IoT Architect

Certification

Arcitura TRAINING — IoT Architecture

Arcitura CERTIFIED — IoT Architect

The Next-Gen IT Academy from Arcitura is dedicated to providing an ever-growing variety of training courses and accreditations in contemporary technologies and fields of practice within the IT industry. Important and modern innovations that are redefining the IT landscape and that have reached a sufficient state of maturity are researched and documented into sets of courses that form the basis for formal certifications.

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TRAINING & CERTIFICATION

The IoT Architect track is comprised of three courses that develop skills in Internet of Things (IoT) technology and architecture, along with proficiency in radio protocols, telemetry messaging and IoT architecture layers. The final course module consists of a series of lab exercises that require participants to apply their knowledge of the preceding courses in order to fulfill project requirements and solve real world problems. Completion of these courses as part of a virtual or on-site workshop results in each participant receiving an official digital Certificate of Completion, as well as a digital Training Badge from Acclaim/Credly.

To achieve the IoT Architect Certification, Exam IOT90.01 must be completed with a passing grade. A Certified IoT Architect understands the business value behind the utilization of the Internet of Things, and has demonstrated proficiency in the design of IoT devices and solutions with scalable connectivity and based on a range of functional distribution models, including models based on edge computing. Those who achieve this certification receive an official digital Certificate of Excellence, as well as a digital Certification Badge from Acclaim/Credly with an account that supports the online verification of certification status.

For more information, visit: www.arcitura.com/iot

EXAM IOT90.01

Exam IOT90.01 can be taken worldwide at Pearson VUE testing centers or via Pearson VUE online proctoring. To learn more about scheduling this exam, visit www.pearsonvue.com/arcitura. This exam can also be made available for on-site proctoring as part of eligible public or private workshops. To learn more, visit www.arcitura.com/onsite.

It is recommended that you prepare for Exam IOT90.01 by acquiring the IoT Architect Certification eLearning kit bundle or the printed IoT Architect Certification study kit bundle or by attending an instructor-led workshop that includes the IoT Modules 1, 2 and 3. The current public workshop calendar can be viewed at www.arcitura.com/workshops. To learn more about having a private workshop delivered at your location, visit www.arcitura.com/private.

Fundamental IoT

This course covers the essentials of the field of Internet of Things (IoT) from both business and technical aspects. Fundamental IoT use cases, concepts, models and technologies are covered in plain English, along with introductory coverage of IoT architecture and IoT messaging with REST, HTTP and CoAp.

The following primary topics are covered:

- Understanding Things, Connectivity, Data, Processing, Commands and Business Analytics
- IoT Business and Technology Drivers, Benefits and Challenges
- Miniaturization and Nanotechnology
- IoT Connectivity and Contextual Realtime Data
- IoT Business Domains (Personal, Home, Enterprise, Utilities, Mobile)
- IoT vs. the Internet
- Resource-Constrained Devices and Low-Power Wide-Area Networks (LPWANs)
- Active and Passive Devices (including RFID)
- Telemetry and Command Data
- Sensors (Mechanical, Resistive, Optical, Ranging, MEMS)
- Microcontrollers, Firmware and Power Sources
- IoT Gateways and Common Gateway Functions
- Introduction to Edge and Fog Computing
- IoT Platforms and Common Platform Functions
- IoT Architecture Layers and Action Modeling
- Key IoT Architecture Design Considerations
- Radio Transports (Leased vs. Unleased, High Band vs. Low Band)
- IoT Messaging with REST, HTTP and the Constrained Application Protocol (CoAp)
- REST Properties and Constrains with IoT and CoAp
- HTTP Resource Identifiers, Media Types and Method with IoT and CoAp
- IoT Publish-and-Subscribe and MQ Telemetry Transport (MQTT)
- Non-Binary Data Serialization for IoT with JSON
- Binary Data Serialization for IoT with Protocol Buffers

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CONTENTS

This course is available as part of an Arcitura Study Kit in full-color printed and eLearning formats. In addition to the base course materials used during training workshops, additional materials designed for self-study purposes are also included.

