

# RWTH Aachen University

## Engineering Summer Schools 2017



Studying at one of the best German Universities in Engineering!



Welcome



Summer Programmes



Why choose us



The City of Aachen

# Welcome to RWTH International Academy

A short summary of what we have to offer



Welcome



All Summer School courses offered by RWTH International Academy are uniquely designed for international undergraduate students who want to gain insight into one of Germany's Universities of Excellence. The RWTH International Academy works closely together with various Institutes of the RWTH Aachen University, the International Office and the Language Center to offer international students a perfect mix of technical and practical knowledge as well as cultural experiences.

<b>Excellent Science and Research</b>	Our Summer School courses in Mechanical Engineering and Management offer international students the opportunity to take part in excellent science and research at the RWTH Aachen University. The University is highly acclaimed internationally for its development of innovative answers to the most pressing global challenges. Its success in Germany's Excellence Initiative reflects its outstanding reputation for research and education in the fields of science, technology, and engineering.
<b>German Language and Culture</b>	Through the university's "BeBuddy" programme, international students have the chance to immerse themselves in the vibrant student community at the RWTH Aachen University. They learn more about academic and cultural practices in Germany with the support of their German "Buddies" who are typically students enrolled at the RWTH Aachen University. Some of our Summer School Courses also include a German language course.
<b>Social Events</b>	Every year, the RWTH International Academy offers different cultural events in Aachen and surroundings (the three-border region where the frontiers of Germany, Belgium and the Netherlands meet); visits to UNESCO World Heritage sites and excursions to Cologne, Düsseldorf or Bonn; on-site company visits at RWTH's industrial partners; intercultural training; cooking and dancing nights, sport events, BBQs and many other activities.



## Experience Excellence in Science and Engineering at the RWTH Aachen University

RWTH Aachen University is the largest university of technology in Germany and the most important economic factor of the city. Every year, a large number of international students and scientists come to the university to benefit from its high-quality study programmes and excellent facilities, from which both are internationally recognised. RWTH Aachen University has an academic staff of 5230 people, including 538 full-time professors. There are approximately 43,700 students currently enrolled at the university, of whom more than 6500 are international students from over 120 different countries.

The Rheinisch-Westfälische Technische Hochschule Aachen (RWTH) stands as a worldwide centre for cutting-edge research and academic training that relates to real-world conditions, particularly in engineering and natural sciences. For such reasons, the RWTH has occupied a leading position in the German Collegiate Ranking System for years: for its leading reputation with prominent enterprises, its academic reputation and its high research success with an emphasis on real-life applications.



## Experience Internationality in the Heart of Europe

Only a few kilometres from the city centre, one can find the "Border Triangle" where the frontiers of Belgium, Netherlands and Germany meet. The attraction of living in this area includes a colourful mix of languages and people as well as short travel distances to cities such as Amsterdam, Brussels, Cologne or even Paris. On the city's doorsteps, the hilly Eifel landscape with its rivers, lakes and forests offers a picturesque countryside.



## Live where History meets Technology

Its historic centre around the distinctive cathedral, which is an UNESCO world heritage site, is characterized by the student lifestyle. In the old quarters of town and their pubs, restaurants and shops, one can literally touch European history. The great number of students makes student life in Aachen vibrant and unique. At the famous Pontstraße ("Pont Street") in the main campus area, one finds a "gastronomy strip" with restaurants and cafés that is favoured by students when they go out or get a bite to eat at lunchtime. Whether one prefers Thai cuisine, Sushi or Turkish food, the choice of restaurants is numerous. Most places offer plenty of food for little money meeting the needs of students.



# Summer programmes

Different courses – One summer!



A quick overview

## 4-week programme

### Automotive and Mobility Studies (12 June - 07 July, 2017)

The automobile is as important today as ever – and with that come new and increasing demands: most notably, alternative fuels and the impact of automobiles on the environment. Therefore, the Automotive and Mobility Studies Summer School offers in-depth knowledge of modern automotive technologies, concepts of mobility, and their grid integration within traffic and city planning.



