



## Executive Education for Engineers

### Part-Time Master's Programs & Certificate Courses

*Download this brochure* →



# Technology & Management Know-How

Quality Made by the Karlsruhe Institute of Technology (KIT)

## Technology Business School of the KIT

The Karlsruhe Institute of Technology (KIT) is the largest institution for research and education in Germany. Globally known for its technology expertise in German engineering, KIT is famous for its research, excellent scientific education, lifelong learning, comprehensive advanced training, and a sustainable culture of innovation.

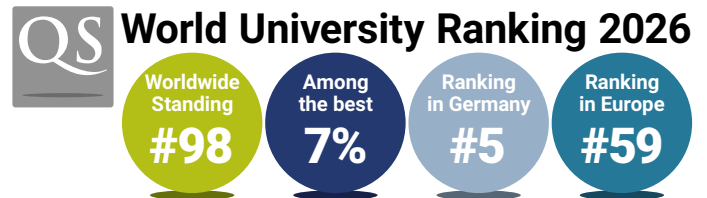
## Continuous Education on the Highest Academic Level

The HECTOR School is the Technology Business School of the KIT named after Dr. Hans-Werner Hector, one of the co-founders of SAP AG. The school endeavors to provide professionals with state-of-the-art technology expertise and management know-how in part-time education formats. With executive master programs, certificate courses, and customized partner programs, the HECTOR School fosters lifelong learning approaches of its industry partners and the executive development of its graduates.

## Your Success is Our Vision

The HECTOR School strives for sustainable and continuous education on the highest academic level, building on more than 10 years of experience. The growing need for qualified engineers, computer scientists, and economists demonstrates HECTOR School's vision: sustainable success of our graduates & their companies.

\*Current rankings prove the quality of KIT, e.g.:



In times of transformation of entire business areas, whether through the possibilities of new digitalization technologies or the major social issues such as climate change and necessary CO<sup>2</sup> reduction, it is central for companies and employees alike to integrate needs-based training formats into the development strategy.

For more than 15 years, KIT's HECTOR School has been a strong partner in bringing current topics from research to teaching for professionals at the highest level. It is important to us that you are able to combine your professional and academic challenges in the best possible way and that we make you fit for future technology decisions in your industry together with the necessary management skills.

**Dr.-Ing. Judith Elsner**

Managing Director HECTOR School



# Holistic Educational Approach at a Top Ranked Research University

## Executive Education @HECTOR School

### Technology Transfer & Innovation

from the  
internationally  
renowned  
university -  
the KIT.

### Power of Networks

Benefit from a  
comprehensive professional  
network of academemics  
and industry partners  
worldwide.

### Part-Time Programs

allow for simultaneous  
work and study for  
participants and their  
companies.

### Management & Engineering

combined makes  
our programs  
unique

and ensures  
long term  
sustainability and  
competitiveness.

## REASONS

for the Technology  
Business School of the KIT

## HECTOR SCHOOL

OF ENGINEERING & MANAGEMENT

### Executive Master of Science Programs Combining Engineering & Management Know-how

Energy Engineering and Management | Financial Engineering | Information Systems Engineering & Management |  
Management of Product Development | Mobility Systems Engineering & Management |  
Production & Operations Management

## HECTOR SCHOOL

ACADEMY OF FURTHER EDUCATION

### State-of-the-Art Technology Expertise in Compact Education Formats

Certificate of Advanced Studies (CAS) | Customized Qualifications for Companies | Module Selection | Certificate  
Courses for Companies | Management Impulse | MBA Fundamentals Program



# A Strong Cooperation with Industry

Lifelong Learning Programs Stimulate Innovation and Competitiveness



## Challenges for industry

The challenges facing the industry are many: A shortage of skilled workers and managers, demographic shifts, globalization and working across time zones, 24/7 access to customers, and changing values and lifestyles of the working population. These factors are creating new challenges for companies to retain employees and attract new talent.

## Challenges for employees

Today's businesses are subject to more rapid change than even a few years ago. Markets are global, and technologies in manufacturing, energy, and automation continue to evolve at a rapid pace. Professionals need to keep moving in order to remain attractive as employees. This means not only staying current in your field, but also being flexible and ready to meet new challenges.

## Benefits for industry and employees

The solution to modern challenges lies in adopting a lifelong learning approach, enabling professionals to enhance their skill set and value through continuous education programs. Similarly, lifelong learning is crucial for companies in fostering human resource development and retention.

Lifelong learning programs with universities offer numerous benefits by combining academic rigor with practicality.

## Technology transfer & innovation

The Karlsruhe Institute of Technology (KIT) conducts cutting-edge research benefiting industries. Participants in the HECTOR School program receive top-tier academic training, acting as liaisons between their companies and the KIT. The Master's thesis frequently initiates close collaborations through joint innovation projects.

