Executive Master Program
Service Management & Engineering

Technology + Management
The HECTOR School of Engineering & Management offers **seven Executive Master Programs**. The HECTOR School – named after Dr. Hans-Werner Hector, one of the co-founders of the software company SAP – is the **Technology Business School of the Karlsruhe Institute of Technology (KIT)**.

The Master Programs are **more than typical MBA programs**, because they combine management with engineering topics. The primary goal is to enable professionals to take a holistic approach when managing highly interdependent processes and to be aware of the latest state of technology in the respected field of expertise.

All programs share **five Management Modules**, providing the participants with general **leadership know how for engineers**: knowledge in Finance, Accounting, Marketing, Business Strategy, International Project Management and Intellectual Property Rights. On this basis they can consider commercial implications of business decisions. Workshops and case studies allow ample opportunity to explore the direct application of the know-how, simulating the real business environment.

Essential part of the HECTOR School is the part-time philosophy of its Master Programs. Intermittend periods of lectures are scheduled to allow participants to **continue with demanding careers** while acquiring new skills & knowledge.
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 that 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.

Against the background of incomplete information and technical uncertainty, graduates can encounter problems with an engineering orientation and solve them with the help of complex management methods. The program empowers for an interdisciplinary approach on problems and trains adequate solution methods for hardware and software applications. 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.

Join us, to acquire the tools that will guide your career path in this exciting area.

Master Program
Service Management & Engineering

In most developed countries, about two thirds of the economy already thrive on services. However, the journey into a truly service-led economy is just beginning: with the rapid strides in the development of information and communication technology, plenty of options are unfolding to co-create value with customers.

Program Director SME
Head of the Institute of Business Information Systems, Karlsruhe Institute of Technology (KIT)

Prof. Dr. Andreas Oberweis
Information & Service Management  

EM1

Nowadays service markets are characterized by a strong interrelation with information service management due to the original set-up of service markets. The overall objective of the module is therefor to provide an introduction into market engineering with an emphasis on the design and the further development of information markets and services.

The module enables participants to understand and analyze business innovation and adaptation processes and thus get an idea of, among other things, innovation diffusion. Innovation driver analyses make participants systematically identify the difference between invention and innovation.

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.

Service Technologies  

EM2

This module focusses 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.

The knowledge imparted on “Advanced Computer Networks” enables participants to understand the interactions of network components and apply the relevant facts to design principles for current service technologies and networks. Current modeling and programming languages e.g., HTTP, SOAP or WSDL, explain the architecture of web applications. On the security part, fundamentals of cryptography and their applications in complex safety systems are introduced. Cloud computing concepts and technologies taught within the module enable the participants to assess the opportunities and challenges of web-scale service applications having in mind the current state of art in IT safety and security.
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.

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.

Overview Engineering Modules (EM)

EM 1: Information & Service Management
Courses: Information & Market Engineering, Service Management & Innovation

EM 2: Service Technologies
Courses: Advanced Computer Networks • Advanced Web Applications • IT Safety & Security • Cloud Computing

EM 3: Digital Services
Courses: Information & Knowledge Management • IT Aspects of eCommerce • Complexity Management • Information Pricing • Service Pricing

EM 4: Business Processes & Software Engineering
Courses: Business Process Engineering • Software Systems Engineering

EM 5: Regulations & Economics of Networks
Courses: Communication Law • Industrial & Network Economics • Economics of Contracts
Management Modules - Topics

The aim of the 5 Management Modules (MM) is to provide profound knowledge and understanding of the fundamental concepts which are essential for every successful manager.

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.

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.

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.

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 »nature« or from playing against conscious opponents (»strategic uncertainty«).

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.

Overview Management Modules (MM)

MM 1: International Project Management
Courses: Project Management & Scheduling, Multi-Project Management in an International Setting, Development Management, Intercultural Management

MM 2: Finance for Executives
Courses: Introduction, Financial Accounting, Fundamentals of Finance

MM 3: Business Strategy, Marketing and Controlling
Courses: Business Strategy, Introduction to Management Accounting, Marketing

MM 4: Stochastic & Games
Courses: Decisions under Risk & Uncertainty, Optimization under Uncertainty, Applied Game Theory, Simulation & Case Study

MM 5: Law & Contracts
The academic calendar for the next program starting on October 5, 2015 consists of 10 intensive modules, each with a duration of 10 days. At the end, the Master Program concludes with a Master Thesis.

The Master Thesis is set up as a project work in the company, starting after the successful completion of at least nine modules according to the personal study plan.

Participants of the Master Service Management & Engineering also need to take part in a 2-day crash course in probability & statistics (date t.b.a.).

Legend:
- **MM**: Management Modules
- **EM**: Engineering Modules