Degree: Master of Science (M.Sc.)

Digital Technologies & Management

The intelligent connection of IT and business management systems enables more flexible, more individual and more efficient production as well as the optimisation of the entire value chain.

The core elements of Industry 4.0 are automation, standardisation, digitalisation, networking and the integration of hardware and software. Specialised experts with business management know-how and comprehensive skills in key technologies are required to implement this. The “Digital Technologies & Management” Master’s degree programme at FOM University of Applied Sciences prepares students for demanding positions by combining business and management knowledge with expertise in digital transformation.

The Master’s programme “Digital Technologies & 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

Location
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:

Industrial Engineer
Production Engineer
Technical project manager
Quality Officer/Manager
Project Manager
Operations Manager
Consultant

1st semester

Decision Focused Management (6 CP)
- Traditional decision theory
- Management decisions from a psychological perspective
- Decisions in a strategy context

Information Systems in Production (6 CP)
- Product development systems
- Production planning systems
- Production management systens
- Case Study

Big Data Analytics (6 CP)
- Data sources and data classification
- Visual analytics/data discovery/ explorative data analysis
- AI methods such as machine learning
- Computational intelligence: fuzzy logic, neuronal networks, evolutionary algorithms

Research Methods in STEM (6 CP)
- Specialisation and its connection to the broader research field
- Developing and applying a research design for academic projects
- Research methods in STEM: types, applications, and evaluation
- Selecting and defending research methods for specific problems

Deutsch (6 CP)
- Fundamentals in listening, reading, writing and speaking
- Basic grammatical skills
- Application in situations of everyday life

2nd semester

Artificial Intelligence (6 CP)
- Development of the AI and essential concepts
- Agents
- Knowledge-based systems
- Logics
- Machine learning and data mining

Smart Technologies within the Value Chain (7 CP)
- Industry 4.0 technologies within individual business processes of a manufacturing company (production IT, big data analytics, internet of things, artificial intelligence)
- Industry 4.0 technologies within individual business process sections
- Data security
- Impacts and effects of Industry 4.0

Organisational Transformation & Business Model Innovation (6 CP)
- Impact of Digitalisation on Business Models and Organisational Development
- Promoting Soft Factors: Innovation, Corporate Culture, and Leadership
- Managing Change Projects: Importance of Corporate Culture and Ethics
- Applying Design Thinking to Define Problems and Solutions
- Analysing and Describing Digital Business Models Using the Business Model Canvas

Connectivity, Cloud Computing & Internet of Things (6 CP)
- Connectivity (e.g. networking, mobile radio, mobile devices)
- Coud Computing (architecture, service concepts, intersection Big-Data and AI)
- Sensor system (e.g. temperature sensors, position and acceleration sensors, pressure sensors)
- Intelligent Things
- Technology concepts of modern digitalisation

Information Security (6 CP)
- Technical basis
- Threats and risks
- threar prevention
- ISMS

3rd semester

Ethics & Law (5 CP)
- Basics of Data Protection Law and Practical Application
- Identifying Sensitive Data and Developing Solutions
- Ethics and Compliance in Big Data Analysis
- Data Protection as a Business Opportunity

Digital Factory & Cyber-Physical Systems (6 CP)
- Basics of cyber-physical production systems
- Fundamentals and application of robotics
- Fundamentals and classification of additive manufacuring
- Sustanability and ethical aspects in the context of smart production

Technology & Sustainability (5 CP)
- The role of different actors in sustainable development
- Sustainability assessment of products, services and processes
- Technology transfer as an instrument of sustainable development
- Sustainability relevant fields of technology

Enterprise Architecture Management (6 CP)
- summary EAM
- organizational anchoring of EAM
- business and IT-strategy
- IT systems and IT architecture
- EAM tools

Applied Project I (6 CP)

4th semester

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

Applied Project II (6 CP)

Academic degree:
Master of Science (M.Sc.)