



UNIVERSITÄT
DUISBURG
ESSEN

Open-Minded

Faculty of Engineering

***International Studies
in Engineering – ISE
Bachelor Programs***

International Studies in Engineering



The ISE studying program offers degrees with professional qualification as a Bachelor of Science (B.Sc.) with high knowledge base and practical content, as well as degree courses in Master of Science (M.Sc.) with advanced essentials, where students are given the possibility to choose between a scientific or an application-oriented area of specialization of the previously completed bachelor degree.

ISE sets the objective to impart global engineering skills to graduates who want to access the international employment market. For this purpose, the curriculum requires course and exam credits in the fields of engineering and computer science as well as mathematics and natural sciences.

The study program ISE consists of five different bachelor degree courses:

- Computer Engineering
- Electrical and Electronic Engineering
- Mechanical Engineering
- Metallurgy and Metal Forming
- Structural Engineering

The first year of studies in the bachelor program is almost identical for all degree courses. During the first year, the language of instruction for all bachelor degree courses is 100% English. The overall language of instruction is 50% English and 50% German.

The basic principles of engineering and science will be taught on a broad basis. In addition, the students will study in a multicultural environment and will be integrated into research and teamwork projects to complement advanced courses in a variety of areas.

After completing the bachelor degree, the students will be able to choose to continue with a master degree as a specialization of their former field of studies or to change to a master degree program in a different engineering subject and thus aim for a double qualification.



General Information

Beginning of program

The regular beginning of the bachelor program is annually in October (winter semester).

Program duration

The curriculum of ISE is designed as a consecutive bachelor master program with duration for the bachelor program of 3 years (6 semesters).

Semester

The academic year is divided in two semesters:

- Winter semester: from October to March
- Summer semester: from April to September

Lecture period

In winter term the lectures usually start in mid-October and end in mid-February. The summer term lectures start usually in mid-April and finish at the end of July.

During the winter semester will be a break of two weeks for Christmas and New Year's holidays.

Examination period

The examination period always starts right after the lecture period and lasts for approx. 5 weeks

Language of instruction

The language of instruction is half German and half English. This means that approx. 50% of the courses are taught in German and the other 50% are taught in English. The language of a certain examination is the same as the language of instruction in the corresponding lecture.

Admission requirements

General university entrance qualification (“Abitur”)

The evidence of a special degree course related educational background or qualification from school with special profile in mathematics.

Language requirements for enrollment

- English: B1 (CEFR)
- German: B1 (CEFR)

Fees

All students are required to pay a social contribution of about 290€ per semester. The social contribution includes a semester ticket covering public transport in North Rhine-Westphalia, subsidized meals in the canteen of the university and other services.

Costs of Living

We recommend budgeting around 600€ to 900€ per month for personal expenses.

Accommodation

Accommodation is available through the Student Services Office or on the private market. Rent for a single room in a student residence is approx. 300€.

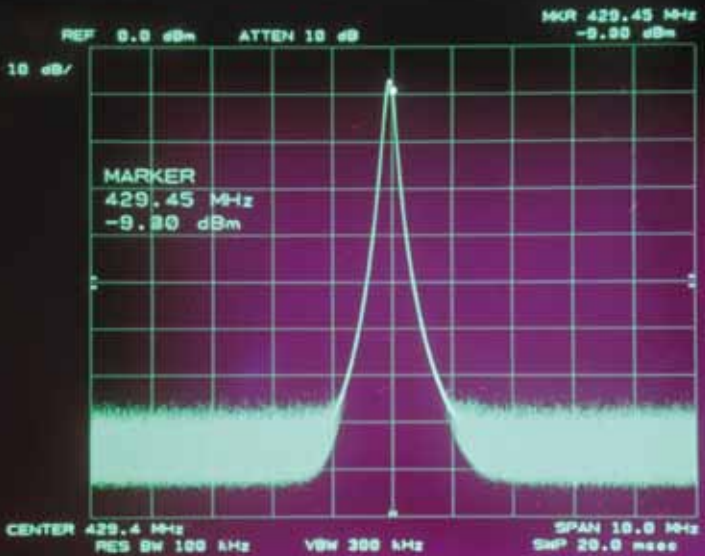
More information:

www.uni-due.de/scies/accommodation.shtml

Accreditation

All degree courses are accredited by ASIIN.

