

# AI Project Management and Python Basics

KI-Projektmanagement · Anbieter: IU Akademie IU Internationale Hochschule

## FÖRDERUNG & KOSTEN

### Kurspreis: auf Anfrage

Förderfähig über: Bildungsgutschein

AZAV-zertifizierter Bildungsträger — Förderung durch die Agentur für Arbeit möglich

## Kursdaten auf einen Blick

|                    |                                                 |
|--------------------|-------------------------------------------------|
| Durchführung       | Online                                          |
| Lernformat         | Self-Paced                                      |
| Dauer              | 6 Monate in Vollzeit oder 12 Monate in Teilzeit |
| Unterrichtssprache | Deutsch, Englisch                               |
| Kursstart          | Startet alle 14 Tage                            |
| Vorkenntnisse      | Keine Vorerfahrung                              |
| Abschluss          | Zeugnis auf Hochschulniveau                     |
| Inklusive          | Berufcoaching, Notebook / Tablet (geliehen)     |

## Bildungsträger & Kontakt

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[Kurs online ansehen](#)

**01**

## Kursbeschreibung

In der dynamischen Welt der Künstlichen Intelligenz (KI) steht die Innovation im Mittelpunkt. Du hast erkannt, wie wichtig es ist, die Sprache der Daten und Algorithmen zu beherrschen und diese effektiv zu managen. Um den Anforderungen der KI-Projekte gerecht zu werden und Vorreiter zu sein, brauchen Unternehmen zukünftig Dich. Mit Deiner Online-Weiterbildung AI Project Management and Python Basics wirst Du zum wichtigen Teil dieses spannenden Paradigmenwechsels. Du machst KI und Python-Programmierung zum Schlüssel für innovative und erfolgreiche Projekte. In Deiner Online-Weiterbildung AI Project Management and Python Basics lernst Du die Grundlagen der Python-Programmierung, die Anwendungsbereiche der KI sowie die Besonderheiten des IT-Projektmanagements. Du erhältst einen umfassenden Einblick in die Python-Programmiersprache und ihre Anwendung in der KI. Du lernst, wie Du Projekte effizient planst und managst, und wie Du technische Projekte in der Praxis umsetzt. Darüber hinaus beschäftigst Du Dich mit den gesellschaftlichen sowie politischen Auswirkungen der KI und reflektierst über aktuelle Themen in diesem Bereich. Abschließend erhältst Du Einblicke in die Softwareentwicklung für datenintensive Wissenschaften und lernst agile Projektmanagementmethoden sowie DevOps kennen. Mit Deiner Weiterbildung bist Du bestens gerüstet, um in der Welt der KI und der Programmierung durchzustarten.

**02**

## Lehrplan & Module

## 1. Artificial Intelligence

The quest for artificial intelligence has captured humanity's interest for many decades and has been an active research area since the 1960s. This course will give a detailed overview of the historical developments, successes, and set-backs in AI, as well as current and future developments. In addition to these introductory topics, the course will explore the legal, social, and ethical responsibilities associated with the development and deployment of AI. The course will introduce principles of knowledge representation, ranging from the development and use of expert systems in early AI systems to knowledge graphs and semantic web technologies. In order to understand cognitive processes, the course will give a brief overview of the biological brain and (human) cognitive processes and then discuss how insights from human cognition inform the design and function of AI systems. Particular focus will be given to Artificial Neural Networks. Moreover, core technologies that drive modern AI applications will be introduced. Key areas of focus will include machine learning for data-driven improvement, natural language processing for understanding and generating human language, and computer vision for interpreting and making decisions from visual information. The course will give an overview of a wide range of AI use cases, ranging from creative content creation with Generative AI, to autonomous systems and robotics, to the role of AI in cybersecurity. The use cases will highlight the potential of AI across application areas and industries, such as autonomous driving, medicine, finance, retail, and manufacturing. For these use cases, the specific challenges related to the responsible use of AI will be discussed.

Kursinhalte

History and Future of AI Historical Developments

AI Winters

Notable Advances in Artificial Intelligence

Legal, Social, and Ethical Responsibilities in AI Development and Deployment

Knowledge Representation Overview of Expert Systems

Introduction to Logic and Prolog

Knowledge Graphs

Bridging Biology and Technology: Neuroscience, Cognition, and Neural Networks Neuroscience and the Human Brain

Cognitive Science

The Relationship Between Neuroscience, Cognitive Science, and Artificial Intelligence

Artificial Neural Networks

Core Technologies of Artificial Intelligence Machine Learning

Natural Language Processing (NLP)

Computer Vision

Applications of Artificial Intelligence Applications of Computer Vision

Natural Language Processing Use Cases

Creative Content Creation with Generative AI

Autonomous Systems & Robotics

Predictive Analytics

AI in Cybersecurity

Fakten zum Modul: Niveau: Master · Unterrichtssprache: English · 5 ECTS-Punkte · Modulprüfung: Klausur, 90 Minuten

## 2. IT Project Management

The purpose of this course is to introduce students to the concepts involved in IT project management. This is achieved through the development of an understanding of the fundamental tenets of project management enhancing the students' ability to apply their knowledge, skills and competencies in analyzing and solving IT project management problems. A special focus is put on the specifics of IT project organization, cost management and the human factor within IT projects.