## Management & technology

Participants in the program are equipped with scientific methods, technology expertise, management skills, and digitalization know-how to enhance their company's innovation potential, creativity, and prepare for future executive roles.

## Power of networks

The HECTOR School equips graduates with a valuable global professional network through connections at KIT and with alumni worldwide.

## Part-time programs

HECTOR School's programs allow students to pursue high-level academic qualifications while working. The part-time approach allows working professionals to continue their challenging careers.



# Continuing Professional Qualification as a Key Success Factor

»Digital transformation requires a fundamental shift in strategy. It is imperative that all processes involve stakeholders in these dynamic processes. Employee training and qualification are key success factors in this digital transformation.

As a partner, the HECTOR School provides valuable support in the continuous training of our employees and fosters technological know-how and innovative potential, thus ensuring a successful internal and external digitalization.«

**Klaus Helmrich**

Chairman GEA Group Aktiengesellschaft



**ABB AG • Alcatel-Lucent Deutschland AG • Alcatel Transport Solutions Deutschland GmbH • Alten Technology GmbH • Audi AG • Balluff GmbH • BASF IT Services GmbH • BASF SE • BBBank eG Bearing Point GmbH Behr-Hella • Thermocontrol GmbH • Blohm+Voss Nordseewerke GmbH • B M W G r o u p • Bombardier Transportation GmbH • Bosch Rexroth AG • Brose Fahrzeugteile SE & Co. KG • Continental AG • DAIMLER AG • DB Fernverkehr AG • DB ProjektBau GmbH • Deloitte Touche Tohmatsu Limited • DZ Bank AG • Eisenmann SE i. Ins. • El-Khayyat • ELO Digital Office GmbH • EnBW • Endress + Hauser AG • Enpower Energy Corp. • EUROHYPO AG • EvoBus GmbH • Festo SE & Co. KG • FFG Europe & Americas • Fine Hygienic Paper Co. Ltd/ Nuquul Group • Hewlett-Packard GmbH • Hikma Pharmaceuticals PLC • Howaldtswerke-Deutsche Werft GmbH • IBM Deutschland GmbH • Karl Dungs GmbH & Co. KG • Knorr-Bremse AG • KPMG AG • KSB SE & Co. KGaA • Landesbank Baden-Württemberg (LBBW) • Lufthansa Technik AG • MAHLE Behr GmbH & Co. KG • Mahle GmbH • MAN Truck & Bus SE • MBtech Consulting GmbH • MELEC GmbH • Melexis GmbH • MERCEDES-BENZ AG • MiRO Mineraloelraffinerie Oberrhein GmbH & Co. KG • Navistar, Inc. • NXP Semiconductors. • OBE, Ohnmacht & Baumgärtner GmbH & Co KG • P3 GROUP GMBH • Porsche AG • PROMATIS software GmbH • Reuters AG • Robert Bosch GmbH • Rolls-Royce Power Systems AG • SAMARCO Brazil • SAP SE • SAS Autosystemtechnik Verwaltungs GmbH • Schaeffler Technologies AG & Co. KG • Schuler AG • SEW-EURODRIVE GmbH & CoKG • Sick AG • Sictel s.r.l. • Siemens AG • Sparkasse Karlsruhe • Staufen AG • Telekom Deutschland GmbH • Thales Group • thyssenkrupp Marine Systems GmbH • thyssenkrupp rothe erde Germany GmbH • ThyssenKrupp Technologies AG • TI Fluid Systems • T-Systems International GmbH • Unilever • Vale S.A. • Verband der Deutschen Bahnindustrie (VDB) e.V. Vibracoustic SE • Volkswagen AG • WMF Group GmbH • WSP Global Inc. • XING AG • Ziehl-Abegg SE • Zwick GmbH & Co. KG**

# Executive Master of Science Programs

Cutting-Edge Technology Combined with the Latest Management Expertise



## Part-Time Master Programs for Professionals

Your Next Step in a Successful Career

### Six executive master of science programs

The HECTOR School offers six part-time master programs designed for professionals in leading positions. The master programs differ from the typical MBA program in that they combine management and engineering expertise. The primary goal is to enable professionals to take a holistic approach to managing highly interdependent processes. All programs are completed with a Master of Science degree from the Karlsruhe Institute of Technology (KIT).

### Leadership know-how for engineers

All programs share five management modules that provide the participants with general knowledge in finance, accounting, marketing, international multi-project management, international law, human resource management or innovation management. This enables them to anticipate the business impact of project decisions.

### Technology expertise: more than just an MBA

In addition to the management modules, five engineering modules in each specialization provide state-of-the-art technology knowledge and the methodology necessary to master the scope of new technologies.

### Acquire the skills to succeed in digitalization

Products, services, and processes are being transformed into digital representations for greater productivity and efficiency. To achieve this, business units are required to develop a systematic and holistic approach to the increased use of digital components. All master's programs consider digitalization on a comprehensive level.