Bachelor Computer Engineering



The course of studies offers a balanced combination of courses from computer science, general engineering and natural sciences fundamentals. The students will receive the knowledge and skills that they need in their professional lives as engineers in the field of computer engineering. Through a basic and methods-oriented training and through the learning of working techniques in engineering science, they will be able to contribute as young professionals in the area in which they will be deployed, and later become attuned to future informatics technologies.

In this manner, the graduates will be prepared for jobs like the creation and operation of computer systems and computer networks or the development of application-specific systems while using hardware components and applications of software technologies.

The study course offers a balanced combination of modules from engineering-oriented computer science and from general engineering and natural sciences, which are integrated in a practical project and will be applied for the bachelor thesis.

Students learn to use the skills of computer science in the application fields of natural sciences and engineering, and also learn how to conduct a debate with colleagues from different disciplines at a technical level. In that way graduates will be prepared primarily for the following occupational areas:

- Construction and operation of computer systems and computer networks,
- Software engineering for technical or engineering-oriented fields of application,
- Development of application-specific systems using hardware components and applying techniques of software engineering.

The undergraduate study course „Computer Engineering” is a consciously made combination of both knowledge domains of electrical engineering and computer science, because this combination offers graduates a broad variety of application fields. At the same time, the two areas of specialization

- „Software Engineering“ and
- „Communications“

will be offered for graduates, so they can set a priority towards computer science or electrical engineering and communications technology for a professional occupation or to pursue a master degree.

Bachelor Computer Engineering

Profile: Software Engineering

	Module	Credits
1	Fundamentals of Computer Engineering 1	5
	Mathematics I1	8
	Measurement Technology	4
	Mechanics I1	5
	Network Analysis	5
	Non-technical Catalog B1	4
2	Fundamentals of Programming	5
	Logical Design of Digital Systems	5
	Mathematics I2	7
	Physics	5
	Static and Stationary Fields	5
	Non-technical Catalog B2	5
3	Economics for Engineers	4
	Discrete Mathematics	5
	Object-oriented Programming	4
	Computer Networks and Communication Systems	4
	Probability Calculus and Stochastics	4
	Scientific Working	1
	Elective CE	5
4	Computer Based Engineering Mathematics	4
	Introduction to Automation	5
	Data Structures and Algorithms	8
	Automata and Formal Languages	6
	Computer Architecture	6
5	Operating Systems	6
	Databases	6
	Real-Time Systems or Embedded Systems	5
	Modeling	4
	Software Engineering	8
6	Bachelor Thesis and Colloquium	15
	Security in Communication Networks	4
	Industrial Internship	13

Profile: Communications

	Module	Credits
1	Fundamentals of Computer Engineering 1	5
	Mathematics I1	8
	Measurement Technology	4
	Mechanics I1	5
	Network Analysis	5
	Non-technical Catalog B1	4
2	Fundamentals of Programming	5
	Logical Design of Digital Systems	5
	Mathematics I2	7
	Physics	5
	Static and Stationary Fields	5
	Non-technical Catalog B2	5
3	Economics for Engineers	4
	Discrete Mathematics	5
	Object-oriented Programming	4
	Computer Networks and Communication Systems	4
	Theory of Linear Systems	5
	Probability Calculus and Stochastics	4
	Scientific Working	1
4	Computer Based Engineering Mathematics	4
	Introduction to Automation	5
	Fundamentals of Software Engineering	4
	Internet-Technology and Web Engineering	5
	Operating Systems and Computer Networks	3
	Computer Architecture	6
	Transmission and Modulation	5
5	Fundamentals of Electronics	3
	Introduction to Automation Lab	1
	Real-Time Systems or Embedded Systems	5
	Industrial Internship	13
	Project Work	6
6	Bachelor Thesis and Colloquium	15
	Computer Networks Lab	3
	Elective CE	5
	Mobile Communications	3
	Security in Communication Networks	4

