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BACHELOR (B.ENG.) INDUSTRIAL ENGINEERING AND MANAGEMENT

Industrial engineering has entered a revolutionary new phase with smart technologies increasingly used in manufacturing plants and supply chains across the globe. The demand for qualified engineers who are specialised in “Industry 4.0” and related fields is enormous.

The IU Bachelor in Industrial Engineering and Management prepares you with a combination of relevant business studies, expert knowledge of industrial engineering, and IT expertise that will allow you to understand and optimise processes for industrial companies everywhere. You’ll get to know features and applications for smart devices, smart technologies, and smart mobility—understanding how to use them create, innovate, and disrupt certain industries. You’ll become experienced with digital twins and similar technologies and be able to apply theoretical knowledge with the help of experimental kits and digital modelling in our virtual environment. After graduating, you’ll enter positions at the heart of digitisation and at the interface of many different industries.



Degree

Bachelor of Engineering (B.Eng.)



Duration

Online: 36, 48, or 72 months
On Campus: 36 months



Study start

Start online studies: Anytime
Start (on campus): then 4 times a year; Oct, Jan,
Apr or Jul



Credits

180 ECTS



Study model and accreditation

- Online studies or On Campus
- German accredited institution, recognised by ZFU (German Central Office for Distance Learning)

Study Content (180 ECTS)

PRESENCE TIMEFRAME	MODULE TITLE	SEMESTER	CREDITS (ECTS)	TEST TYPE
		1		
Oct/Nov/Dec	Scientific and Technical Fundamentals		5 ECTS	E
Oct/Nov/Dec	Introduction to Robotics		5 ECTS	E/WAWA
Oct/Nov/Dec	Management Accounting		5 ECTS	E/WAWA
Jan/Feb/Mar	Technical Drawing		5 ECTS	E
Jan/Feb/Mar	Collaborative Work		5 ECTS	OA
Jan/Feb/Mar	International Marketing		5 ECTS	E
		2		
Apr/May	Mathematics II		5 ECTS	E
Apr/May	Business 101		5 ECTS	E/WAWA
Apr/May	Managerial Economics		5 ECTS	E
Jul/Aug	Introduction to Academic Work		5 ECTS	BWB
Jul/Aug	Introduction to the Internet of Things		5 ECTS	E
Jul/Aug	Production Engineering		5 ECTS	E
		3		
Oct/Nov/Dec	Entrepreneurship and Innovation		5 ECTS	WAWA
Oct/Nov/Dec	Supply Chain Management I		5 ECTS	E
Oct/Nov/Dec	Intercultural and Ethical Decision-Making		5 ECTS	WACS
Jan/Feb/Mar	Electrical Engineering		5 ECTS	E
Jan/Feb/Mar	Project: Design Thinking		5 ECTS	WAPR
Jan/Feb/Mar	Sensor Technology		5 ECTS	E
		4		
Apr/May	Mechatronic Systems		5 ECTS	E
Apr/May	Automation Technology		5 ECTS	E
Apr/May	Data Analytics and Big Data		5 ECTS	WACS
Jul/Aug	Corporate Finance and Investment		5 ECTS	WAWA
Jul/Aug	Principles of Management		5 ECTS	WACS
		5		
Oct/Nov/Dec	Digital Business Models		5 ECTS	E/AWB
Oct/Nov/Dec	Agile Project Management		5 ECTS	WAPR
Oct/Nov/Dec	Project: Smart Product Solutions		5 ECTS	OPR
Jan/Feb/Mar	Seminar: Human-Robot Interaction		5 ECTS	WARE
Online	Elective A		10 ECTS	
		6		
Apr/May	Product Development in Industry 4.0		5 ECTS	E
Online	Electives B & C		20 ECTS	
Online	Bachelor Thesis		10 ECTS	WABT & PC

CHOOSE YOUR ELECTIVES

Choose one elective from

“Electives A” list*:

- Applied Robotics
- Applied Sales
- Autonomous Driving
- Cognitive Robotics
- Control Engineering
- Microcontroller
- Object-oriented Programming
- Service Robotics
- Smart Devices
- Smart Factory
- Smart Mobility
- Smart Services

Choose one elective from

“Electives B” list*:

- Practice Project: Industrial Engineering 4.0 (has to be done on campus)
- Project: Hackathon

Choose one elective from

“Electives C” list*:

- Applied Robotics
- Applied Sales
- Autonomous Driving
- Cognitive Robotics
- Control Engineering
- Internship**
- Microcontroller
- Object-oriented Programming
- Service Robotics
- Smart Devices
- Smart Factory
- Smart Mobility
- Smart Services
- Studium Generale

ELECTIVES

All of our study programmes offer a wide selection of industry-focused electives for you to choose from. Below you'll find more details on a select number of these courses—for the full list of electives available in this programme, please check the Course Schedule.