## 2-week programmes

### Mechatronic Systems Engineering and Product Innovation (03 - 14 July, 2017)

In this Summer School you will get in touch with the key engineering techniques of developing product innovations of mechatronic systems. The courses offer an introduction into the fundamentals of mechatronic systems engineering, robotics, and information theory and coding. The practical course contains a case study in which a mechatronic system will be constructed and progressively improved.



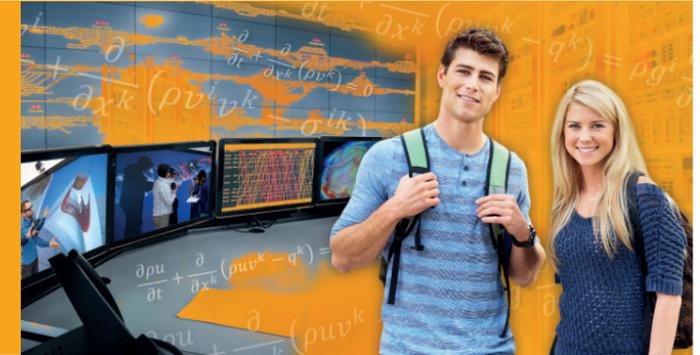
### Systematic Product Innovation (12 - 23 June, 2017)

Systematically developing product innovations is an essential process for every company and business. This Summer School provides insight into the complex processes of developing a product by performing a case study. The developed product of your case study will be printed on a 3D printer for the final presentation.

## 3-week programmes

### Automation and Simulation (10 - 28 July, 2017)

This Summer School programme offers an overview of numerical methods used to solve engineering problems, as well as an introduction to calculation and simulation techniques in mechanical engineering. The participants receive an introduction into state of the art computing methods and simulation techniques.



### Robotics for Future Industrial Applications (07 - 25 August, 2017)

The main objective of this Summer School is to provide an inside view into the applications of intelligent, robust robots as part of future smart factories. The lectures comprise three segments and cover the central topics of communication between heterogeneous systems, adaptive industrial robotics, and autonomous mobile robotics for in-factory logistics.

### Production Technology meets Industry 4.0 (07 - 25 August, 2017)

Industry 4.0 is a synonym for the next revolution of production technology. In this Summer School you will be introduced to cutting-edge production technology and collect first-hand experience by working with demonstrators, which are used to investigate the next generation of production technologies, and you will work on a case study to develop a practical application example.



## Key Facts

Duration	Two Weeks	Three Weeks	Four Weeks
Course Fees* Early Bird	€1.620	€2.520	€3.240
Course Fees* Regular	€1.800	€2.800	€3.600
Workload	60 Teaching Units	90 Teaching Units	120 Teaching Units
Qualification	Certificate containing list of modules, workload, and final grade**		
Language	English		

\*includes lectures and laboratory courses, course material, excursions and social events, accommodation, breakfast and lunch on weekdays, meals during social events, and a local public transport ticket for the respective time.  
\*\*ECTS Credits can be accredited at your home university, depending on the workload.

## Management Research Methods and Big Data Analytics (ACISS)

Participants acquire hands-on research skills in topics such as philosophy of science, qualitative research, grounded theory, academic publishing, advanced econometrics, data mining, and scale development. These skills will prove most helpful for designing and conducting empirical research projects for instance as part of your PhD research, master thesis or later professional life.





## Geometry Processing and Digital Fabrication (10 - 28 July, 2017)

In this Summer School students will start from the mathematical foundations of (discrete) geometry and will learn and discuss a variety of algorithms for the generation and optimization of 3D models. In practical programming exercises own experiments will be done in order to gather some hands-on experience. 3D printers will be available for prototype testing.