Bachelor Electrical and Electronic Engineering

Electrical and electronic engineering is counted among the most important fields in the industry and economics. As know-how carriers of these technologies, trained engineers in Germany enjoy an excellent reputation worldwide.

This course of studies will impart knowledge on the functionality of electrical components and systems used in electrical engineering, information technology and microelectronics. Examples on the realization of such systems will as well be presented to the students. Some of the domains related to it are renewable energies, low-emission motor vehicles, modern communication technology, wireless communication and internet.

The graduates are offered interesting and diverse job opportunities in service, test, production, distribution and sales, project planning, consulting and marketing in all companies dealing with electronic components, devices and systems. Potential employers are manufacturing companies that offer specification, test and integration as well as distribution and maintenance of components, devices and systems.



	Module	Credits
1	Fundamentals of Computer Engineering 1	5
	Mathematics I1	8
	Measurement Technology	4
	Mechanics I1	5
	Network Analysis	5
	Non-technical Catalog B1	4
2	Fundamentals of Programming	5
	Logical Design of Digital Systems	5
	Mathematics I2	7
	Physics	5
	Static and Stationary Fields	5
	Non-technical Catalog B2	4
3	Introduction to Materials	4
	Fundamentals of Electrical Engineering I3	6
	Fundamentals of Electrical Power Engineering	3
	Fundamentals of Electrical Engineering Lab (Part 1)	1
	Mathematics E3	6
	Object-oriented Programming	4
	Theory of Linear Systems	4
4	Computer Based Engineering Mathematics	4
	Introduction to Automation	5
	Introduction to Materials Lab	1
	Electrical Power Systems	4
	Solid State Electronics	5
	Fundamentals of Electrical Engineering Lab (Part 2)	1
	Fundamentals of Software Engineering	4
	Introduction to Electromagnetic Compatibility	3
Transmission and Modulation	5	
5	Economics for Engineers	4
	Introduction to Automation Lab	1
	Electronic Devices	3
	Industrial Internship	13
	Control Engineering E	4
	Computer Based Systems	3
	Scientific Working	1
6	Bachelor Thesis and Colloquium	15
	Fundamentals of Electronic Circuits	3
	Elective EEE	5
	Project Work	6

Bachelor Mechanical Engineering



This course of studies imparts a general engineering training on machine and plant manufacturing. Through multidisciplinary lectures, the students should acquire the ability and the competences needed to solve interdisciplinary engineering problems. The bachelor degree course enables, besides the solid basic training on machine and plant manufacturing, the modeling of mathematical and physical processes as well as the computer based analysis of these processes.

The graduates are thus open to jobs in international machine and plants manufacturers in thermal, mechanical and chemical process engineering, in automobile construction and its suppliers, in technical pollution control as well as in planning offices and consultants.

	Module	Credits
1	Fundamentals of Computer Engineering 1	5
	Mathematics I1	8
	General Chemistry	4
	Mechanics I1	5
	Network Analysis	5
	Non-technical Catalog B1	4
2	Fundamentals of Programming	5
	Design Theory 1	5
	Mathematics I2	7
	Mechanics I2	5
	Physics	5
	Non-technical Catalog B2	4
3	Economics for Engineers	4
	Design Theory 2	3
	Mathematics M3	5
	Mechanics I3	5
	Thermodynamics 1	5
	Materials Science 1	6
4	Design Theory 3	3
	Manufacturing	3
	Fluid Mechanics	3
	Numerics for Engineers	5
	Vibration Analysis	4
	System Dynamics	2
	Thermodynamics 2	5
	Materials Science 2	4
5	CAD	2
	Control Engineering	4
	Introduction to Mechatronics and Signal Analysis	4
	Fluid Flow 2 or Modeling and Simulation	4
	Industrial Internship	13
	System Dynamics and Control Technique Lab	1
	Process Engineering	3
	Scientific Working	1
6	Bachelor Thesis and Colloquium	15
	Energy Technology	4
	Thermal Power Machines	5
	Elective ME	5