### Part-time structure for professionals

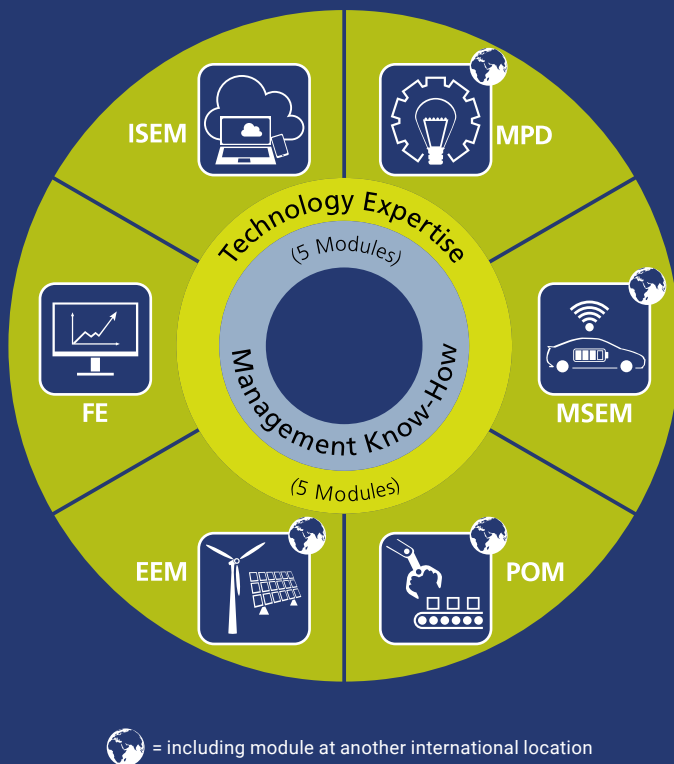
The academic calendar begins each year in October. It consists of 10 modules, each lasting 10 days. Intermittent lecture periods are scheduled to allow participants to continue their demanding careers while acquiring new skills.

All master's programs are taught in English. They are completed in approximately 20 months. Workshops and case studies provide ample opportunity to explore the direct application of module content, simulating a real business environment.

### Master thesis as an innovation project

The master thesis allows participants to work independently, reflecting their own company's individual critical needs and their specific business environment. Companies and participants have the unique opportunity to establish innovation projects within the framework of a master's thesis. Thus, companies benefit from an outstanding added value with consulting by KIT professors.





#### Master's Programs

<b>EEM</b>	Energy Engineering & Management
<b>FE</b>	Financial Engineering
<b>ISEM</b>	Information Systems Engineering & Management
<b>MPD</b>	Management of Product Development
<b>MSEM</b>	Mobility Systems Engineering & Management
<b>POM</b>	Production & Operations Management

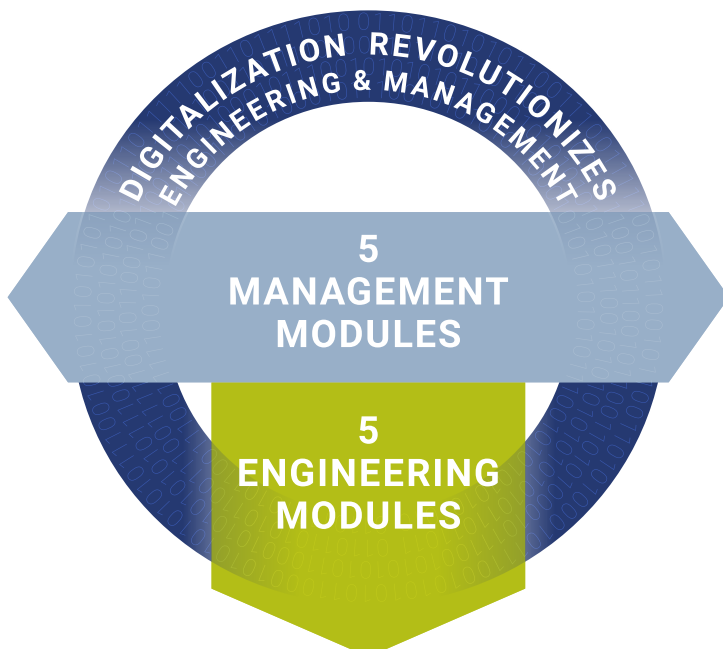
All master's programs share five management modules that teach the latest theories and methods in management. Participants from different industries and international locations can exchange their expertise, discuss current technological and business challenges from different perspectives and build a lasting network of peers.

## Management Modules

Included in all master's programs

#### Big Picture Management Modules

Management is becoming increasingly complex and networked in data-driven organizations (INFORMATION). As a result, engineers and managers must gain a holistic understanding of all areas of the business in order to make complex decisions (DECISIONS & RISK) from the perspective of the market (MARKETING & DATA SCIENCE), employees (STRATEGY & PEOPLE), and the company (FINANCE & VALUE) in a forward-looking and results-oriented manner (INNOVATION & PROJECTS).