- Workbook (1 of 3)
- Exam Preparation Guide (1 of 3)
- IoT Networking Supplement
- Mind Map Poster
- IoT Business Domains Poster
- Symbol Legend Poster
- Flashcards
- Video Lessons (eLearning only)
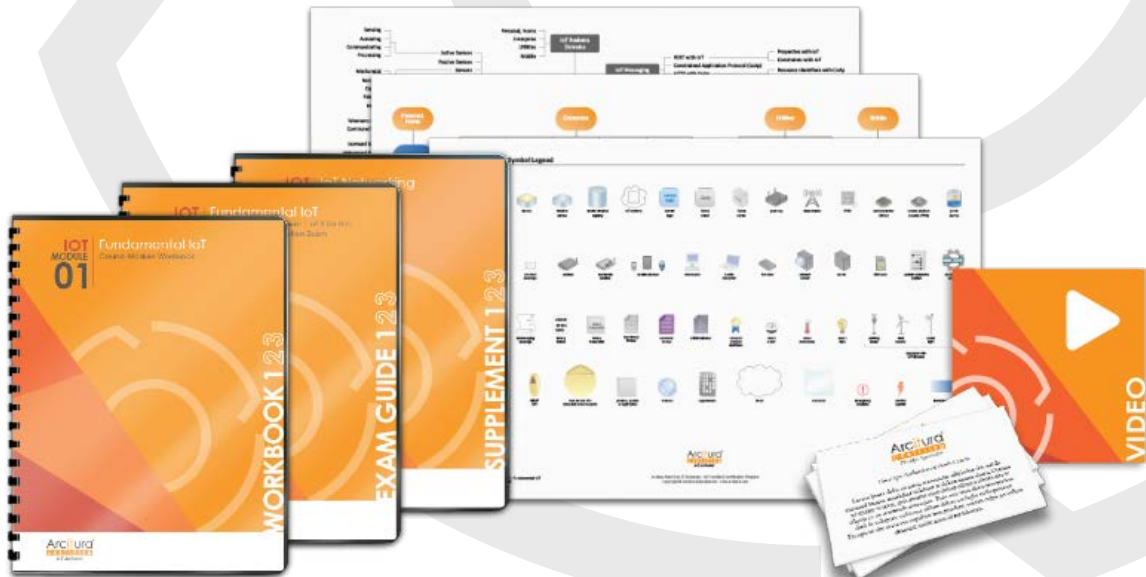
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eLEARNING

The eLearning kit provides enhanced features for self-study, including custom annotations and commenting, outline-driven navigation, custom bookmarks, multi-document viewing and full-text searching. This environment also enables online and offline access without the need to install any software.

IoT Technology and Architecture

This course provides a drill-down into key areas of IoT technology architecture and enabling technologies by breaking down IoT environments into individual building blocks via design patterns and associated implementation mechanisms. Layered architectural models are covered, along with design techniques and feature-sets covering the processing of telemetry data, positioning of control logic, performance optimization, as well as addressing scalability and reliability concerns.

The following primary topics are covered:

- Components of an IoT Device (including sensor, actuator, modem, control logic, etc.)
- IoT Platforms, Gateways and Publish-Subscribe Systems
- Device Shadows and Device Shadow Registries
- Trusted Platform Module (TPM) and the Truncated Exponential Back-off Algorithm
- Fundamental Functional Distribution Patterns
- Autonomous Controlling Device Model, Intermediary Controlling Model
- Multi-Gateway Intermediary Controlling Model, Recipient Device Controlling Model
- Telemetry Processing Patterns
- Minimalized Data, Canonical Data Format
- Telemetry Modeling, Intermediary Metadata Provisioning
- Information Transduction and Encoding
- Performance Optimization Patterns
- Observe Messaging, Transport Quality Traffic Profile
- Reconnection Request Regulation, Device Workload Regulation
- Security, Reliability and Utility Patterns
- Radio Transport Encryption, Firmware Integrity Attestation
- Message Bookkeeping, Multimode Communication
- Network-Based Positioning and Triangulation

MORE INFO

For curriculum information, visit:
www.arcitura.com/nextgen.

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This course is available as part of an Arcitura Study Kit in full-color printed and eLearning formats. In addition to the base course materials used during training workshops, additional materials designed for self-study purposes are also included.