Bachelor Metallurgy and Metal Forming

The bachelor study course provides general engineering knowledge in the field of metallurgy and forming technology for production and processing of metallic materials. In the content of this course of studies, the production of metallic materials from ores using metallurgical procedures as well as their refinement, e.g. in steel plants and the further processing through continuous casting and forming are paramount. This also encompasses, besides the technologies used for steel production and processing, the NE-metals technologies. On the other hand, a focus is placed on the forming production processes of the primary and secondary forming including their processing. This includes both hot and cold forming methods of the iron and steel industry without forgetting the NE-metal industry, and the forming methods from the production engineering in the sheet and cold forming domains.

The graduates are qualified for jobs in all technology fields in steel and iron industries, like ore dressing, sinter plants, blast furnace and steel plants, continuous casting and mill equipment for the processing of continuously cast materials.



	Module	Credits
1	Fundamentals of Computer Engineering 1	5
	Mathematics I1	8
	General Chemistry	4
	Mechanics I1	5
	Network Analysis	5
	Non-technical Catalog B1	4
2	Fundamentals of Programming	5
	Design Theory 1	5
	Mathematics I2	7
	Mechanics I2	5
	Physics	5
	Non-technical Catalog B2	4
3	Economics for Engineers	4
	Design Theory 2	3
	Elective MMF	4
	Metallurgy	4
	Thermodynamics 1	5
	Materials Science 1	6
	Scientific Working	1
4	Computer Based Engineering Mathematics	4
	Design Theory 3	3
	Metal Physics 1	3
	Numerics for Engineers	5
	Statistics for Engineers	3
	Thermodynamics 2	5
	Materials Science 2	4
5	Iron- and Steelmaking 1	4
	Metal Physics 2	4
	Fundamentals of Metal Forming	3
	Industrial Internship	13
	Steelmaking Theory	3
	Metal Forming 1	5
6	Bachelor Thesis and Colloquium	15
	Iron- and Steelmaking 2	4
	Metal Forming 2	5
	Steel Materials	3
	Testing of Materials	5

Bachelor Structural Engineering



Structural engineers deal with planning, design, manufacture and operations of buildings in the fields of construction engineering, civil engineering, transport engineering and hydraulic engineering.

The classical constructive subjects such as statics, concrete engineering and structural steelwork engineering will be the core topics taught. By using these knowledge tools, the major problems of buildings can be solved. The basics of building founding and the ground engineering are subject of the geotechnics. Students gain knowledge not only of the internationally recognized laws of construction, but also of the national policies and norms.

The field of construction management imparts in-depth skills for handling large building projects, including the entire area of quality management and economic aspects.

The entire field of civil engineering is becoming increasingly international. The contribution of German companies to the international building projects is one economic factor. Graduates will have various career opportunities for employment, both nationally and internationally. The current booming construction engineering, especially in the foreign metropolis, but also in the thriving environmental technology, offers a long-term stable employment market worldwide.