#### Co-Program Directors Management Modules



##### Prof. Dr. Stefan Nickel

Institute of Operations Research, KIT  
Master's Program EEM, MSEM, POM

##### Prof. Dr. Martin E. Ruckes

Institute of Finance, Banking, and Insurance, KIT  
Master's Programs FE, ISEM, MPD

#### Management Modules

- MM 1** Marketing & Data Science
- MM 2** Finance & Value
- MM 3** Decisions & Risk
- MM 4** Innovation & Projects  
Corporate Innovation and Entrepreneurship (EEM, MSEM) 
- MM 5** Strategy & People



# Six Master of Science Programs (M.Sc.)

## M.Sc. in Management of Product Development (MPD) Agile Engineering of Mechatronic Systems



»Product development is the driver of innovation. In MPD, you learn to manage product development in an efficient, methodical, creative and success-oriented way. With the scientifically sound and practice-oriented training program for professionals, you become qualified to be the driving force for successful product innovation in your company.«

**Prof. Dr.-Ing. Dr. h.c. Albert Albers**

Institute of Product Engineering, KIT | Program Director MPD

### Engineering Modules

- EM 1** Integrated Product Development by ASD – Agile Systems Design
- EM 2** Design & Validation Process and Information Systems for Product Development (PD)
- EM 3** Simulation and Target Values in PD
- EM 4** Validation and Verification in PD
- EM 5** Tools and Methods of Product Engineering →

## M.Sc. in Production & Operations Management (POM) Global Production, Digital Transformation in Supply Chain Management and Logistics



»The design and operation of production systems and supply chains is undergoing a rapid change. Driven by new technology, as reflected by industry 4.0, the education of the past is no longer sufficient to guide companies through the changes.

A master in POM equips participants with the necessary competences, bridging the gap between up-to-date theories and advanced technologies.«

**Prof. Dr.-Ing. Kai Furmans**

Institute for Material Handling & Logistics, KIT | Academic Director of the HECTOR School and Program Director POM

### Engineering Modules

- EM 1** Data Driven Engineering & AI
- EM 2** Model Driven Digital Engineering
- EM 3** Operations Management for Supply Chain Networks
- EM 4** Networks of Supply & Production Systems

Specialization in Germany

Specialization in China

- EM 5** Autonomous Robotics

- EM 5** Global Production & Distribution Systems

## M.Sc. in Mobility Systems Engineering & Management (MSEM) E-Mobility, Autonomous Driving & Systems Engineering



»The master program MSEM offers a unique combination of courses in emerging technologies & systems engineering. Processes, methods and tools for the challenges of future mobility in e-drive, autonomous driving, communication-over-

the-air, and worldwide release & configuration management are introduced on the engineering as well as on the management side.«

**Prof. Dr.-Ing. Eric Sax**

Institute for Information Processing Technology, KIT | Program Director MSEM

### Engineering Modules

- EM 1** Processes, Methods & Tools of Systems Engineering
- EM 2** Systems Design
- EM 5** Systems Integration & Validation

Specialization Advanced Driver Assistance Systems (ADAS)

Specialization E-Mobility

- EM 3** Functions of ADAS
- EM 4** Components & Technologies of ADAS

- EM 3** E-Mobility: Political & Technical Framework
- EM 4** E-Mobility: Components & Technology

Expand Career Opportunities through Advances in Digitalization and Globalization in the areas of Product Innovation, Logistics, Mobility, Energy, Finance, and Industry 4.0.

## M.Sc. in Energy Engineering & Management (EEM)

Future Energy Systems and Technologies



### Program Directors EEM:

**Prof. Dr.-Ing. Marc Hiller**  
Institute of Electrical Engineering, KIT

**Prof. Dr. Stefan Nickel**  
Institute of Operations Research, KIT

»The energy transition is associated with many challenges, such as an increase in efficiency of energy conversion systems based on renewable energies and their integration into future energy systems. This requires e.g. the development of capable energy storage systems and an intelligent demand side management. EEM covers all these aspects and provides the skills to successfully face the challenges.«

### Engineering Modules

- EM 1** Renewables
- EM 2** Energy Conversion
- EM 3** Electricity Generation & Energy Storage
- EM 4** Smart Networks & Energy Distribution
- EM 5** Energy Economics

## M.Sc. in Financial Engineering (FE)

Data Science, Machine Learning, and Predictive Analytics



### Program Directors FE:

**Prof. Dr. Martin E. Ruckes**  
Institute of Finance, Banking, and Insurance, KIT

**Prof. Dr. Maxim Ulrich**  
Institute of Finance, Banking, and Insurance, KIT

»Building more accurate models reduces uncertainty around future events and paths the way to better decision making. A mix of broad decision-making applications, sound data and modeling work, paired with an entrepreneurial drive to solve innovation challenges using modern software and financial thinking makes Financial Engineering unique.«