The electives that are a part of this study programme, are a cluster of courses dedicated to diving deep into a specific topic related to the programme. When choosing an elective, you get to explore a potential future career path, or just develop a strong knowledge base about a topic that particularly interests you.

In semesters 5 and 6 of this programme, you'll choose three electives, amounting to 30 ECTS. You have a wide range of options to choose from, according to your interests and ambitions. Some of the electives offered are:

SMART FACTORY

Dive into the world of production systems digital networking. Compare different digital architecture models for smart factory building. Tackle the unique engineering challenges that an autonomously operated and decentralized production facility offers. Come up with possible IT security solutions for these challenges, and gain an edge in the production management career field.

SMART SERVICES

This specialisation introduces you to methods and concepts in smart services development. First, you'll be given an overview of the link between digitalisation and the industry 4.0 idea, followed by a survey of the potential disruptive qualities of smart services and digital intermediaries. The third part of this specialisation includes a selection of some of the techniques used for establishing digitalisation potential, as well the available platforms for integrating smart services. Finally, a close examination of smart service implementation technologies will be presented.

CAREER OUTLOOK

After studying Industrial Engineering and Management, our bachelor graduates often work in manufacturing companies at the interface between business management and technical functions. Whether in management, engineering, or consultancy role - there are plenty of opportunities for talented professionals in this area.

SOLUTIONS ARCHITECT

IT systems are becoming increasingly complex and much more powerful. At the same time, optimised efficiency, reliability, and safety remain of key importance. To manage the increasing number of machines and products that are connected in real time in the digital age, you as an IT solutions architect take responsibility for the entire system design.

SOFTWARE ENGINEER IN INDUSTRY 4.0

As a software engineer, you plan, create, manage and distribute software systems. You are responsible for the operation and maintenance of products and for quality assurance. You regularly carry out system tests, evaluate the results and document them, and use your knowledge to improve existing systems or create entirely new ones.

DATA SCIENTIST

Data Scientists are the creative minds behind algorithms. You structure large amounts of data and compile usable information for your supervisor with the goal of identifying relationships between data sets. You carry out analysis to lead to new productivity and efficiency opportunities.

ADMISSION

We try to keep admission as simple as possible at IU. To successfully enrol, there are just a few requirements we need you to prove.

ADMISSION REQUIREMENTS

- Higher Secondary School Leaving Certificate such as A-Levels or IB Diploma and your transcript of records.
- A subject-related higher education entrance qualification.

Depending on your qualifications, you might have to meet additional requirements, such as successfully passing a university entrance examination or one of the following programmes to make sure you are ready to study with us:

- Bachelor Entrance Examination (included in Scholarship Program)
- Pathway Programme (for on-campus studies)

Please get in touch with our Study Advisory Team to find out the exact requirements applicable for your application.

SCHOLARSHIP PROGRAMME

Start in our Scholarship Programme as a participant with immediate access to 50% of your courses. You can do this by taking our Entrance Examination which will be included in your course as part of the Scholarship Programme. Once admission and the courses are completed, you can finish your degree.

Questions? Speak to your study advisor, they will guide you through every step of the process.

PROOF OF ENGLISH LANGUAGE SKILLS

We therefore ask for proof of your English language skills*. If English is your native language or you graduated from an English-speaking school/university, you don't need to prove your English skills.

Accepted certifications:

- English Courses (complimentary when signing up with IU)**
- TOEFL (min. 80 points) or
- IELTS (min. Level 6.0 out of 9 points) or
- Duolingo English test (min. 95 points) or
- Cambridge Certificate (min. B grade overall) or
- Equivalent proof

*Proof must be provided before the start of the study and must not be older than five years.

**Please note that English Courses aren't accepted as a language certificate for on campus study programmes.

8 STEPS TO COMPLETE YOUR STUDIES

1

Register and apply online

2

Choose your course

3

Download your study scripts

4

Work independently with study scripts

5

Take part in Q&A sessions

6

Prepare for exams and take them either:

- directly online, or
- at an IU examination centre (remember to register in time).

7

Bachelor thesis and colloquium

8

Complete your studies with certificate