	Module	Credits
1	Fundamentals of Computer Engineering 1	5
	General Chemistry	4
	Mathematics I1	8
	Mechanics I1	5
	Network Analysis	5
	Non-technical Catalog B1	4
2	Design Theory 1	5
	Fundamentals of Programming	5
	Mathematics I2	7
	Mechanics I2	5
	Physics	5
	Non-technical Catalog B2	4
3	Structural Analysis 1	6
	Elective CIV	6
	Project Work	6
	Construction Material 2	8
	Scientific Working	1
4	Construction Site Management 1	6
	Structural Analysis 2	6
	Concrete Structures 1	6
	Geotechnics 1 - Soil Mechanics	6
	Steel Construction 1 / Timber Construction 1	6
5	Construction Site Management 2	6
	Concrete Structures 2	6
	Economics for Engineers	4
	Urban Water Management 1 / Chemistry	6
	Steel Construction 2 - Steel Structures	6
6	Bachelor Thesis and Colloquium	15
	Industrial Internship	13
	Water Engineering 1	5



Further Information

Support

The Support Center for (International) Engineering Students (SCIES) serves as a central information and advisory board for the students at the Faculty of Engineering. The mission of SCIES is to support all students at the Faculty of Engineering and to help them gain the best from their experiences at the University of Duisburg-Essen. SCIES consults in questions concerning the studies, helps in administrative matters and is in all questions the first level support for the students. SCIES is in close contact with the International Office, the Examination Office, the Office for Industrial Internships, as well as further advisory boards, for example the Student Counseling and Academic Career Services. Therefore, the members of SCIES are the first contact persons for the engineering students with any study related question.

www.uni-due.de/scies



Faculty of Engineering

The Faculty of Engineering combines a broad spectrum of technical fields, from electrical engineering and information technology to mechanical engineering, material technology and civil engineering, under a single roof. The presence of cognitive scientists and social psychologists within the faculty, particularly in the fields of media and communication, further adds to the study and research potential. With about 80 professorships and more than 10,000 students, our faculty belongs to one of the largest in Germany.

All these departments are closely linked, interdisciplinary, and work hand in hand. A multitude of synergy effects, common research projects as well as new development emphases therefore result from this cooperation. The academics from Duisburg-Essen are leading in the nanotechnology research, in environmental technology, in the automobile industry, in the fuel cell technology, in the offshore wind technology and in electrical engineering.

The Faculty of Engineering does not only offer a broad range of subjects, but also a number of specializations that are only available at very few universities in Germany. In the city with the world's largest inland port and a high-tech steel industry, courses are available in ship technology, logistics, foundry, metallurgy and metal forming. These are accompanied by various international engineering courses that attract students from all over the world.

Further Information

University of Duisburg-Essen

Creative inspiration between the Rhine and Ruhr: the University of Duisburg-Essen (UDE) is located in the European region with the highest density of institutions of higher learning. Created in 2003 by the merger of the universities of Duisburg and Essen, the UDE is the youngest university in North Rhine-Westphalia and one of the ten largest universities in Germany.

Both campuses are easy to reach and offer the students a broad academic spectrum with an international orientation – ranging from the humanities and social sciences to economics and the engineering and natural sciences, including medicine. Students from 130 countries are currently enrolled at the UDE. The 40,000 students can choose from a vast array of bachelor's and master's degree programs.

In many disciplines, the UDE ranks amongst the TOP 10 of German research universities. The university emphasizes research in the fields of nanosciences, biomedical sciences, urban systems, empirical research in education, and change of contemporary societies.

Cities of Duisburg and Essen

The Ruhr metropolis is full of surprises, one of which has been its cultural transformation from a traditional industrial region to a European Capital of Culture and home to 5.3 million people from 140 countries.

Duisburg and Essen are situated at the confluence of the rivers Rhine and Ruhr. A population of 500,000 inhabitants makes Duisburg Germany's fifteenth largest city. With nearly 580,000 inhabitants, Essen is one of Germany's ten biggest cities.

