


HSD

Hochschule Düsseldorf
University of Applied Sciences



**Faculty of Electrical
Engineering and
Information Technology**

Bachelor of Engineering

Electrical Engineer- ing and Information Technology (Dual System)

Profile

The 8-semester bachelor's programme Electrical Engineering and Information Technology (Dual System) is an undergraduate study programme accompanied by practical professional training. It combines technical vocational training with university studies in electrical engineering and information technology.

This system takes less time than the usual pattern of a separate vocational training or employment followed by university studies – without compromising neither the practical nor the theoretical parts. The partner enterprises and the relevant chambers of industry and commerce are in charge of the vocational training or employment.

The basic modules focus on broad instruction in the fundamentals of natural sciences, mathematics, electrical engineering and information technology. The specialisation modules reflect different foci and serve to deepen your subject-specific knowledge in your area of interest. Depending on your choice of specialisation, you acquire subject-specific expertise in the following fields:

Automation Technology: fundamentals of instrumentation, control and automation (ICA); automated processes and process plants

Electrical Power Engineering: fundamentals of mechanics and control engineering; energy production and distribution, electromagnetic compatibility, electrical drives and power electronics

Microelectronics: fundamentals of semiconductor circuits; integrated circuit design and testing; semiconductor manufacturing

Information Technology: fundamentals of signals and systems theory; data transmission, network security as well as conception, design and implementation of application systems in information technology; application of anything from microcontrollers to internet-based distributed environments

Communications Technology: fundamentals of signals and systems theory; digital signal processing and data transmission

Within a technical compulsory elective module, you can expand your skills in your area of specialisation or deepen your engineering expertise. In parallel, we teach you transferable skills in modules on English, fundamentals of business administration and in a non-technical compulsory elective module.

The programme ends with an eight-week practical project and a bachelor's thesis.

Please note: The language of instruction is mainly German.

Career Options

Possible areas of employment are – both in small and medium-sized enterprises, in the public sector and in multinationals: distribution, project planning, project management, design, implementation, planning, logistics, production control, business organisation, quality management.

SYLLABUS

SEMESTERS 1-5

Fundamentals of Electrical Engineering | Mathematics |
Fundamentals of Natural Sciences | Fundamentals of Computer
Science | Components | Circuit Engineering | Software
Engineering | Fundamentals of Business Administration

SEMESTERS 6-7

Automation Technology: Sensor Systems and Signal
Processing | PLC and Safety Technology | Control Engineering |
Robotics | Embedded Systems | Process Control Engineering |
Actuator Engineering | Communications Systems

Electrical Power Engineering: Electrical Machines | High-
Voltage Technology and EMC | Electrical Power Supply | Power
Electronics and Drive Control | Control Engineering

Microelectronics: Fundamentals of Semiconductors |
Semiconductor Manufacturing | Microelectronics | Assembly
and Packaging Technology | Microelectronic Sensors | Design
of Integrated Circuits | Analogue Transmission Technology

Information Technology: Embedded Systems | Data
Transmission and Protocols | Signals and Systems Theory |
Digital Signal Processing | Information Coding | Software
Engineering | Network Security | Operating Systems

Communications Technology: Embedded Systems | Data
Transmission and Protocols | Signals and Systems Theory |
Digital Signal Processing | Information Coding | Microwave
Engineering | Circuits and Systems | CAD of Microwave
Circuits | Optical Communications Technology

English

1 Compulsory Elective Module: Technical Contents

1 Compulsory Elective Module: Non-Technical Contents

SEMESTER 8

8-Week Practical Project

12-Week Bachelor's Thesis

Please check the module manual (currently only in German) for detailed information
on the contents of the study programme.

Further Information

Faculty contact:

Dean's Office at the Faculty of Electrical Engineering
and Information Technology

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dekanat.ei@hs-duesseldorf.de

About the programme, admission requirements
and application:

ei.hs-duesseldorf.de/beit_dual-en

Get in Touch

Admissions Office

zulassung@hs-duesseldorf.de

hs-duesseldorf.de/zulassungsstelle (in German only)

Student Advisory and Counselling Service (ZSB)

studienberatung@hs-duesseldorf.de

hs-duesseldorf.de/zsb-en

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international-office@hs-duesseldorf.de

hs-duesseldorf.de/io-en

Family Support Centre

familienbuero@hs-duesseldorf.de

hs-duesseldorf.de/fam-en

Office of Counselling and Disability Services (ABS)

barrierefrei@hs-duesseldorf.de

hs-duesseldorf.de/abs-en

Psychological Counselling Service (PSB)

info.psb@hs-duesseldorf.de

hs-duesseldorf.de/psb-en

HSD Invites You

Visit us! Join courses during our yearly trial week
(*Schnupperstudium*) and attend our information events
(e.g. *Tag der offenen Tür*, *Hochschulinformationstage*,
Wochen der Studienorientierung).

Information on all events (in German only):

hs-duesseldorf.de/zsb_veranstaltungen

HSD on social media
facebook.de/hsduesseldorf
instagram.com/hsduesseldorf

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