### Engineering Modules

- EM 1** Digital Financial Markets
- EM 2** Financial Economics for Data Scientists
- EM 3** Machine Learning for Data-Driven Decision Making
- EM 4** Engineering Aspects of Financial Markets
- EM 5** Alternative Data and Machine Learning for Business Applications

## M.Sc. in Information Systems Engineering and Management (ISEM)

Digital Transformation of Products, Services, and Organizations



### Program Directors ISEM:

**Prof. Dr. Andreas Oberweis**  
Institute of Applied Informatics and Formal Description Methods, KIT

**Prof. Dr. Ralf Reussner**  
Institute for Program Structures and Data Organization, KIT

»Digitalization enables new business models, creates new service opportunities and redefines existing products. This transforms our economy towards software realized added values in an unprecedented way. Hence, the capabilities of efficiently developing high quality software are becoming crucial for nearly for all enterprises. In our Master's program accordingly we concentrate on software engineering, software quality, in particular security, cloud service engineering and AI.«

### Engineering Modules

- EM 1** Digital Platforms & AI
- EM 2** Software Engineering
- EM 3** AI Supported Process & Knowledge Engineering
- EM 4** Security & Privacy Engineering

Specialization	
<b>EM 5</b> Digital Services	<b>EM 5</b> Autonomous Robotics

# Key Facts



## Job-Compatible Format and an Ideal Work-Study Balance

Part-Time, English-Taught, Duration of 20 Months

### Academic Degree

Master of Science (M.Sc.) from the KIT

### Accreditation

The KIT is system-accredited by AAQ.



All HECTOR School master programs are accredited by the internal quality assurance system of the KIT.

### Admission Requirements

A first academic degree: e.g. Bachelor, Master or Diploma

At least 1-2 years work experience (depending on the level of the first degree, recommended > 3 years)

If English is not your mother tongue nor has it been the language of instruction for the last five years, language proficiency is required, e.g. test certificate (e.g. TOEFL score of at least 570 PBT; 230 CBT; 90 iBT or IELTS at least 6,5 points) or appropriate proof of C1 level.

### Program Structure

Part-time, 10 x 2-week modules

Duration of approx. 20 months

Master thesis = project work in the company

5 engineering and 5 management modules

Teaching language: English

Yearly program start: October



# Academic Calendar

September 2025							October 2025							November 2025							December 2025								
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MM2	13	14	15	16	17	18	09	10	11	12	13	14	15	09	10	11	12	13	14	15	MM3	14	15	16	17	18	19		
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MM4	15	16	17	18	19	20	12	13	14	15	16	17	18	09	10	11	12	13	14	15	14	15	16	17	18	19	20		
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28	29	30					EM5	27	28	29	30	31		23	24	25	26	27	28	29	28	29	30	31					

	Welcome Event
MM	Management Modules
EM	Engineering Modules
	Exams

Please note: Dates are subject to change.

The academic calendar for each program starts annually in October. It consists of 10 modules, each with a duration of 2 weeks.

All programs conclude with a **Master Thesis**:

>> 9 months project work **MPD, POM, MSEM, EEM**

>> 6 months project work **ISEM, FE**

Intake  
2025

Project Work on Master Thesis		Regular		Earliest		Time Schedule Thesis	
Start		January 1, 2027		/		November 1, 2026	
  Completion by		June 30, 2027		/		April 30, 2027	
    Completion by		September 30, 2027		/		July 31, 2027	
You can start your thesis earliest after completing 8 modules. Latest start of your thesis is after your 10 <sup>th</sup> module. The thesis must be completed after 6 months for ISEM and FE, and after 9 months for MPD, POM, MSEM and EEM.							



Timetable

# Internationality is Key

Benefit From a Lively Intercultural Exchange



## Become Part of a Powerful, Global Multi-Industry Community

### **International orientation for global success**

During your time at the HECTOR School, you will advance in the three dimensions of technology knowledge, management skills and personal development. In addition to the professional topics taught at the HECTOR School, the international environment plays an essential role. Grow professionally and interpersonally together with your fellow students. Experiences from working in different countries and industries and cross-cutting projects will enrich your use cases during your studies - and your entire future working life.

### **Experience the world through study-abroad modules**

To provide our students with a globally relevant international experience and insights from experts in their field, some of the Master's programs include a study abroad module.

### **Gain insights into the world's emerging economy: China**

Global production structures, mechanisms and networks are shaping more and more industries. China in particular is a gigantic and diverse market with enormous dynamism - but also full of its own challenges. At the KIT spin-off Global Advanced Manufacturing Institute (GAMI) in Suzhou Industrial Park, near Shanghai, participants of the Master's program „Management of Product Development“ and „Production and Operations Management“ have the opportunity to experience the development of industry 4.0 and AI.