### Kursinhalte

Introduction: Characteristics of IT Projects Defining IT Projects

Overview on Typical Roles and Phases of IT Projects

Risks and Challenges of IT Projects

Role of an IT Project Manager

Organizing the Work Project Breakdown Structure, Work Packages

Prioritization

Time Planning, Milestones, Gantt Charts

Definition of Done

Cost Estimation and Controlling Challenges of Cost Estimation in IT Projects

Estimation Techniques: 3-Point Estimation, Double Blind Expert Estimation, Function Points

Cost Controlling Using Earned Value Analysis

Risk Management

The Human Factor Vision Keeping

Stakeholder Management

Conflict Management

Organizing Small and Medium Projects Rational Unified Process (RUP)

Agile Software Processes

Scrum

Plan-driven Project Management in Small Projects

Organizing Large Projects PMBOK Guide

Prince2

Multi Project Management

Agile Software Processes in Large Projects

Selection of the Appropriate Project Management Method

Fakten zum Modul: Niveau: Master · Unterrichtssprache: English · 5 ECTS-Punkte · Modulprüfung: Klausur, 90 Minuten

## 3. Project: Technical Project Planning

The focus of this course is to apply the project management knowledge gained previously in a practical portfolio project and reflect on the results. Students engage in this portfolio project and document the results, reflecting on the project management concepts they apply and the influence of these concepts on the success of the project.

### Kursinhalte

In this course, students perform and document a portfolio project in which they apply the project management topics covered in previous modules.

Fakten zum Modul: Niveau: Master · Unterrichtssprache: English · 5 ECTS-Punkte · Modulprüfung: Portfolio

#### 4. Seminar: AI and Society

In the current decade, impressive advances have been achieved in the field of artificial intelligence. Several cognitive tasks like object recognition in images and video, natural language processing, game strategy, and autonomous driving and robotics are now being performed by machines at unprecedented levels of ability. This course will examine some of societal, economic, and political implications of these developments.

##### Kursinhalte

The seminar covers current topics concerning the societal impact of artificial intelligence. Each participant must create a seminar paper on a topic assigned to him/her. A current list of topics is given in the Learning Management System.

Fakten zum Modul: Niveau: Master · Unterrichtssprache: English · 5 ECTS-Punkte · Modulprüfung: Seminararbeit

## 5. Programming with Python

Python is one of the most versatile and widely used scripting languages. Its clean and uncluttered syntax as well as its straightforward design greatly contribute to this success and make it an ideal language for programming education. Its application ranges from web development to scientific computing. Especially in the fields of data science and artificial intelligence, it is the most common programming language supported by all major data-handling and analytical frameworks. This course provides a thorough introduction to the language and its main features, as well as insights into rationale and application within important libraries related to data science and artificial intelligence and important adjacent concepts such as environments, testing, and version control.

Kursinhalte

Introduction to Python Data Structures

Functions

Flow Control

Input / Output

Modules and Packages

Classes and Inheritance Scopes and Namespaces

Classes and Inheritance

Iterators and Generators

Python Important Libraries Standard Python Library

Scientific Calculations

Machine Learning Libraries

Data Visualization

Accessing Databases

Errors and Exceptions Syntax Errors

Handling and Raising Exceptions

User-Defined Exceptions

Working with Python Virtual Environments

Managing Packages

Unit and Integration Testing

Documenting Code

Version Control Introduction to Version Control

Version Control with GIT

Fakten zum Modul: Niveau: Master · Unterrichtssprache: English · 5 ECTS-Punkte · Modulprüfung:  
Hausarbeit

## 6. Software Engineering for Data Intensive Sciences

Building a successful data-based product requires a significant amount of high-quality code which needs to run in a professional production environment. This course starts by introducing the agile approaches Scrum and Kanban and then discusses the shift from more traditional software development approaches to the DevOps culture.

Special focus is given to the discussion and understanding of techniques and approaches for producing high-quality code such as unit and integration testing, test-driven development, pair programming, and continuous delivery and integration.

Since many software artefacts are accessed via APIs, this course introduces concepts of API design and paradigms.

Finally, this course addresses the challenges of bringing code into a production environment, building a scalable environment, and using cloud-based approaches.

Kursinhalte

Agile Project Management Introduction to SCRUM

Introduction to Kanban

DevOps Traditional lifecycle management

Bringing development and operations together

Impact of team structure

Building a DevOps infrastructure

Software Development Unit & integration test, performance monitoring

Test-driven development & pair programming

Continuous delivery & integration

Overview of relevant tools

API API design

API paradigms

From Model to Production Building a scalable environment

Model versioning and persistence

Cloud-based approaches

Fakten zum Modul: Niveau: Master · Unterrichtssprache: English · 5 ECTS-Punkte · Modulprüfung:

Mündliche Prüfung

**03**

## Enthaltene Zertifikate

**Trägerzertifikat: Zeugnis auf Hochschulniveau**

**04**

## Voraussetzungen

## Vorkenntnisse

### Niveau: Keine Vorerfahrung

Zulassungsvoraussetzung: gute Deutschkenntnisse auf B2-Niveau.

Zugangsempfehlung: Englisch auf B2 Niveau

Die Weiterbildung ist auf dem inhaltlichen Niveau eines Master Studiengangs. Eine Weiterbildung auf Master-Niveau ist anspruchsvoller als auf Bachelor-Niveau. Vorhandenes Grundlagenwissen im gewählten Fachbereich ist deshalb von Vorteil.

### Technische Voraussetzungen

Laptop mit Internetzugang.

05

## Zielgruppen & Berufsperspektiven

- Arbeitssuchende
- Fachkräfte

Mögliche Berufsbilder: IT-Projektmanager, Python Entwickler, KI-Entwickler

### NÄCHSTER SCHRITT

## Kursdetails online ansehen und Anbieter kontaktieren

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