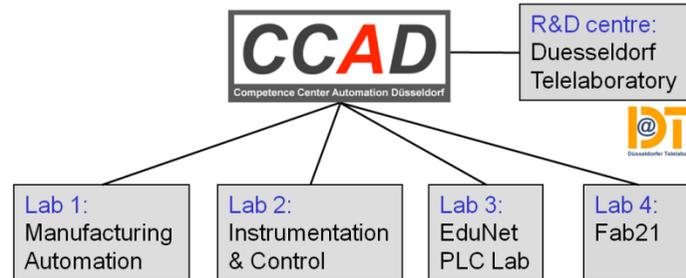


FHD / CCAD

Duesseldorf University of Applied Sciences was founded in 1971 and is one of the largest technical universities in North Rhine-Westphalia with around 10,000 students. The field of electrical engineering offers Bachelor's and Master's courses with specialization in automation systems, power engineering, communication and information technology as well as microelectronics.



The **Competence Center Automation Düsseldorf (CCAD)** bundles the resources and competencies of the Electrical Engineering department in the field of automation technology.

A total of four teaching laboratories support students in their automation systems Bachelor's and Master's courses:

- Lab 1: **Manufacturing Automation Laboratory**
- Lab 2: **ICA Laboratory**
- Lab 3: **EduNet* PLC Laboratory**
- Lab 4: **Training & Research Factory Fab21**

Besides the Learning Laboratory, the CCAD operates the Düsseldorf Telelaboratory DT (www.telelabor.de) as a specialized R&D center for Web technologies and remote engineering in automation technology.

Three professors along with eight scientific staff are currently employed in the CCAD. These mentor around 5 ... 10 Bachelor's/Master's students, depending on the projects in progress.

* EduNet – International Education Network

Services

The CCAD offers industry and business a range of services in the area of research/development along with education and training. These include:

Application research and development in the area of automation systems

Advice and consultation for IT-based automation solutions

Prototype solutions involving the application of clouds, smartphones and NFC for the automation of technical processes

Project coordination and collaboration in national and international research programs

Support for technical publications and expert presentations at home and abroad

Design and implementation of accredited discipline-specific Bachelor's courses

Design and implementation of discipline-specific further training courses

Customer-specific short and long-term training

Support when establishing contacts with international universities and other institutes of higher education

Scientific accompaniment for national and international automation system training projects

Contact

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langmann@ccad.eu
www.ccad.eu



Site plan and route to the CCAD:

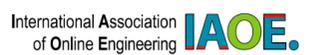
FH D
Fachhochschule Düsseldorf
University of Applied Sciences

CCAD
Competence Center Automation Düsseldorf



**Competence Center
Automation Düsseldorf**

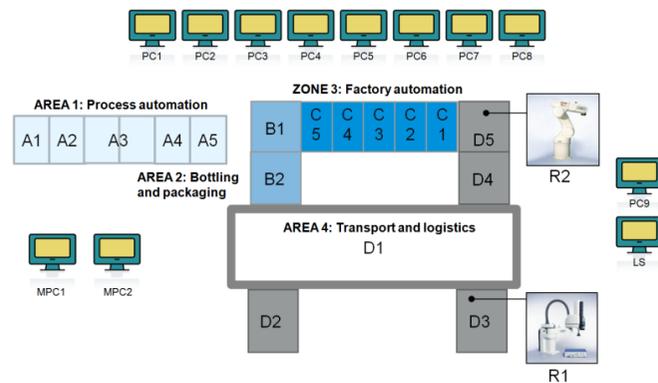
Member of



Fab21

The Training & Research Factory Fab21 is a model factory for hybrid production processes. The factory focuses on most study topics in automation technology within a real industrial system for education and training.

The Fab21 is also used for new R&D projects in the area of IT-based automation solutions (e.g. real-time Ethernet, digital factory, mobile and remote diagnosis).



Structure of the Fab21 for hybrid production processes

Examples of research projects are 3D system simulation, NFC logistics, smartphone operation/diagnostics and Remote Augmented Reality.

Services:

Training courses and further training in the Fab21

Solutions for work-integrated learning

Advice for efficient use of complex learning factories

Assistance for using smartphones and tablets

Development of 3D simulations

Head of Fab21:

Prof. Dr.-Ing. Reinhard Langmann
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www.fab21.de

AUTLAB

The Manufacturing Automation Laboratory (AUTLAB) is an interdisciplinary teaching and project lab focusing on robotic technology, image processing, machine and plant safety, process computers and industrial fieldbus systems. This is partly located in the Fab21.



Robot and safety technology in the AUTLAB

The laboratory equipment includes

- Diverse industrial robots e.g. SCARA Robot Adept Cobra i600, Six-Axis-Robot Adept Viper s650, Kuka IR 363/6, Mitsubishi Type RV-3SB,
- Diverse communication and control systems,
- Simulation software CIROS,
- Safety technology (e.g. Safety-Eye) as well as safety controls (PNOZmulti) and
- safety bus systems (SafetyBUS p).

Services:

Development and implementation of inspection/test scenarios

Feasibility studies

Training and further training courses

Advice concerning current industrial laboratory technology, combined with high-speed image processing, safety technology and communication systems

Head of AUTLAB:

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ICA Laboratory

The ICA Laboratory for instrumentation, control and automation is a teaching and project lab for sensor system technology, feedback control systems, equipped with sensor test benches, regulation models and SIMATIC control systems. The ICA Laboratory also utilizes the process automation modules of the Fab21.



Regulation and control of continuous processes in the ICA laboratory

The laboratory equipment includes

- Sensor development and test systems
- Circuit development for measuring transducers,
- 6x SIMATIC S7-300,
- Industrial pneumatic and electronic controllers,
- Control models for continuous and discontinuous processes,
- Simulation software tools for process mapping,
- Inverse pendulum (subject to friction) for training and further development of fuzzy and state rules

Services:

Development and application of sensor systems

Modelling of systems for process optimization

Development of control strategies

Advice, training and specialization in the area of MSR (also on site and in English)

Head of ICA Laboratory:

Prof. Dr. Harald Jacques
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Düsseldorf Telelaboratory

The Düsseldorf Telelaboratory (DT) is a platform for the development and practical testing of new remote technology concepts for complex technical systems in an industrial environment and is operated by the CCAD of Düsseldorf University of Applied Sciences.

The DT also provides a test environment enabling solutions for Web-based automation of systems and machines based on Lean Web Automation.



Düsseldorf Telelaboratory (DT) with seven remote labs for learning and test purposes

Examples of remote labs for learning purposes in the DT are the Remote Lab with INTERBUS, the PROFINET Remote Lab and remote labs for IEC 61131 programming. Further scenarios enable the testing of Web-based solutions involving real systems.

Services:

Web-based automation of systems/machines/devices

Teleservice solutions for mobile and stand-alone systems

Internet-compatible learning systems and training content

Telepresence support (WEBCAM, process data access)

Integration of multimedia (video, audio, virtual reality)

Operation and maintenance of Moodle portals

Operation and maintenance of online traineeships

Head of Düsseldorf Telelaboratory (DT):

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