Executive Master Program
Service Management & Engineering

Technology + Management
The HECTOR School is the Technology Business School of the Karlsruhe Institute of Technology (KIT). It is named after Dr. Hans-Werner Hector, one of the co-founders of the SAP AG.

The school envisions 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.

The benefits of the executive master programs are manifold, for participants as well as for their companies:

- Unique holistic approach: combination of technology expertise with management know-how
- Direct transfer of state-of-the-art knowledge from research of the Karlsruhe Institute of Technology (KIT)
- Part-time structure: allows participants to continue with demanding careers whilst acquiring new skills
- The master thesis provides an excellent opportunity to set up innovation projects: companies gain outstanding added value through the consultation of such projects by professors from KIT
- Excellent network opportunities: professional networking is fostered across industries and on an international scale
- Yearly program start in October
- Teaching language: English
- 5 Engineering and 5 Management Modules
- Master Thesis: Project work in the company, 6 months
- Duration: Part-time lecture period of ~15 months
- Part-time, 10 x 2-week modules

Program Structure

Admission Requirements

• An academic degree: e.g. Bachelor, Master, or Diploma
• 1-2 years work experience (depending on the first degree’s level; recommended > 3 years)
• TOEFL score of at least 230 or 90 iBT

Accreditation

All M.Sc. programs are accredited by ASIIN. ASIIN was acknowledged as the first European continental accreditation agency by the Washington Accord (W.A.) in 2003.

Program Directors SME

Prof. Dr. Andreas Oberweis
Institute of Applied Informatics & Formal Description Methods, KIT
Prof. Dr. Martin E. Ruckes
Institute for Finance, Banking & Insurance, KIT

Our future world will be a service world. The development of successful strategies, business models and business processes adapted to this service world requires a profound understanding and integration of technological, economical and societal issues. New technologies such as cloud computing, big data, web 3.0 and mobile networking are the basis for engineering and managing innovative smart and secure service systems.

Prof. Dr. Andreas Oberweis

Information-based services, individualized solutions and interactive cooperations will characterize tomorrow’s world – linking together agile, dynamic and global service networks of providers and customers. Capturing the emerging opportunities requires globally thinking visionaries, engineers, and managers who are able to combine profound competence in information technology with excellent know-how in economics, management and law.

Graduates of the Master Program Service Management & Engineering (SME) have the ability to comprehend and evaluate in which way hardware as well as software developments in modern information and communication technologies influence the future service market. They are also in a position to make efficient and effective use of these technologies. Competitive and innovative service products are developed and optimized, to successfully accompany and direct service-driven changes in companies and corporate networks.

Furthermore, graduates are enabled to solve economic problems of service pricing with according interdisciplinary approaches. The analyzing and optimization of life time cycles of business processes are part of the competence profile of the graduates as well as the evaluation and advancement of software architecture options and aspects of quality improvement. Finally they can evaluate regulatory boundaries and legal issues in contract forming and take those into account when making design decisions.

Next to the engineering expertise Service Management & Engineering shares five management modules with the other master programs. This fosters the network across industries and provides the participants with general knowledge in finance, accounting, marketing, international multiproject management, international law, and human resource management. By this they can consider the commercial implications of project decisions and develop a holistic view.

Key Facts part-time Master of Science (M.Sc.) Programs

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Academic Degree

Master of Science (M.Sc.) from the KIT (90 ECTS)
EM 1: Information & Service Management

Nowadays service markets are characterized by a strong inter-relation with information service management due to the original set-up of service markets. The overall objective of the module is to provide fundamentals of market engineering with an emphasis on the design and further development of information markets and services. The module enables participants to understand and analyze the development of information markets and services design and engineering principles behind current networking and engineering concepts and methods that are essential in digital service systems and e-applications. Understanding the need for information and knowledge management in businesses, participants of the module are able to implement concepts for modeling, representation, and administration of information and knowledge. Based on the acquired eCommerce-supporting methods and systems, the participants are qualified to select, evaluate, design, and apply these methods and systems according to situation. A reliable functionality of the networked digital services requires management of complexities. In the specific part of the module, participants get acquainted with the frame conditions of complexity management and, after analysis of the psychological, computer-related, dynamic, and managerial aspects, are enabled to further develop complexity management according to the businesses’ demands. After having learned the meanings of “information” and “pricing”, the participants can develop a differentiated view on the pricing of goods and information goods. Based on a case study of the price elasticity of demand, they develop application and implementation strategies which, in turn, require suitable team & communication skills.

