Summer School**
  - **Session 1: July 5th-July 16th**
  - **Session 2: July 19th-30th**
  - **Session 3: August 2nd-6th**
  - **Session 4: August 16th-20th**

Registration & Updates

https://www.carlbenzschool.kit.edu/Winter-Spring-School.php

A Passion for Engineering: Carl Benz, the inventor of the automobile

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 looking back on his studies in Karlsruhe:
"The things I have aspired to and created all have roots which lead back to this institution."

Now & Then: Mechanical Engineer Careers

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 produced 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 Today

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, one can get involved in the processes of design, manufacturing, testing and 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 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.

Karlsruhe in the heart of Europe: Technology region within a leisure paradise



A Great Place to Live and Study

Karlsruhe is one of the leading technology, commercial and innovation regions in Europe. It's location in the heart of Europe, near the world renowned Black Forest, offers easy access to mountains, lakes, rivers, forests and castles. Students therefore enjoy a high quality of living with a wide variety of leisure activities and are surrounded by nature. The federal state Baden-Württemberg, in which Karlsruhe is located, is one of the safest states in Germany. Frankfurt airport as Germany's largest and Europe's 4th largest airport is only one hour away by train.

- **City's population:** 306,000 – KIT Students: 24,500
- **Cultur & Sports:** Karlsruhe's academic centers of excellence in music, art, design, media and technology offer extensive cultural & sports opportunities for everybody`s taste:
  - The world-famous Center for Art & Media Karlsruhe, called "ZKM" is located there.
  - The music festival "DAS FEST" in July each year is one of Germanys largest open-air festivals.
  - Many innovative events & international trade fairs tale place at the Trade Fair Center of Karlsruhe.
  - Karlsruhe has more than 1,500 sport clubs that offer 60 different kinds of sports. A wide variety of sport clubs are also based within the KIT for students.
- **What's special about Karlsruhe:** Karlsruhe is also called "the city of justice", since the German Federal Constitutional Court and Federal Court of Justice are seated there. The unique fan-shaped city architecture was a role model for Washington DC in the USA.
- **Mobility:** Karlsruhe is rated among the most bicycle-friendly cities in Germany and runs a high frequency tram and subway network for a car-free city center. Cities all over Europe can be reached comfortably & fast by train from the Karlsruhe main station: Paris 2.5 hours, Amsterdam 5.5 hours, London 6 hours, Prague 7 hours.
- **Costs of Living:** Karlsruhe is 0.55% less expensive than Berlin. A single person estimated monthly costs are 878.31€ without rent. Rent in Karlsruhe is, on average, 30.98% lower than in Berlin (source: www.numbeo.com).
- **Weather:** Karlsruhe is one of the warmest & sunniest places in Germany. The max. average monthly temperature in July is 25,5°C with about 1,961 annual hours of sunshine.

© Large Image: A collage of satellite photos of cloud-free Europe from Sentinel-3 (ESA17518615), created by the European Space Agency (ESA).

Carl Benz School of Engineering
Overview and Contact Information

B.Sc. in Mechanical Engineering (International)

Degree	Bachelor of Science (B.Sc.) from the Karlsruhe Institute of Technology (KIT)
Specializations	Global Production Management, Mobility Systems, Energy and Material Science
Key Facts	■ Study Mechanical Engineering in English at one of the leading technical universities worldwide
	■ Join the CBS College Program for an excellent international study environment with safe on-campus housing, study & career guidance, mentoring program, german courses, social events, smart projects and academic & administrative support
Academic Requirements	■ High school degree recommended: IB, GCE 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 or IELTS)
	■ Motivation Letter
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	The application portal of the KIT is open from December until April 30th each year. Registration for the CBS College Program is possible year-round. To ensure your exclusive participation in the CBS College Program, you can apply for the College Program in parallel while applying to B.Sc. in Mechanical Engineering (International).

Quick links to the CBS

Carl Benz School Website
https://www.carlbenzschool.kit.edu

Admission Requirements
https://www.carlbenzschool.kit.edu/admission-requirements.php

College Program Application Portal
https://cbs-college-program.applicationportal.org/home.html

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International Department of the
Karlsruhe Institute of Technology gGmbH

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