- Workbook (2 of 3)
- Exam Preparation Guide (2 of 3)
- Mind Map Poster
- Common IoT Mechanism and Component Relationships Poster
- Patterns and Mechanisms Poster
- Flashcards
- Video Lessons (eLearning only)

eLEARNING

The eLearning kit provides enhanced features for self-study, including custom annotations and commenting, outline-driven navigation, custom bookmarks, multi-document viewing and full-text searching. This environment also enables online and offline access without the need to install any software.

IoT Technology & Architecture Lab

This course module presents participants with a series of exercises and problems that are designed to test their ability to apply their knowledge of topics covered in previous courses. Completing this lab will help highlight areas that require further attention and will help prove hands-on proficiency in IoT concepts, technologies, architecture models and devices, as they are applied and combined to solve real-world problems.

For instructor-led delivery of this lab course, the Certified Trainer works closely with participants to ensure that all exercises are carried out completely and accurately. Attendees can voluntarily have exercises reviewed and graded as part of the class completion. For individual completion of this course as part of a study kit, a number of supplements are provided to help participants carry out exercises with guidance.

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This course is available as part of an Arcitura Study Kit in full-color printed and eLearning formats. In addition to the base course materials used during training workshops, additional materials designed for self-study purposes are also included.

- Workbook (3 of 3)
- Exam Preparation Guide (3 of 3)
- Mind Map Poster
- Lab Exercise 3.3 Poster
- Lab Exercise 3.4 Poster
- Lab Exercise 3.5 Poster
- Lab Exercise 3.6 Poster
- Flashcards

eLEARNING

The eLearning kit provides enhanced features for self-study, including custom annotations and commenting, outline-driven navigation, custom bookmarks, multi-document viewing and full-text searching. This environment also enables online and offline access without the need to install any software.

DIGITAL TRANSFORMATION CERTIFICATIONS
DIGITAL TRANSFORMATION PROFESSIONAL ACADEMY

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		Digital Transformation Specialist	Digital Transformation Technology Professional	Digital Transformation Technology Architect	Digital Transformation Data Science Professional	Digital Transformation Data Scientist	Digital Transformation Security Professional	Digital Transformation Security Specialist	Digital Transformation IA Professional	Digital Transformation IA Specialist
MODULE 01	Fundamental Digital Transformation	●	●	●	●	●	●	●	●	●
MODULE 02	Digital Transformation in Practice	●	●	●	●	●	●	●	●	●
MODULE 03	Fundamental Cloud Computing		●	●						
MODULE 04	Fundamental Blockchain		●	●			●	●		
MODULE 05	Fundamental IoT		●	●						
MODULE 06	Cloud Architecture			●						
MODULE 07	Blockchain Architecture			●				●		
MODULE 08	IoT Architecture			●						
MODULE 09	Fundamental Big Data Analysis & Analytics				●	●				
MODULE 10	Fundamental Machine Learning				●	●				
MODULE 11	Fundamental AI				●	●			●	●
MODULE 12	Advanced Big Data Analysis & Analytics					●				
MODULE 13	Advanced Machine Learning					●				
MODULE 14	Advanced AI					●				●
MODULE 15	Fundamental Cybersecurity						●	●		
MODULE 16	Advanced Cybersecurity							●		
MODULE 17	Fundamental RPA								●	●
MODULE 18	Advanced RPA & Intelligent Automation									●

To learn more, visit:
www.arcitura.com/digitaltransformation

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			Certified DevOps Specialist	Certified Blockchain Architect	Certified Machine Learning Specialist	Certified Artificial Intelligence Specialist	Certified IoT Architect	Certified Cybersecurity Specialist	Certified RPA Specialist	Certified Business Technology Professional	Certified Containerization Architect
DevOps	MODULE 01	Fundamental DevOps	●								
	MODULE 02	DevOps in Practice	●								
	MODULE 03	DevOps Lab	●								
Blockchain	MODULE 01	Fundamental Blockchain		●							
	MODULE 02	Blockchain Technology & Architecture		●							
	MODULE 03	Blockchain Technology & Architecture Lab		●							
Machine Learning	MODULE 01	Fundamental Machine Learning			●						
	MODULE 02	Advanced Machine Learning			●						
	MODULE 03	Machine Learning Lab			●						
Artificial Intelligence	MODULE 01	Fundamental Artificial Intelligence				●					
	MODULE 02	Advanced Artificial Intelligence				●					
	MODULE 03	Artificial Intelligence Lab				●					
Internet of Things	MODULE 01	Fundamental IoT					●				
	MODULE 02	IoT Technology & Architecture					●				
	MODULE 03	IoT Technology & Architecture Lab					●				
Cybersecurity	MODULE 01	Fundamental Cybersecurity						●			
	MODULE 02	Advanced Cybersecurity						●			
	MODULE 03	Cybersecurity Lab						●			
RPA	MODULE 01	Fundamental RPA							●		
	MODULE 02	Advanced RPA & Intelligent Automation							●		
	MODULE 03	RPA Lab							●		
Business Technology	MODULE 01	Business Automation Technology Overview								●	
	MODULE 02	Data Science Technology Overview								●	
	MODULE 03	Digital & Security Technology Overview								●	
Containerization	MODULE 01	Fundamental Containerization									●
	MODULE 02	Containerization Technology & Architecture									●
	MODULE 03	Containerization Technology & Architecture Lab									●

