

ROBOTICS FOR FUTURE INDUSTRIAL APPLICATIONS



Robotics for Future Industrial Applications Engineering Summer School

Our Summer School courses in Mechanical Engineering and Management offer international students the opportunity to take part in excellent science and research at RWTH Aachen University. The University is highly acclaimed internationally for its development of innovative answers to the most pressing global challenges. As a result, numerous research institutions, companies, R&D departments and start-ups have settled in and around Aachen, making RWTH the ideal setting for aspiring students.



Program Objective

This Summer School is all about the engineering, controlling and programming of robots. The lectures introduce fundamental theoretical knowledge in robotics and are complemented by lab classes, in which students apply their acquired knowledge in practical projects.



Academic Staff

The lectures are conducted by the Cybernetics Lab, which is part of the Faculty of Mechanical Engineering of RWTH. Its research focuses on cybernetic research methods in information and knowledge management. The Cybernetics Lab is supported by the Knowledge-Based Systems Group, which is concerned with knowledge representation, artificial intelligence and cognitive robotics.



Applicant's Profile

This program is specifically tailored for undergraduate students enrolled at top universities. Applicants need proficient knowledge of the English language and should be studying Mechanical Engineering or a related field. Completion of the first academic year is mandatory. The minimum age to participate is 18 years.



Quickfacts

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| Study format | Summer School |
| Qualification | Certificate |
| Language | English |
| Course Fees | EUR 2,990 |
| Duration | 3 weeks |
| Workload | 90 Teaching Units |



Application Information

We will evaluate applications based on the cover letter, the completion of the special requirements of each program, the overall strength of your academic record, and extracurricular experiences.

*All Summer Schools are co-funded by the RWTH International Academy in cooperation with RWTH Aachen University.



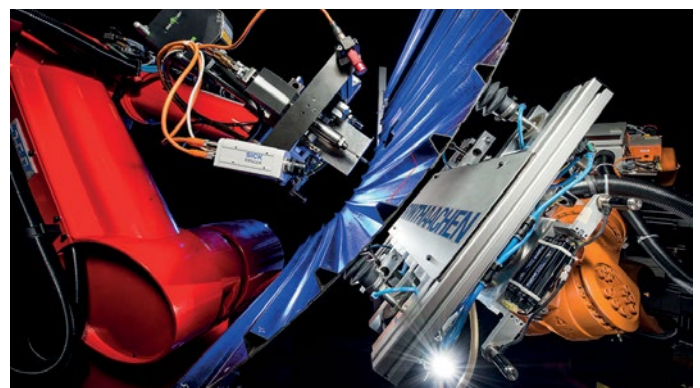
Academic Content

| Modules: Lectures and Exercises | Teaching Units |
|---|----------------|
| Communication between Technical Systems | 2 |
| Standards for modern ind. communication | 2 |
| History of industrial communication | 2 |
| Towards a plug ,n' produce approach in future industrial applications | 2 |
| Object-oriented modelling of complex automation systems | 2 |
| Introduction to Industrial Robots & Challenges | 2 |
| Fundamentals of Reinforcement Learning | 2 |
| Model-based Reinforcement Learning | 2 |
| Introduction to multi robot systems | 2 |
| Application of MRS in the RoboCup Logistics League | 2 |
| Simulating the RCLL in Gazebo | 2 |
| Reactive Behavior Modelling and Implementation | 2 |
| Navigation & Localization | 2 |
| Task-Level Reasoning and Planning | 2 |
| Practical Unit | 32 |
| Hands on | 16 |
| Preparation & Final Exam | 4 |
| Modules: Company Visits and Culture | Teaching Units |
| RWTH Campus Tour | 2 |
| Intercultural Workshop | 4 |
| Visit of Smart Automation Lab | 4 |
| Sum of Teaching Units | 90 |



RWTH Aachen University

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 popular spot with increasing international recognition where innovative answers to global challenges are developed.



Fotos: Thilo Vogel, Fotolia: WavebreakMediaMicro, zhu difeng



ShortCourses@academy.rwth-aachen.de
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