### **Be inspired by the innovations of ESADE Business School in Spain**

The business school ESADE (Escuela Superior de Administración y Dirección de Empresas) in Barcelona is among the best in terms of educational experience, entrepreneurship and professional development. In the management module “Corporate Innovation & Intrapreneurship” of the master programs “Energy Engineering and Management” and “Mobility Systems Engineering and Management”, innovation is considered as a holistic system. Participants benefit from the world-class innovation incubator and grow closer together through their stay in Spain.

### **Global network of industry partners & peers**

HECTOR School students come from all over the world. This fosters intercultural exchange with other professionals. Due to the holistic approach, HECTOR School participants share the management modules with peers from different industries and backgrounds. This ensures a global and interdisciplinary network that lasts a lifetime.

After graduation, the HECTOR School offers a professional network with alumni activities ranging from social media channels to alumni reunions in cooperation with exclusive industry partners.

# Become a HECTOR School Master

Leadership Know-How for Demanding Careers



»I have lively memories of my application interview for the HECTOR School and Prof. Kai Furman's promise: „We will make you push your limits.“ An inspiring international environment, people from different industries and working fields, and the link to a state-of-the-art understanding of production and logistic systems provided me with a solid basis for the progression of my professional career. A challenging and enriching experience – promise kept!«

**Stefan Oehmke**

**Master in Production & Operations Management**  
EVP Business Unit DRIVE Solutions at Vibracoustic SE & Co. KG



»Studying at the HECTOR School was exactly the right decision. Besides the studies themselves, the network makes the HECTOR School unique. Through the studies, new friendships have formed and even years later you have the opportunity to be connected through the alumni program and always meet new, exciting people. In the meanwhile, my co-workers are studying at the HECTOR School.«

**Britta Daffner**

**Master in Information Systems Engineering and Management (former SME)**  
Practice Leader, Data & Technology Transformation at IBM



More Alumni

Voices



# HECTOR School Academy

Lifelong Learning Partner with Compact Qualification Formats



## Further Education in Engineering and Management

For managers and specialists

Flexible lifelong learning solutions are one of the key competencies of the HECTOR School. Paradigm shifts in technology require high-end training. Engineers in all industries need regular updates on the latest technology to ensure their personal careers and the future technological development of their companies.

The HECTOR School Academy addresses these needs and offers programs that provide employees with specialized training in their field.

Companies master the digital transformation with the latest know-how from a world-class university. In addition, small groups offer strong knowledge growth and enhance team building.

Lifelong learning is provided through customized training for companies. In addition, the latest scientific knowledge in new technologies is taught in a practical way. This is done using didactics suitable for adults.

Modern classrooms and living labs: Our continuing education programs combine theoretical and practical elements.

A high degree of planning security for all participants is essential to ensure that the challenging training is compatible with the demanding professional environment.



The entire portfolio of the HECTOR School Academy is based on the currently relevant areas of energy, digitalization, Industry 4.0, and mobility.



»The qualified colleagues are all very satisfied and approach their mostly new tasks with great enthusiasm and motivation. The transfer of professional knowledge at the HECTOR School as well as the perfect organization played a major role in this. We also appreciate the constant and open exchange with the team.«

**Dr. Philippe Gorse**

Director Fuel Cell Solutions at Rolls-Royce Solutions GmbH

	Certificate of Advanced Studies (CAS)	Module Selection	Customized Qualifications	Certificate Courses	Management Impulse	MBA Fundamentals
						
Target Group	Professionals, career changers or organizations that want to equip their employees with the latest knowledge & skills	Engineers, mechanical engineers, computer scientists	Companies that want to realign projects, teams and departments	Engineers, mechanical engineers, computer scientists	Upper management	Natural scientists who are pursuing a PhD or have recently started their professional life
Duration	4 x 3-4 days of intensive learning	2 weeks	Customizable with a recommended 3-phase setup of 1-2 weeks per phase	3-5 days	1-2 days	5 days per unit
Group Size	tbd	5-25 participants	Customizable with a recommended 15-20 people	5-15 participants	5-10 participants	10-25 participants
Language	English or German (upon request)	English	English or German	English; individual company requests for lectures in German can be considered	English or German	English
Certificate	Certificate of Advanced Studies worth 10 ECTS points	KIT and HECTOR School certificate after participation. Exam and ECTS credits are available upon request	KIT and HECTOR School certificate after participation. Exam and ECTS credits are available upon request	Certificate from the Karlsruhe Institute of Technology (KIT), correlation: 1-3 ECTS	KIT and HECTOR School certificate after participation	MBA Fundamentals Certificate from Karlsruhe Institute of Technology (KIT) worth 18 ECTS
Extensions	–	The courses are creditable to the corresponding master program	Master's programs, Management Teaser	–	–	Credit points earned in this MBA Fundamentals Program are recognized in international MBA programs
Cost	€ 5,970	€ 3,500 per participant per module	Individual offer on request	€ 2,495 per participant per 3 day course € 3,500 per participant 5 day course	Individual offer on request	€ 2,750 per participant per unit

# HECTOR SCHOOL

## ACADEMY OF FURTHER EDUCATION

### Certificate of Advanced Studies (CAS)



A CAS (Certificate of Advanced Studies) is a focused qualification for professionals, combining practical experience with industry insights for rapid knowledge integration.

