Robotics for Future Industrial Applications

Expect these Contents

This course is exclusively designed for students of Southeast University and tailored to specific needs with an individually created schedule focusing on engineering, controlling and programming of robots. You get to program a robot education cell in a team, acquire fundamental theoretical knowledge in robotics and apply your skills in lab classes. Path planning, trajectory planning, mapping, and object manipulation with regard to various industrial applications are part of this program.

Some components of this course might change, as all programs are continuously being improved to maintain a high content quality.

Learn how to program robots for multiple purposes

▶ Learn how program and control industrial robots

▶ Get an introduction tothe Fanuc Education Cell

▶ Learn position analysis of serial and parallel manipulators

▶ Solve tasks such as mapping, navigation, planning, and reasoning

Quick Facts

📅 **August 6 - 19, 2023 (2 weeks)**

📊 **On campus**

CP **3 ECTS (approx. 75 hours)**

€ **Upon request**

Your Academic Staff

The academic content has been designed by the Institute of Mechanism Theory, Machine Dynamics and Robotics (IGMR) and the Knowledge-Based System Group (KSBG) of RWTH Aachen University. IGMR's research areas include mechanism theory, kinematics, machine dynamics, vibration technology, and robotics. The KBSG focuses on topics of knowledge representation, artificial intelligence, and cognitive robotics.

Interactive Teaching

▶ Challenges in mobile robotics and Monte-Carlo Localization

▶ Mapping and path planning

▶ Planning with PDDL

▶ Identify, formulate and manage different types of technical specifications

Desirable is basic knowledge in the following areas:
special interest in robotics systems & kinematics, programming skills (C++ and/or Java), or interest in logic-based programming.

INTERNATIONAL ACADEMY | **RWTH AACHEN UNIVERSITY**

Summer & Winter Schools at RWTH Aachen University

Broaden your horizon and spend your holidays abroad in Germany

Experience excellent academic content and have fun at the same time!
You develop practical ideas together with renowned professors and expand your skills with hands-on case studies. Enjoy a wide range of social events in an unforgettable time, full of cultural and fun activities. Every program includes accommodation, two meals per day, and personal support from local mentors.

Highlights & Benefits

To support the academic content of each program, we include visits of companies and institutes, lab tours, and the chance to network with German companies and organizations.

Check out our website

Excellent Academic Teaching

RWTH Aachen University is top-ranked and one of Europe's leading science and research institutions. You benefit from high-value academic content in excellent classes.

Lectures and Exercises
- Q&As
- discussions & debates
- interactive participation

support by our lecturers

Case Studies and Experiments
- simulation games
- competitions & group work
- lab work

learning by doing

Supporting Program & Intercultural Experience

Our attractive supporting program provides an insight into the history and culture of Germany. Expand your network with international students, professors and industry partners, be part of a global community and meet friends from all over the world.

- city rally to explore Aachen
- trips to Maastricht, Cologne or Bonn
- hiking tour to the Border Triangle
- intercultural meet-ups, barbeque with mentors
- karaoke or game night
- honoring events: welcome and certificate ceremony

Application Information

Students are welcome to apply if they are:

- at least 18 years old
- proficient in the English language
- in their Bachelor's, Master's, in between or recently graduated

Quick facts about our Courses

- Study format: Short Course
- Teaching: on campus or online
- Duration: 2 - 4 weeks
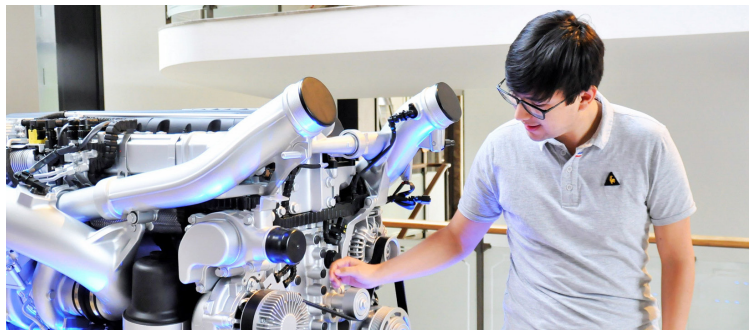- Workload: 50 - 125 Teaching Hours
- Credit Points: 2 - 5 ECTS
- Qualification: RWTH Certificate
- Language: English

Contact
Dr. Min Qian
Business Development Director China

INTERNATIONAL ACADEMY | RWTH AACHEN UNIVERSITY

Robotics for Future Industrial Applications (SEU)- Summer School 2023 on campus

Robotics for Future Industrial Applications (SEU)- Summer School 2023 on campus

German Summer Time (UTC +2)

tentative schedule

Week 1	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Date	06 August	07 August	08 August	09 August	10 August	11 August	12 August
Room		1.06 CT²	1.06 CT²	1.06 CT²	1.06 CT²	1.06 CT²	
08:00-08:30	Collective arrival of students (Self-organized)						Free time for excursions, sight-seeing and self-study
08:30-09:00							
09:00-09:30			**Automation** Introduction of Industrial Robots IGMR	IGMR	IGMR	Self-Study	
09:30-10:00		Pick-up 09:15					
10:00-10:30							
10:30-11:00		Welcome Orientation					
11:00-11:30							
11:30-12:00							
12:00-12:30		Lunch Break at Mensa Vita					
12:30-13:00							
13:00-13:30		Pick Up	Case Study / Group Work IGMR	Case Study / Group Work IGMR	**Visit of Institute** Mechatronics and Robotics + Visit of Institute IGMR	Visit of "Smart Automation Lab"	
13:30-14:00		Get to know Aachen City Rally					
14:00-14:30							
14:30-15:00						Break	
15:00-15:30						Study at RWTH Info Event	
15:30-16:00							
16:00-16:30							
16:30-17:00							
17:00-17:30							
17:30-18:00							
18:00-18:30							
18:30-19:00							
19:00-19:30							
19:30-20:00							
20:00-20:30						Karaoke Night	
20:30-21:00							

Robotics for Future Industrial Applications (SEU)- Summer School 2023 on campus

Robotics for Future Industrial Applications (SEU)- Summer School 2023 on campus

German Summer Time (UTC +2)

tentative schedule

Week 2	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Date	13 August	14 August	15 August	16 August	17 August	18 August	19 August
Room		1.06 CT²	1.06 CT²	1.06 CT²	1.06 CT²	1.06 CT²	
08:00-08:30	Free time for excursions, sight-seeing and self-study						Collective departure of students (Self-organized)
08:30-09:00				Pick Up			
09:00-09:30		Challenges in Mobile Robotics KBSG	Mapping KBSG	City Trip to Maastricht (The Netherlands)	Case Study/ Group Work KBSG	Scheduled self-study	
09:30-10:00							
10:00-10:30							
10:30-11:00					Path Planning KBSG	Final exam	
11:00-11:30							
11:30-12:00							
12:00-12:30		Lunch break at Mensa Vita			Lunch Break at Mensa Vita		
12:30-13:00							
13:00-13:30		Monte-Carlo Localization KBSG	Practical Block: Monte-Carlo Localization KBSG		Practical Block: Mapping and Path Planning KBSG	Farewell Event	
13:30-14:00							
14:00-14:30							
14:30-15:00		Introduction to Python KBSG					
15:00-15:30							
15:30-16:00							
16:00-16:30							
16:30-17:00							
17:00-17:30							
17:30-18:00							
18:00-18:30					Barbeque		
18:30-19:00							
19:00-19:30							
19:30-20:00							
20:00-20:30							
20:30-21:00							