2-week programmes or **combined** 4-week programme

## Smart Electrical Power Systems (05 - 16 June, 2017)

In this Summer School programme, students will be exposed to topics such as physical basics of energy storage, power electronics, power plants, and computational engineering tools to automatize and manage complex power systems (Smart Grids, Virtual Power Plants).





## Sustainable Energy Technology (19 - 30 June, 2017)

This Summer School programme offers an overview of cross-cutting technologies in the extensive sphere of Sustainable Energy Technologies. The students get an insight in sustainable facility and smart city management, complex power systems of smart and green buildings or recent solar and air conditioning technologies.

## Application and Organisation

<b>Application Process</b>	<p>To apply for our Summer Schools please fill in our application form online only. We advise all students to apply before 1 May of each year to have enough time for visa and travel arrangements.</p> <p>Please have the following documents ready:</p> <ul style="list-style-type: none"> <li>Your Letter of Motivation</li> <li>Your Curriculum Vitae/Résumé (CV)</li> <li>Your Transcript of Records (statement of academic records)</li> <li>Additional documents to support your application (certificates)</li> </ul> <p>Please read all the information regarding the individual programmes carefully and thoroughly when choosing your specific Summer School. Some of the Summer Schools may require certain qualifications from their participants.</p>
<b>Early Bird Discount</b>	Complete your application before 1 March 2017 and receive a discount of 10% on the total fees – in case of admission.
<b>Certificate</b>	Upon successful completion of the Summer School, you will receive an executive certificate from RWTH International Academy stating the scope and content of the summer school program and your performance.
<b>Participants</b>	We welcome international students who want to deepen their knowledge with an academic summer course in a specific engineering topic. We particularly encourage students who intend to pursue graduate studies at the RWTH Aachen University or in Germany to take part.
<b>Accommodation</b>	Accommodation for all participants is arranged in 3 or 4 bed-rooms at a boarding house.

## Health Insurance / Travel Insurance

Health insurance is mandatory by law for any student in order to study at a German University. Please make sure that you take out an appropriate insurance for the entire Summer School time span.

An example of health insurance can be found here: [www.hmr.de](http://www.hmr.de)



# Why choose us

## Some important facts and figures



### RWTH Aachen University

The RWTH Aachen University is one of Germany's Universities of Excellence. It is a place where the future of our industrialized world is thought out. The University is proving to be a hotspot with increasing international recognition where innovative answers to global challenges are developed.

### Rankings and Accreditation – Striving for Excellence

The RWTH Aachen University's success in Germany's Excellence Initiative reflects its outstanding reputation for research and education in science, technology, and engineering fields.

RWTH Aachen University secures top places in university rankings every year:

- In 2016, the university was particularly successful in the field of mechanical engineering, which was ranked place 12 worldwide and the best German university within this subject. (Source: QS World University Ranking by Subject)
- RWTH Aachen University is the university with the most allotted research funding in engineering. (Source: German Research Foundation (DFG))

The University receives funding for the implementation of its institutional strategy, RWTH 2020: Meeting Global Challenges, which was endorsed by the German Research Association (DFG) and the German Council of Science and Humanities. Funding was also approved for the University's three clusters of excellence and the AICES Graduate School. With its outstanding performance in the first round of the Excellence Initiative, the RWTH Aachen University has confirmed its place among Germany's top institutions of higher education.

### Research Excellence

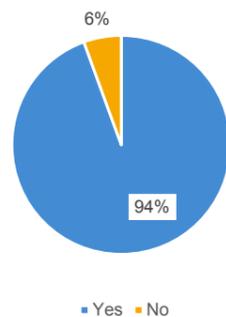
With 260 institutes in nine faculties, the RWTH Aachen University is one of Europe's premier educational and research institution. There are currently 43,721 students enrolled in 152 courses of study. Education at the RWTH Aachen is application oriented, resulting in its graduates becoming young professionals and leaders that are highly sought after in the economy.

