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	Berufscoaching, 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 programing, 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-cased 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 programing
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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