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HSN 08.21/V1

STUDENT LIFE IN NORDHAUSEN

- A modern university and green campus
- Education at a high level
- Individual contact between students and instructors
- Teaching, learning and coaching occur in small groups
- Future-oriented and practical studies

Degree

- Internationally recognized Master of Engineering (M. Eng.) degree

Standard period of study/Credits

- 4 semesters in case you have a Bachelor's degree with 180 ECTS
- 3 semesters in case you have a Bachelor's degree with 210 ECTS

(ECTS = European Credit Transfer and Acumulation System)

Start date

- Winter semester 2022/23 (in case you have a Bachelor's degree equivalent to 180 ECTS)
- Summer semester 2023 (in case you have a Bachelor's degree equivalent to 210 ECTS)

Entry requirements

- Bachelor's degree in Computer Engineering or similar fields
- US-GPA above 2.5 (is equal to German grading system 2,5 or less)
- English proficiency (TOEFL iBT 79, IELTS 6.0 or completed Bachelor's programme in English)
- APS (students from China and Vietnam)

Application period and Application

The application period for the upcoming winter semester and summer semester is January 1st to April 30th at: www.uni-assist.de

The town of Nordhausen with its approximately 40,000 inhabitants lies beautifully in Northern Thuringia in the centre of Germany. Cities like Berlin or Leipzig, Erfurt or Göttingen are within easy reach.
Besides being economically important for the region, Nordhausen offers a wide range of leisure facilities. Close to the Harz mountains, Nordhausen is very popular for outdoor activities. e.g. hiking and mountain biking.
The costs of living in Nordhausen are moderate. Accommodation in dorms as well as private lodgings is available at low rates.

COMPUTER ENGINEERING FOR IoT SYSTEMS

International Master Degree Programme

NO TUITION FEES

TEACHING IN ENGLISH

HOCHSCHULE NORDHAUSEN
University of Applied Sciences

INTERNATIONAL | INTERDISCIPLINARY | FUTURE-ORIENTED

THE DEGREE PROGRAMME

"Computer Engineering for IoT Systems"

To address the shortage of professionally qualified specialists in this area of IoT, the University of Applied Science Nordhausen introduces a new full-time Master's programme Computer Engineering for IoT Systems.

The programme provides an introduction to the disciplines that are part of typical IoT solutions such as Microelectronics, Cloud Computing, Embedded Software, Wireless Networking, Data Science and Artificial Intelligence. The programme emphasizes the relations of these disciplines and shows ways to combine them for a complete solution. The wide range of involved disciplines makes it an academically challenging programme.

Within the programme, the students will learn

- How to plan, implement and manage create efficient and secure IoT solutions.
- How to implement mobile usage scenarios for digital business models.
- How to support consumer and industrial IoT solutions with cloud and on-premise IT.
- How to assess protocols, standards, vendors and design.
- How to discuss and present technical solutions.

As part of the programme, international students can take one module of German that will help them to connect to local companies.

The last months of the degree programme are dedicated to a master thesis project. With the department's help, the students shall find an internship and will be challenged to apply their skills at real-world clients and to write an academic report.

Starting from its foundation in 1997, the University has years of teaching and research experience in all the disciplines related to the new programme ensuring an up-to-date and practice oriented course of study. University labs provide an opportunity to improve students' skills in a hands-on environment.

MASTER PROGRAMME AT A GLANCE

Conditions of access for the Master degree programme
The Master program can be accessed with a Bachelor's degree of 180 or 210 Credits according to the European Credit Transfer System (ECTS) in Computer Engineering or a similar field. Graduates of international Bachelor degree programs corresponding to 180 Credits need to attend a qualification semester at University of Applied Sciences Nordhausen with 30 Credits right before the 1st semester starts. The qualification semester always starts in October of each year. The 1st semester always starts in April.

Semester - Overview of the modules

QUALIFICATION	1st	2nd	3rd
M 870 Basics in Electrical Engineering	**M 787** Embedded Systems	**M 785** Mobile Software Systems Engineering	**M 940A** Masterthesis
M 716 Information and Communication Technology	**M 781** Dependable System Design	**M 786** Cloud Computing and Big Data	
M 873 Scientific Practice	**M 782** Embedded Software Design and Programming	**M 780** Wireless Sensor Networks	
M 255 Distributed Systems	**M 783** Signals and Control	**M 788** IT-System Performance Analysis	
M 907 Cultural Studies and Scientific Writing	**M 784** Seminar on topics in computer engineering	**M 789** Scientific Seminar	
Foreign Language Module	Obligatory Elective Course	Obligatory Elective Course	**M 940B** Presentation and Defense
30 Credits	30 Credits	30 Credits	30 Credits

— Qualification semester (mandatory for Bachelor graduates with 180 ECTS Bachelor)

TECHNOLOGICAL DEVELOPMENTS

The world of tomorrow will be highly automated, data driven and interconnected. Recent advances in wireless and cloud computing as well as battery technology expanded the possible use of IoT solutions. Intelligent, complex and decentralized solutions are being created for consumer use (smart home), manufacturing (Industry 4.0), utilities (smart grid), urban services (smart city), agriculture, retail, health care, telecommunication, transport and logistic, military and navy. Autonomous cars are one of the most complex and most elaborate uses of IoT in combination with artificial intelligence.
One of the driving forces behind the developments is the need to reduce the ecological footprint by intelligent resource usage. On the other hand, smart devices support large-scale automation of routine work which makes them attractive for many industries.

CAREER PROSPECTS

There is a widespread need for specialists because the development of new IoT solutions in most companies is limited due to a lack of IoT engineers. Due to the technical complexity, a master's degree is commonly expected.
Both small companies with special highly technological products as well as large multinational corporations need the knowledge and skills of IoT experts. Since most highly technical products are planned for international markets and vendors rely on global suppliers, the graduate should expect an internationally oriented work environment.
The suitable jobs involve planning and development of new products based on mobile networking, sensors and mechanical devices. Supplementary activities involve quality assurance, documentation, security configuration, operational rollout.
Depending on personal interest and skills, the graduates can also work in research and make a postgraduate programme or become a product manager. Many skills from the degree programme are highly relevant for related technical areas such as robotics, measuring equipment, production lines.