HECTOR School currently offers CAS programs on **systems engineering, e-mobility, and automated driving**. They are developed by top experts from academia and industry. Participants benefit from hands-on learning and access to cutting-edge KIT mobility research to take their engineering expertise to the next level and become a key driver of innovation within their organization.



### Module Selection



#### Customize your learning experience through selectable modules

In just two-week modules, participants gain up-to-date knowledge on topics that interest them. Choose individual modules from a Master's program to quickly acquire the skills and competencies you need.

**38 topics are available.**

#### ■ Five topics from Management:

Marketing & Information, Finance & Value, Decisions & Risk, Innovation & Projects, Strategy & People

#### ■ Five topics from Production and Operations Management:

Collaborative Engineering in Production and Operations Management, Digital Engineering Ecosystems, Operations Research: Decision Making with Discrete and Nonlinear Models, Networks of Supply and Production Systems, Global Production and Distribution Systems

#### ■ Six topics from Information Systems Engineering:

Digital Platforms, Software Engineering, Process & Knowledge Engineering, Security & Privacy Engineering, Digital Services, Autonomous Robotics

#### ■ Five topics from Financial Engineering:

Digital Financial Markets, Financial Economics for Data Scientists, Machine Learning for Data-Driven Decision Making, Engineering Aspects of Financial Markets, Alternative Data and Machine Learning for Business Applications



#### ■ Three topics from Mobility Systems Engineering:

Processes, Methods and Tools of Systems Engineering, Systems Design, Systems Integration and Validation

#### ■ Two topics from Advanced Driver Assistance Systems (ADAS):

Functions of ADAS, Components and Technology of ADAS

#### ■ Two topics from E-Mobility:

Political and Technical Framework, Components and Technology

#### ■ Five topics from Energy Engineering:

Engineering Principles, Renewables, Thermal Energy Conversion, Electricity Generation & Energy Storage, Smart Networks & Energy Distribution, Energy Economics



## Customized Qualifications for Companies



### Companies and employees in the transformation process

The HECTOR School Academy supports companies undergoing transformation with its Customized Qualification program, focused on re-qualifying engineers. This program addresses challenges in energy, information, and mobility systems, providing participants with exclusive access to the latest technology and innovation trends.

Companies benefit from tailored continuing education that accelerates change, ensures planning security, and delivers practical, company-specific solutions. Close cooperation with industry guarantees that course content aligns with modern workforce needs.

#### ■ Topics

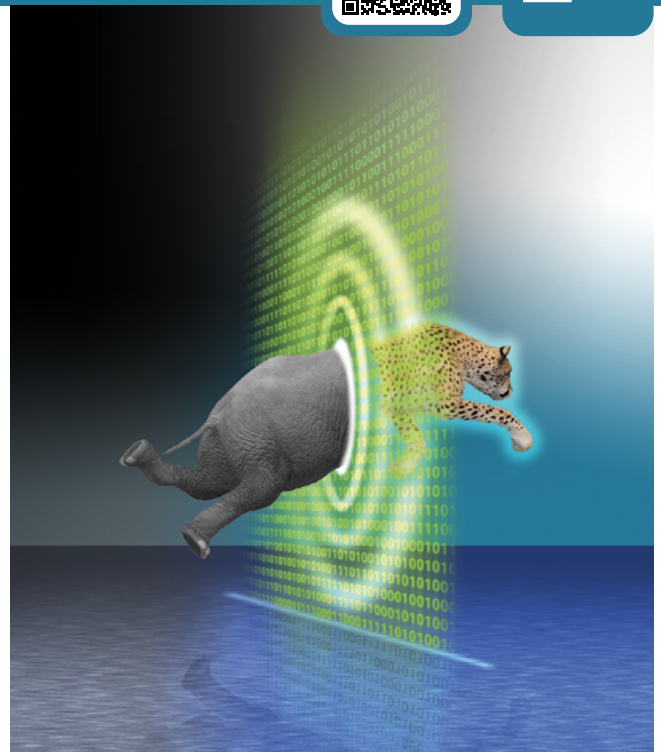
The HECTOR School Academy helps companies and employees navigate shifts in e-mobility, renewable energy, global production (Industry 4.0), and digital transformation.