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www.arcitura.com/nextgen

DIGITAL TRANSFORMATION

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DIGITAL TRANSFORMATION

- **MODULE 01 | Fundamental Digital Transformation**
- **MODULE 02 | Digital Transformation in Practice**
- **MODULE 03 | Fundamental Cloud Computing**
- **MODULE 04 | Fundamental Blockchain**
- **MODULE 05 | Fundamental IoT**
- **MODULE 06 | Cloud Architecture**
- **MODULE 07 | Blockchain Architecture**
- **MODULE 08 | IoT Architecture**
- **MODULE 09 | Fundamental Big Data Analysis & Analytics**
- **MODULE 10 | Fundamental Machine Learning**
- **MODULE 11 | Fundamental AI**
- **MODULE 12 | Advanced Big Data Analysis & Analytics**
- **MODULE 13 | Advanced Machine Learning**
- **MODULE 14 | Advanced AI**
- **MODULE 15 | Fundamental Cybersecurity**
- **MODULE 16 | Advanced Cybersecurity**
- **MODULE 17 | Fundamental RPA**
- **MODULE 18 | Advanced RPA & Intelligent Automation**

The following diagram highlights the course modules from the Digital Transformation curriculum that correspond to course modules from the IoT Architect program. Completing Internet of Things Modules 1 and 2 automatically advances you in Digital Transformation certification tracks.

Module	Track
MODULE 01	Fundamental Cloud Computing	CCP
MODULE 02	Cloud Technology Concepts	CCP
MODULE 01	Fundamental Blockchain	NEXT-GEN
MODULE 01	Fundamental IoT	NEXT-GEN
MODULE 04	Cloud Architecture	CCP
MODULE 02	Blockchain Technology & Architecture	NEXT-GEN
MODULE 02	IoT Technology & Architecture	NEXT-GEN
MODULE 01	Fundamental Big Data	BDSCP
MODULE 01	Fundamental Machine Learning	NEXT-GEN
MODULE 01	Fundamental AI	NEXT-GEN
MODULE 02	Big Data Analysis & Technology Concepts	BDSCP
MODULE 02	Advanced Machine Learning	NEXT-GEN
MODULE 02	Advanced AI	NEXT-GEN
MODULE 01	Fundamental Cybersecurity	NEXT-GEN
MODULE 02	Advanced Cybersecurity	NEXT-GEN
MODULE 01	Fundamental RPA	NEXT-GEN
MODULE 02	Advanced RPA & Intelligent Automation	NEXT-GEN

CLOUD CERTIFIED PROFESSIONAL (CCP)
CLOUD SCHOOL

Arcitura® CERTIFIED

		Certified Cloud Professional*	Certified Cloud Technology Professional	Certified Cloud Architect	Certified Cloud Security Specialist	Certified Cloud Governance Specialist	Certified Cloud Storage Specialist	Certified Cloud Virtualization Specialist
MODULE 01	Fundamental Cloud Computing	●	●	●	●	●	●	●
MODULE 02	Cloud Technology Concepts	●	●	●	●	●	●	●
MODULE 03	Cloud Technology Lab		●					
MODULE 04	Fundamental Cloud Architecture			●				
MODULE 05	Advanced Cloud Architecture			●				
MODULE 06	Cloud Architecture Lab			●				
MODULE 07	Fundamental Cloud Security				●			
MODULE 08	Advanced Cloud Security				●			
MODULE 09	Cloud Security Lab				●			
MODULE 10	Fundamental Cloud Governance					●		
MODULE 11	Advanced Cloud Governance					●		
MODULE 12	Cloud Governance Lab					●		
MODULE 13	Fundamental Cloud Storage						●	
MODULE 14	Advanced Cloud Storage						●	
MODULE 15	Cloud Storage Lab						●	
MODULE 16	Fundamental Cloud Virtualization							●
MODULE 17	Advanced Cloud Virtualization							●
MODULE 18	Cloud Virtualization Lab							●