The RWTH Aachen University receives the most third party research funding in engineering out of all German universities. (Source: German Research Foundation (DFG))

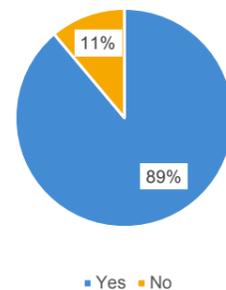
### Some Excerpts from the 2016 Summer School Evaluations

- In 2016, students from 113 countries came to Aachen to take part in one of our Summer School programmes
- 94% of the Automotive and Mobility Studies Summer School in 2016 would recommend the programme to their friends
- 89% could imagine coming to the RWTH Aachen University to pursue their Master's Degree

Would you recommend the Summer School programme to your friends?



Could you imagine pursuing a Master degree programme at RWTH Aachen University?



## Student Testimonials from the recent years

„Automotive and Mobility Studies“ 2016 - Omid Chaghaneh from Iran



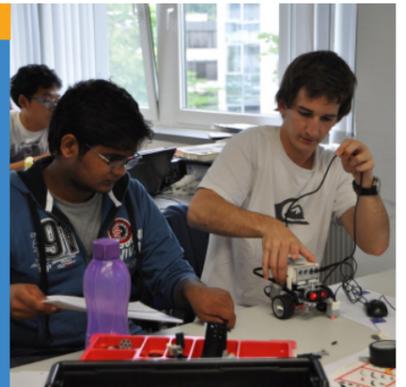
Participating in RWTH Aachen Summer School Program was undoubtedly a life-changing opportunity! I was so eager to experience Germany and to learn from others beliefs, perceptions, and values by being immersed in a completely new environment and culture, and I am pleased to say that this program definitely exceeded my expectations because of its cutting-edge technologies, forward-thinking perspective, and leadership when it comes to engineering, research, and process automation. Moreover, this experience helped me to improve my ability of decision-making, to set and achieve goals, and to develop several qualities such as discipline, perseverance, and tenacity.



„Mechatronic Systems Engineering and Product Innovation“ 2016 - Siddhesh More from India



Awesome experience!! Right from the arrival, program content, accommodation, cultural activities, excursion to departure, everything was perfectly organized. The RWTH summer school brings students from diverse academics, cultures on the common platform of learning. The product innovation was one of the most enriching experience for me. My experience at the RWTH enhanced my creativity and learning innovative techniques. The company of new friends was the icing on the cake!! I am thankful to the RWTH Aachen Academy for this wonderful experience. I look forward to apply at the RWTH for my higher studies.



„Production Technology Meets Industry 4.0“ 2016 - Yongpeng Zhao from China



I really appreciate RWTH International Academy for this fantastic summer school! I had never imagined the courses being so well-organized. The professors and lecturers were so well prepared, professional and patient, and the food at the „Mensa Vita“ was really delicious. Not to mention the three guided tours, absolutely the happiest days during the summer school! I really hope I can come back to the RWTH for my master studies. If you want to experience education in one of the best engineering universities and in the meantime spend really happy and exciting three weeks with friends around the world, just come! You won't regret it!



„Systematic Product Innovation“ 2016 - Paula Hurtado from Brazil



The satisfaction is directly related to the relation of reality versus expectations. Under that statement I can affirm that I am highly satisfied with my experience at the RWTH Aachen University Summer School. The development I experienced as a engineer and most important as a person in such a short time is very valuable. That was a consequence of the multiple challenges that had to be faced: the jetlag, the multi cultural environment, the technical requirements to create a real solution. Above the improvement of my technical knowledge, I earned a great cultural experience, fell in love with Germany, and instead of colleagues I made incredible friends for life.



# The City of Aachen

Discover the City in the Heart of Europe



Aachen with its beautiful destinations in the area.