EM 2: Service Technologies

This module focuses on two important parts, first the design and engineering principles behind current networking technologies and second on security problems and solutions identified so far regarding those technologies. Since the structure of information markets is discussed participants are able to develop an understanding for the action of market actors. In addition, consideration of service competition as a business strategy helps participants structure the impacts of service competition on the design of businesses, markets, products, processes, and services.

EM 3: Digital Services

This module focuses on advanced concepts and methods that are essential in digital service systems and e-applications. Understanding the need for information and knowledge management in businesses, participants of the module are able to implement concepts for modeling, representation, and administration of information and knowledge. Based on the acquired eCommerce-supporting methods and systems, the participants are qualified to select, evaluate, design, and apply these methods and systems according to situation. A reliable functionality of the networked digital services requires management of complexities. In the specific part of the module, participants get acquainted with the frame conditions of complexity management and, after analysis of the psychological, computer-related, dynamic, and managerial aspects, are enabled to further develop complexity management according to the businesses’ demands. After having learned the meanings of “information” and “pricing”, the participants can develop a differentiated view on the pricing of goods and information goods. Based on a case study of the price elasticity of demand, they develop application and implementation strategies which, in turn, require suitable team & communication skills.

EM 4: Business Processes & Software Engineering

In business organizations, business process and software engineering are known to be closely linked to one another. The participants in module gain the ability to effectively and efficiently adapt the particular demands of business processes by means of a technical approach that applies both the tools and methods of business process engineering and of software systems. They obtain a detailed overview of the stages of development of software systems and they are qualified to apply the tools and methods of the development process.

EM 5: Regulations & Economics of Networks

The fundamental knowledge of communication law supports participants in the adaptation of business strategies to today’s media and information industry is in the focus of this module. The participants are able to identify and solve relevant problems from the areas of information, data protection, and business law. In the part Network Economics, they implement price models and business strategies as economic concepts reacting to changed market conditions in e.g., the transportation or telecommunications sectors. The participants are qualified to identify and take into account the problems (e.g., “moral hazard” and “adverse selection”) that are linked to contract design.

Order your free course guide book with detailed contents of the Master Program!
Management Modules

Management Modules (MM)
Fundamental economic know-how for successful managers

MM 1: International Project Management
International Project Management is a key to the world of business. Participants will get familiar with objectives of project management and scheduling, analysing planned projects and controlling project execution. Particular attention is paid to the construction of project networks and Gantt charts, heuristic solution procedures and rescheduling. Modelling, planning and scheduling, which arise in a great variety of practical situations, are also emphasized.

MM 2: Finance for Executives
Finance for Executives provides participants with an understanding of the key financial statements and its underlying accounting principles. The course gives an overview of investment rules and financial decisions.

MM 3: Business Strategy, Marketing & Controlling
This module comprises three important challenges in companies, Business Strategy, Marketing and Controlling. Particular emphasis is placed upon the process of strategic management containing strategic analysis, formulation and evaluation based on competitive advantage, and portfolio strategy. In addition to these concepts approaches of modern marketing that show a strong reference to business strategy are presented.

MM 4: Stochastic & Games
This module enables participants to gain a better understanding of stochastic phenomena and, in particular, to use this knowledge in helping them to make decisions when in a state of uncertainty. Uncertainty can arise from either a priori or from playing against conscious opponents (strategic uncertainty).

MM 5: Law & Contracts
This module comprises both economics and legal sections. In the economics section, a groundwork is laid through introducing decision theory, expected utility, risk and ambiguity, bargaining and basic incentive theory. In addition, fundamental problems regarding world economics are discussed, e.g. stagnation and economic growth, unemployment and international division of labor, and harmonization of the international monetary system. The legal section is divided into lectures about the law of business organizations about international patent, trademark and copyright law.

The academic calendar for each program starting annually in October consists of 10 intensive modules, each with a duration of 10 days. At the end, all programs conclude with a Master Thesis.
More Master Programs.

Seven Part-time Master Programs
- Production & Operations Management (POM)
- Green Mobility Engineering (GME)
- Management of Product Development (MPD)
- Electronic Systems Engineering & Management (ESEM)
- Energy Engineering & Management (EEM)
- Service Management & Engineering (SME)
- Financial Engineering (FE)

Next to the master programs, HECTOR School also offers certificate courses (3 - 5 day seminars on state-of-the-art technology topics) and partner programs.

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