

ARTIFICIAL INTELLIGENCE MODULE 01

Fundamental Artificial Intelligence

Arcitura®
CERTIFIED
Artificial Intelligence
Specialist

OVERVIEW

This course provides essential coverage of artificial intelligence and neural networks in easy-to-understand, plain English. The course provides concrete coverage of the primary parts of AI, including learning approaches, functional areas that AI systems are used for and a thorough introduction to neural networks, how they exist, how they work and how they can be used to process information. The course establishes the five primary business requirements AI systems and neural networks are used for, and then maps individual practices, learning approaches, functionalities and neural network types to these business categories and to each other, so that there is a clear understanding of the purpose and role of each topic covered. The course further establishes a step-by-step process for assembling an AI system, thereby illustrating how and when different practices and components of AI systems with neural networks need to be defined and applied. Finally, the course provides a set of key principles and best practices for AI projects.

The following primary topics are covered:

- AI Business and Technology Drivers, AI Benefits and Challenges
- Business Problem Categories Addressed by AI, AI Types (Narrow, General, Symbolic, Non-Symbolic, etc.)
- Common AI Learning Approaches and Algorithms
- Supervised Learning, Unsupervised Learning, Continuous Learning
- Heuristic Learning, Semi-Supervised Learning, Reinforcement Learning
- Common AI Functional Designs, Computer Vision, Pattern Recognition
- Robotics, Natural Language Processing (NLP)
- Speech Recognition, Natural Language Understanding (NLU)
- Frictionless Integration, Fault Tolerance Model Integration
- Neural Networks, Neurons, Layers, Links, Weights
- Understanding AI Models and Training Models and Neural Networks
- Understanding how Models and Neural Networks Exist
- Loss, Hyperparameters, Learning Rate, Bias, Epoch
- Activation Functions (Sigmoid, Tanh, ReLU, Leaky ReLU, Softplus)
- Neuron Cell Types (Input, Backfed, Noisy, Hidden, Probabilistic, Spiking, Recurrent, Memory, Kernel, Convolution, Pool, Output, Match Input, etc.)
- Fundamental and Specialized Neural Network Architectures
- Perceptron, Feedforward, Deep Feedforward, AutoEncoder, Recurrent, Long/Short Term Memory, Boltzmann Machine, Restricted Boltzmann Machine, Deep Belief Network
- Deep Convolutional Network, Extreme Learning Machine, Deep Residual Network
- Support Vector Machine, Kohonen Network, Hopfield Network
- Generative Adversarial Network, Liquid State Machine, How to Build an AI System (Step-by-Step)
- Common AI System Design Principles and Common AI Project Best Practices

Duration: 1 Day

TRAINING + CERTIFICATION

This course is part of a training and accreditation program through which official certification can be achieved and for which official training and certification badges can be issued.



www.arcitura.com/ai

eLEARNING + PRINTED STUDY KITS

This course is available as part of a study kit that includes course materials and supplemental self-study materials. The study kit is available in full-color printed format and eLearning format. Both types of study kits include the contents listed below.

- Workbook (1 of 3)
- Exam Preparation Guide (1 of 3)
- Supplement: Neural Networks
- Supplement: Algorithms and Practices
- Symbol Legend Poster
- Mind Map Poster
- Poster: Neural Networks and Neuron Types Mapping
- Poster: Problem Types and Neural Networks Mapping
- Poster: Neural Networks and Practices Mapping
- Poster: Problem Types and Practices Mapping
- Flashcards
- Audio Tutor Recording



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Fundamental Artificial Intelligence

	Certified DevOps Specialist	Certified Blockchain Architect	Certified IoT Architect	Certified Containerization Architect	Certified Machine Learning Specialist	Certified Artificial Intelligence Specialist
MODULE 01 Fundamental DevOps	●					
MODULE 02 DevOps in Practice	●					
MODULE 03 DevOps Lab	●					
MODULE 01 Fundamental Blockchain		●				
MODULE 02 Blockchain Technology & Architecture		●				
MODULE 03 Blockchain Technology & Architecture Lab		●				
MODULE 01 Fundamental IoT			●			
MODULE 02 IoT Technology & Architecture			●			
MODULE 03 IoT Technology & Architecture Lab			●			
MODULE 01 Fundamental Containerization				●		
MODULE 02 Containerization Technology & Architecture				●		
MODULE 03 Containerization Technology & Architecture Lab				●		
MODULE 01 Fundamental Machine Learning					●	
MODULE 02 Advanced Machine Learning					●	
MODULE 03 Machine Learning Lab					●	
MODULE 01 Fundamental Artificial Intelligence						●
MODULE 02 Advanced Artificial Intelligence						●
MODULE 03 Artificial Intelligence Lab						●

Arcitura Next-Gen IT Academy (www.arcitura.com/nextgen)