## In the Heart of Europe

In the 8th century under Charlemagne, Aachen became the capital of rising Europe, a relevance still symbolized by the cathedral today, which is a UNESCO World Heritage Site. The city of 250,000 inhabitants is located in the heart of Europe. Just a few kilometres from the city centre you can find the "Border Triangle" where the frontiers of Belgium, the Netherlands and Germany meet. The attraction of living in this area includes a colourful mix of languages and people as well as short travel distances to cities such as Amsterdam, Brussels, Cologne or even Paris.

## Vibrant Student Life

In the old districts of the town with their pubs, restaurants and shops, one can literally touch European history. The large number of approx. 50,000 students – almost 20 per cent of them internationals – makes student life in Aachen vibrant and unique. The famous Pontstraße in the main campus area is a "gastronomy strip" with restaurants and cafés, offering specialities from all countries around the world. When the weather is nice, students especially enjoy going to the Westpark. In the middle of the city, there's a pond, large meadow and grills for barbecuing – perfect for a sunny afternoon. You can also relax or take a walk on the Lousberg which offers a nice view of the city.

## The optimal Mixture of History and Future

Aachen is one of the most important centres for students who are interested in science and technology. The RWTH Aachen University, established in 1870, has an excellent international reputation. Currently, the RWTH Aachen Campus is cooperating with industrial partners to build one of the largest science parks in Europe. Aachen is the optimal mixture of history and future with its beautiful old buildings and the new facilities of RWTH Aachen University, inside of which researchers from all over the globe are developing the technologies for tomorrow. Not a big city neither a small town, Aachen is a city where cultures meet and the student atmosphere is ever-present.

## Aachen and Surroundings



### Maastricht, NL

Maastricht is considered to be one of the oldest towns in the Netherlands (founded in 47AD).

Distance: 60 min by bus, 30 min by car

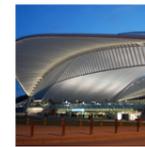


### The Border Triangle

The border triangle of Germany, the Netherlands, and Belgium is an ancient European region steeped in history.

Visit the Labyrinth and find your way out!

Distance: 40 min by bus, 15 min by car



### Liège, BE

The city is situated in the east of Belgium, not far from borders with the Netherlands and with Germany. It is the principal economic and cultural centre of the region.

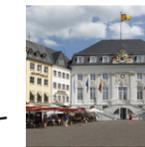
Distance: 50 min by train, 1 hour by car



### Cologne, DE

Cologne is a popular destination for students living in Aachen. Find shopping opportunities, a colourful nightlife and very open and outgoing people.

Distance: 1 hour by train, 1 hour by car



### Bonn, DE

Discover a modern, lively and cosmopolitan city with a history of over 2.000 years. Beethoven's native city is situated on the banks of the Rhine River.

Distance: 1,5 hours by train, 1 hour by car



### „Production Technology meets Industry 4.0“ 2016 - Sancho Chen from China



This summer I had the privilege of attending the summer school at the RWTH Aachen University, one of the best and leading universities in the world. Within the total of three weeks, we visited a variety of institutes and learned from some of the best professors on some of the newest fields and subjects. The summer school consisted not only of the classes in which we learned a lot and had a lot of fun but also included excursions to other cities such as Maastricht and Cologne. All in all, not only would I highly recommend the summer school program to anyone who is considering going, I'd also love to participate again.



## Weekend trips in Europe



### Rotterdam, NL

The city of Rotterdam is known for the Erasmus University, riverside setting, lively cultural life and its maritime heritage.

Distance: 3 hours by train, 2,5 hour by car



### Amsterdam, NL

Amsterdam is the capital and most populous city of the Kingdom of the Netherlands.

Distance: 3,5 hours by train, 2,5 hour by car



### Hamburg, DE

Hamburg is the second largest city in Germany and situated on the river Elbe.

Distance: 5,5 hours by train, 5 hour by car



### Brussels, BE

Brussels serves as capital of the European Union and is home to many international politicians and organizations.

