

Degree: Master of Science (M.Sc.)

Engineering & Management



The rapid advancement of technology and the growing need for innovative solutions have created a demand for professionals who can bridge the gap between engineering and management.

The Master's degree programme "Engineering & Management" at the FOM University of Applied Sciences prepares you to succeed in both technical and managerial roles in global industry. You learn to assess the role of technology management in industrial and economic contexts, analyse technological trends, and manage innovation and change processes effectively. The programme also enables you to use digital tools and methods in industrial engineering, product development, and virtual simulations.

The Master's programme "Engineering & Management" is taught entirely in English and will be completed with the academic degree Master of Science (M.Sc.).

Support for all issues relating to your study

Phone: +49 201 81004 864 WhatsApp: +49 171 3338539

Monday to Friday from 9:00 a.m. to 4:00 p.m. German time

E-Mail: Send us an email to: incomings@fom.de

More information
on the degree programme



Locations

Essen

Duration

4 Semester including thesis

Credit Points

120 ECTS

Accreditation

The FOM University of Applied Sciences is accredited by the German Council of Science and Humanities and was the first private university in Germany to be system-accredited by FIBAA in 2012. This means that all FOM degree programmes are state and internationally recognised.

Total costs

22,500 euro including registration fee, tuition fee and examination fee.

Your career prospects

You can take on the following jobs:

- Product Manager
- Business Development Manager
- Quality Manager
- Business Consultant
- Product developer
- Change Manager
- Operations Manager

1st semester**Technology Management & AI (5 CP)**

- Distinction between Technology and Innovation Management
- Recognising, Identifying, and Analysing Technology Trends
- Technology Management and Artificial Intelligence
- Fundamentals of Knowledge Management
- Technology Management and Research & Development (R&D)

Change & Innovation (6 CP)

- Trend Management (Trend Analysis, Customer Analysis)
- Innovation Management
- Change Management
- Success and Failure Factors of Change Processes

Research Methods in STEM (6 CP)

- The Process of Academic Writing
- Research in Business Information Systems and Engineering
- Overview of Specific Research Methods
- Research Designs

Accounting, Controlling & Finance (5 CP)

- Purpose of a Balance Sheet
- Difference between an Income and Asset Statement
- Project Financing

Deutsch (6 CP)

- Everyday Language
- Reading Exercises
- Practice New Vocabulary in Role Plays

2nd semester**Techno-economic product development and realisation (5CP)**

- Coordinated Technical and Economic Product Development
- Project Realisation (Project Cost Accounting, Process Cost Accounting)
- Profitability Analysis (Life Cycle Costing; Investment Appraisal)
- Utility Value Analysis for Multi-criteria Decision-Making Situations

Quantitative Data Analysis in Engineering (5 CP)

- Principles of Qualitative and Quantitative Research
- Basics of Data Analysis
- Evaluations with R

Technical Systems & Digitalisation (6 CP)

- Modelling and Simulation of Technical Systems
- Networking of Technical Systems
- Data Science / Data Analytics / Artificial Intelligence
- Digitalisation and the Economy
- Digitalisation and Society

International Project Management & Claim Management (5 CP)

- Fundamentals of International Project Management
- Project Management and Controlling according to GPM/IPMA Standards
- Claim Management and Claim Strategies
- Negotiation Concepts
- Ethics and Compliance in International Project Management

Sustainability (6 CP)

- Sustainability Management in the Company
- Actors and Incentive Mechanisms for Sustainable Development
- Technology and Technology Transfer
- Social Business

Resource Management and Energy Management (6 CP)

- Fundamentals: Resource Management and Energy Management
- Energy Supply, Distribution, and Application
- Energy-related Cost Accounting, Energy Balances
- Energy Strategies in Business and Politics, Considering Available Resources
- Holistic Resource Management for Sustainable Process Development

3rd semester**Product Lifecycle Management (6 CP)**

- Fundamentals: Product Model, Product Data Management (PDM), Product Lifecycle Management
- Product Development Process
- Overview of Modern Calculation and Simulation Methods
- Product Structures (Variant Management, Product Configuration, Material Master Data)
- Lifecycle
- Change Management
- Current Technologies and Tools for Implementing Management Concepts and Digital Process Planning

Digital Management & Leadership (6 CP)

- Digitalised Production Planning and Control
- Digitalised Supply Chain Management/ Digitalised Logistics
- Maturity Models and Key Performance Indicator Systems
- Opportunities and Risks of Digitalisation
- Functions and Impact of Leadership in the Modern Workplace
- Integration of Leadership and Digitalisation, e.g. through Big Data or AI

International Sales Management & Marketing (5 CP)

- Importance and Development of International Trade in Industrial Goods
- Internationalisation and Intercultural Management
- Strategic Sales Management
- Account Management
- Performance Evaluation in Sales

Research Proposal for the Master's Thesis (5 CP)

- Preparation for the Master's Thesis
- Review and Enhancement of Knowledge regarding the Formal, Content-related, and Methodological Requirements for Academic Work
- Approaches to Topic Selection
- Developing the Problem Statement, Objectives, and Approach for the Thesis

Applied Project I (6 CP)

- Examine scientific research questions and provide answers using empirical data
- Current research topics
- Application of methods and theories to professional practice
- Analyse professional situations through a scientific lens
- Present and defend insights from theory-practice transfer

4th semester**Applied Project II (6 CP)**

- Examine scientific research questions and provide answers using empirical data
- Current research topics
- Application of methods and theories to professional practice
- Analyse professional situations through a scientific lens
- Present and defend insights from theory-practice transfer

Master's Thesis and Colloquium/ Defence (25 CP)

- Independently solve a practice-oriented task within a set timeframe.
- Address technical details and interdisciplinary connections using scientific and practical methods, and document the results.
- Select and apply scientific methods appropriately to the context.
- Orally present the scientific content and methodology of the master's thesis.
- Present and justify technical fundamentals and interdisciplinary connections, linking them to practical

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