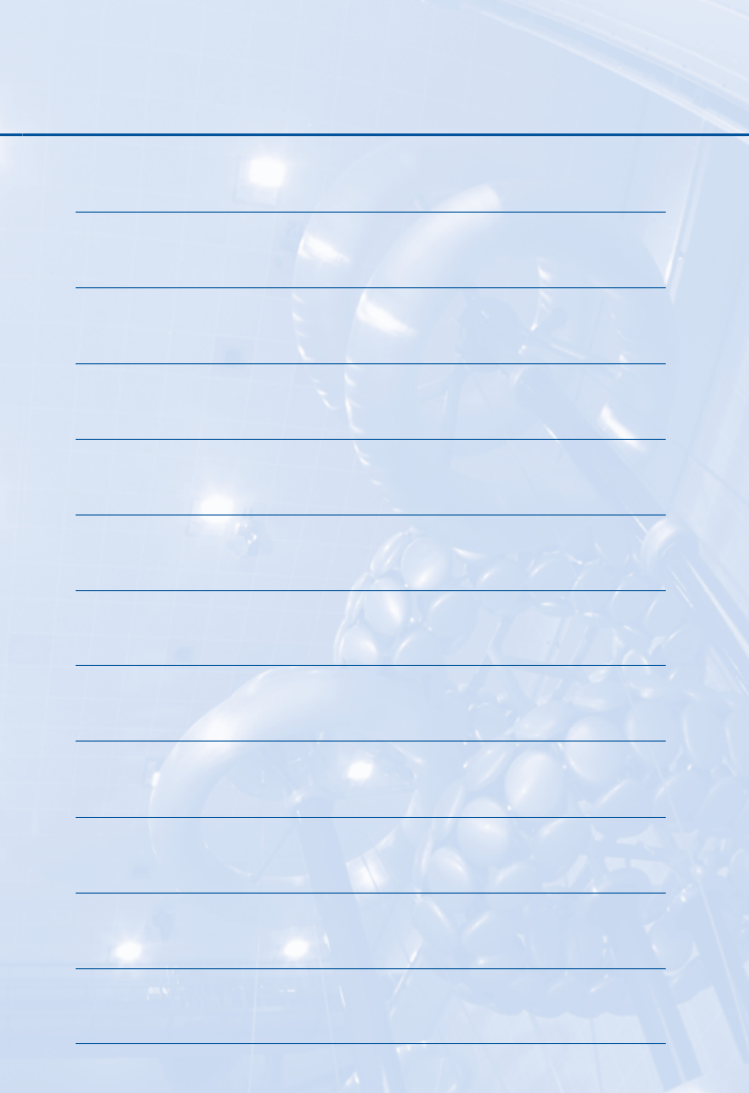
Both cities are proud of their history and traditions as major industrial cities. Thanks to the numerous companies located here, students have every opportunity to reinforce the vocational orientation of their studies, and the academic staff cooperates closely with the industry.

The centers of both cities have become stylish shopping areas with plenty of culinary highlights. The Limbecker Platz mall in Essen has raised the city's profile as a shopping destination considerably, and the same is true of the Forum on Duisburg's Königstraße, where the famous Lifesaver Fountain is located. Nearby recreational areas such as the Sechs-Seen-Platte in Duisburg and Essen's Baldeneysee are also very popular with visitors.

People from all parts of Germany and many other European countries have come to work and live in Duisburg and Essen. The friendly atmosphere of the cities and the warm welcome offered to foreigners by the local inhabitants are results from the smooth integration of many different nationalities over many decades.

The campus Duisburg is located adjacent to a wooded area. The city center is easily accessible through public transport. The campus Essen is located in walking distance to the city center. A periodical bus transfer between the two campuses is organized by the university.





University of Duisburg-Essen

Faculty of Engineering

Postal Address

University of Duisburg-Essen
Faculty of Engineering
Lotharstraße 1
47057 Duisburg
Germany

Contact

Support Center for (International) Engineering Students

Campus Duisburg:
SG 119
Geibelstr. 41
47057 Duisburg
Telefon: +49 203 379-3776
E-mail: scies@uni-due.de

Campus Essen:
V13 S03 C58
Universitätsstr. 15
45141 Essen
Telefon: +49 201 183-6500
E-mail: scies-essen@uni-due.de

www.uni-due.de/ise