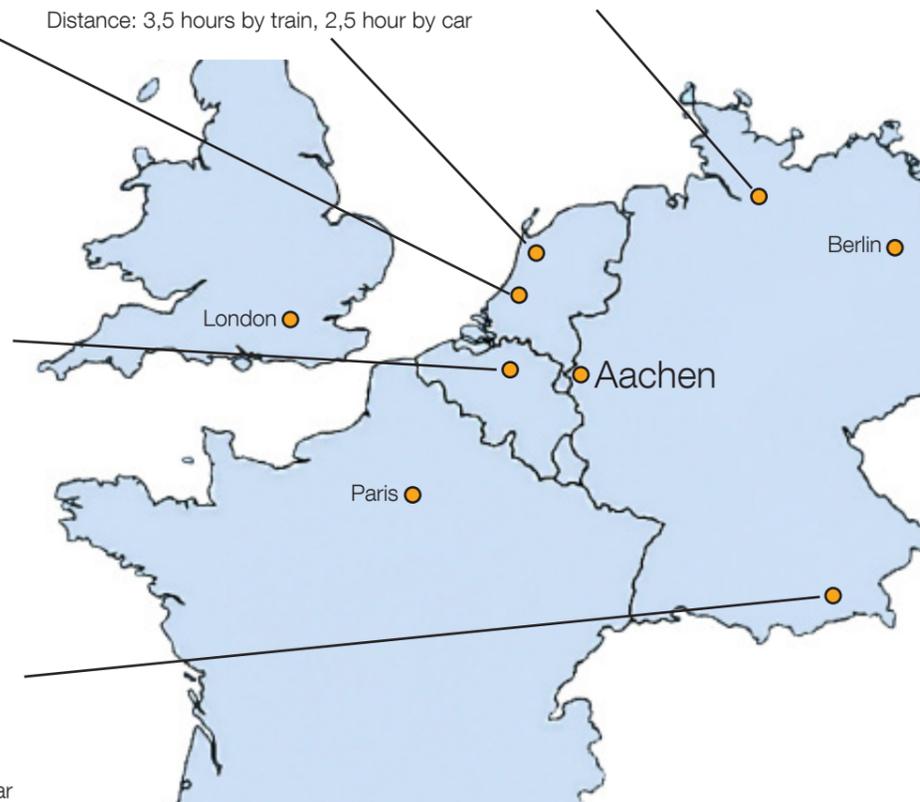
Distance: 1,5 hours by train, 2 hour by car



### Munich, DE

Munich is the capital and largest city of the German state of Bavaria, on the banks of River Isar north of the Bavarian Alps.

Distance: 5,5 hours by train, 6,5 hour by car



## Any more questions?

If we have left anything out please do not hesitate to contact us.



### International Academy

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**INTERNATIONAL  
ACADEMY**

**RWTHAACHEN  
UNIVERSITY**

**ENGINEERING  
SUMMER SCHOOL**



### RWTH International Academy

As the central, executive education institute of RWTH Aachen University, RWTH Aachen International Academy is able to call upon the expertise of the university's research institutes. Each of our executive education programs is developed in conjunction with RWTH Aachen institute. The institute nominates a scientific director and delivers the course in combination with lectures from science and industry as appropriate. Thus, RWTH International Academy is able to offer participants the opportunity to profit from the university's expertise in a practical manner.



### Contact details

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www.summerschool-in-germany.com

„Production Technology meets Industry 4.0“ 2016 - Nantanee Nanthawatthana from Thailand



RWTH International Academy summer school is one of the best avenues to getting educated by the finest lecturers belonging to Germany's most prestigious learning institutes. In addition, the summer school provides the perfect opportunity to explore Germany and its neighboring countries while studying. Germany is such a unique place, with distinct people and a beautiful language - it's almost like magic, I feel the best people are here with friends to last for a lifetime. To imagine spending the summer any other way is unfathomable.