* The Certified Cloud Professional designation is automatically issued when achieving any other CCP certification.
It can also be achieved by receiving passing grades on Exams C90.01 + C90.02.

To learn more,
visit: www.arcitura.com/ccp

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	Certified Big Data Professional*	Certified Big Data Science Professional	Certified Big Data Scientist	Certified Big Data Consultant	Certified Big Data Engineer	Certified Big Data Architect	Certified Big Data Governance Specialist
MODULE 01 Fundamental Big Data	●	●	●	●	●	●	●
MODULE 02 Big Data Analysis & Technology Concepts	●	●	●	●	●	●	●
MODULE 03 Big Data Analysis & Technology Lab		●		●			
MODULE 04 Fundamental Big Data Analysis & Science			●	●			
MODULE 05 Advanced Big Data Analysis & Science			●				
MODULE 06 Big Data Analysis & Science Lab			●				
MODULE 07 Fundamental Big Data Engineering				●	●		
MODULE 08 Advanced Big Data Engineering					●		
MODULE 09 Big Data Engineering Lab					●		
MODULE 10 Fundamental Big Data Architecture						●	
MODULE 11 Advanced Big Data Architecture						●	
MODULE 12 Big Data Architecture Lab						●	
MODULE 13 Fundamental Big Data Governance							●
MODULE 14 Advanced Big Data Governance							●
MODULE 15 Big Data Governance Lab							●

The Certified Big Data Professional designation is automatically issued when achieving any other BDSCP certification. It can also be achieved by receiving passing grades on Exams B90.01 + B90.02.

To learn more, visit:
www.arcitura.com/bdscp

SOA CERTIFIED PROFESSIONAL (SOACP)
SOA SCHOOL

Arcitura® CERTIFIED

	Certified SOA Professional*	Certified SOA Analyst	Certified SOA Architect	Certified Microservice Architect	Certified Service Tech Consultant	Certified Service API Specialist	Certified Service Governance Specialist	Certified Service Security Specialist
MODULE 01 Fundamental SOA, Services & Microservices	●	●	●	●	●	●	●	●
MODULE 02 Service Technology Concepts	○		●	●	●	●		●
MODULE 03 Design & Architecture w/ SOA, Services & Microservices	○	●	●				●	
MODULE 04 Fundamental SOA Analysis & Modeling w/ Services & Microservices		●						
MODULE 05 Advanced SOA Analysis & Modeling w/ Services & Microservices		●						
MODULE 06 SOA Analysis & Modeling Lab w/ Services & Microservices		●						
MODULE 07 Advanced SOA Design & Architecture w/ Services & Microservices			●					
MODULE 08 SOA Design & Architecture Lab w/ Services & Microservices			●					
MODULE 09 Fundamental Microservice Architecture & Containerization				●	●			
MODULE 10 Advanced Microservice Architecture & Containerization				●				
MODULE 11 Microservice Architecture & Containerization Lab				●				
MODULE 12 Fundamental Service API Design & Management					●	●		
MODULE 13 Advanced Service API Design & Management						●		
MODULE 14 Service API Design & Management Lab						●		
MODULE 15 Fundamental Service Governance & Project Delivery							●	
MODULE 16 Advanced Service Governance & Project Delivery							●	
MODULE 17 Service Governance & Project Delivery Lab							●	
MODULE 18 Fundamental Security for Services, Microservices & SOA					●			●
MODULE 19 Advanced Security for Services, Microservices & SOA								●
MODULE 20 Security Lab for Services, Microservices & SOA								●

* The Certified SOA Professional designation is automatically issued when achieving any other SOACP certification.
It can also be achieved by receiving passing grades on Exams S90.01B + S90.02B or S90.01B + S90.03B.

To learn more, visit:
www.arcitura.com/soacp

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