#### ■ Methodology

Courses feature in-depth discussions with lecturers on technical topics, contextualized for broader industry relevance, ensuring high engagement and learning success.

#### ■ Structure

Most programs follow a three-phase model: 2-3 weeks of basics, 1-2 weeks of specialization, and a final Master's program (approx. 20 months) for experts.



### Best Practice Workflow for Your Transformation Projects

#### Basic

e.g. a selected group of engineers will be trained in current scientific know-how on new technologies.

#### Specialization

e.g. 80% of the basic phase attendees will get further insights to implement the transformation process.

#### Experts

e.g. the top 10% will gain additional knowledge in engineering and management topics to lead the digitalization process in the company.

# HECTOR SCHOOL

## ACADEMY OF FURTHER EDUCATION

### Certificate Courses



#### Compact Part-Time Education Formats

In 3- to 5-day compact seminars, professionals gain up-to-date technology expertise directly sourced from the latest KIT research. These high-level, yet practically oriented, Certificate Courses equip engineering professionals with knowledge on current technological issues, focusing on four key fields of technology.

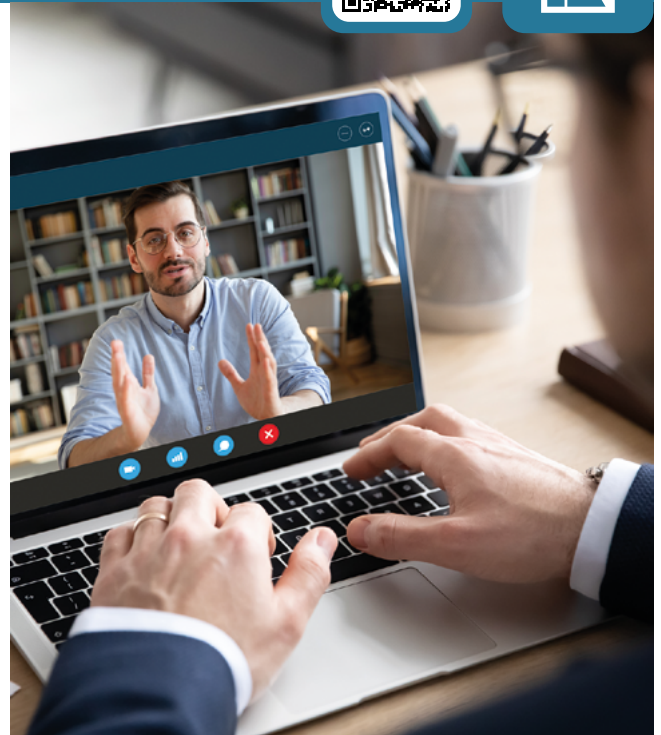
#### International Certificate Courses

To offer first-hand insights into specific technological environments and promote intercultural exchange, these Certificate Courses are available not only in Germany but also at international locations, such as Suzhou, China.

In collaboration with global partner institutions, HECTOR School provides engineers with advanced expertise. Participants benefit from a blend of lectures and case studies, delivered both on-site and remotely, sharing cutting-edge research and industry knowledge.

#### Examples of Certificate Course Fields

The listed courses are examples, as HECTOR School also offers customized seminars upon request and frequently updates its course offerings.



#### ■ Industry 4.0

Smart Manufacturing & Automation with Industry 4.0

Quality & Supplier Management in China

Systems & Software Engineering

#### ■ Digitalization

Internet of Things: Modern Network Infrastructures

Information & Knowledge Management

Digitalization of Service Systems

Data Science

#### ■ Mobility

Technology of Hybrid & Electronic Vehicles

Digital Signal Processing

Integrated Photonics

Charging & Energy Management

#### ■ Energy

Renewables Generation & Grid Integration

Battery Technology

Electrical Engineering

Fuel Cell

### Management Impulse



#### Your challenges are our standards

With HECTOR School's Management Impulse, pioneering new technologies and engaging your employees has never been easier. By collaborating with top researchers and industry experts, we deliver the latest technological advancements to support executives in driving impactful change within their companies.

What are the upcoming challenges in energy transition, digital transformation, globalization, product innovation, and automation—and how will you address them? With our guidance, you'll become a technology thought leader and design your own roadmap for success.



## MBA Fundamentals Program



### MBA Fundamentals Program

For researchers looking to enhance their careers with management expertise, this compact MBA program is tailored for those with a background in natural sciences or engineering.

It offers research-oriented methods and high flexibility, allowing six of the nine units to be taken in any order and at any start. Each five-day unit addresses current management challenges, linking them to research and business practices.

Designed to be completed alongside your job, the program's credits are also internationally recognized for full MBA programs.





# HECTOR SCHOOL

## OF ENGINEERING & MANAGEMENT

**Do you have  
questions? We are  
looking forward to  
assisting you.**



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