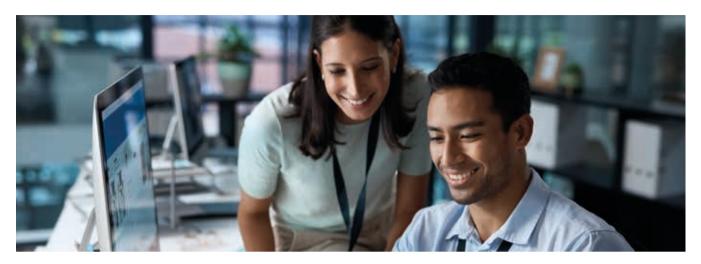
Degree: Master of Science (M.Sc.)

# Digital Technologies & Management



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

The core elements of Industry 4.0 are automation, standar-disation, digitalisation, networking and the integration of hardware and software. Specialised experts with business management know-how and comprehensive skills in key technologies are required for the implementation. 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**

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 fee**

€23,850 (including examination fee and immatriculation 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 systems
- · Case Study

# **Big Data Analytics (6 CP)**

- · Data sources and data classification
- Visual analytics/data discovery/ explorative data analysis
- Al 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

# 2<sup>nd</sup> 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 hasis
- · Threats and risks
- · threar prevention
- ISMS

# 3<sup>rd</sup> 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.)