CLOUD AI ARCHITECT
Training & Certification Guide

Arcitura TRAINING
Cloud AI Architecture & Design

Arcitura CERTIFIED
Cloud AI Architect

itcc

PCC PROFESSIONAL CERTIFICATION COALITION

P Pearson | VUE

OnVUE

Acclaim

Credly
by Pearson

Arcitura DIGITAL

AI & Cloud AI Professional Academy

The AI & Cloud AI Professional Academy from Arcitura provides formal education and accreditation programs dedicated to contemporary AI technology and practices, including predictive AI, generative AI and cloud-based AI, as well as AI engineering and architecture.

The AI & Cloud AI Professional Academy curriculum is comprised of 23 course modules and 9 certification tracks. Exams are available worldwide via online proctoring and on-site delivery by Certified Trainers. Achieving a passing grade on the required exam(s) achieves a certification for which a digital accreditation certificate is automatically issued by Arcitura and a digital certification badge is issued by Acclaim/Credly.

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HOW TO TAKE THIS COURSE
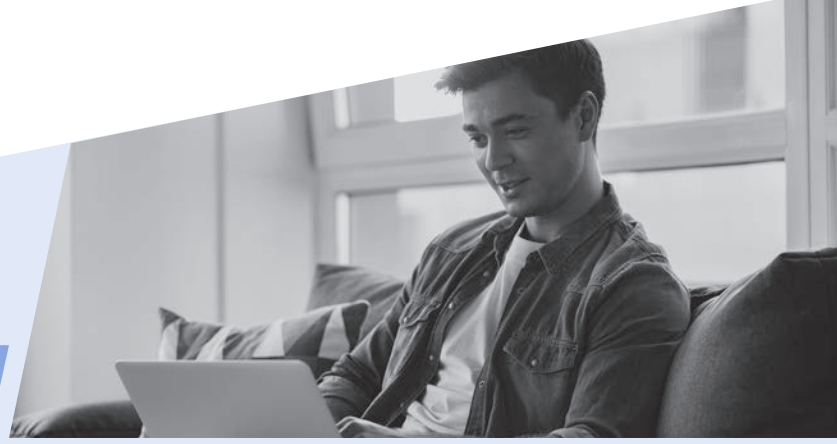
ARCITURA ELEARNING OPTIONS

To give you the most flexibility to achieve your learning goals and accommodate your preferences, this course is made available via two Arcitura eLearning solutions: An interactive environment with graded exercises and a graded self-test, as well as a study kit account that supports online/offline access and custom annotations.

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

To enroll, visit: digital.arcitura.com/courses

ONSITE WORKSHOPS

Private onsite workshops can be delivered by Certified Trainers from Arcitura and authorized training partners for both small and large groups. Each workshop participant can receive access to the full Arcitura Digital eLearning course materials. Each workshop agenda, format and schedule can be tailored to client requirements.

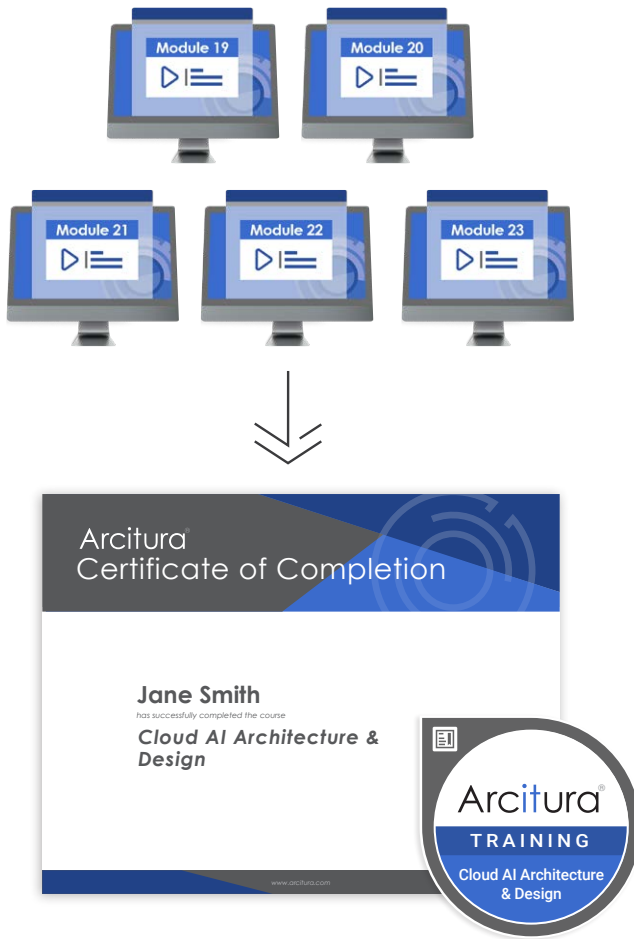To learn more, visit: www.arcitura.com/workshops

VIRTUAL WORKSHOPS

Private virtual workshops can be delivered by Certified Trainers for small and large groups, as well as individual participants. Workshop participants receive access to the course materials via the Arcitura Digital eLearning platform. Virtual workshop agendas can be tailored with greater flexibility to accommodate more distributed and fragmented training schedules.

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

Several additional learning and exam preparation products and services are available, including coaching, exam prep kits and digital downloads. See the Training and Exam Preparation Resources page for details.

Module 19 Module 20
Module 21 Module 22 Module 23

Arcitura®
Certificate of Completion

Jane Smith
has successfully completed the course
*Cloud AI Architecture &
Design*

www.arcitura.com

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T R A I N I N G
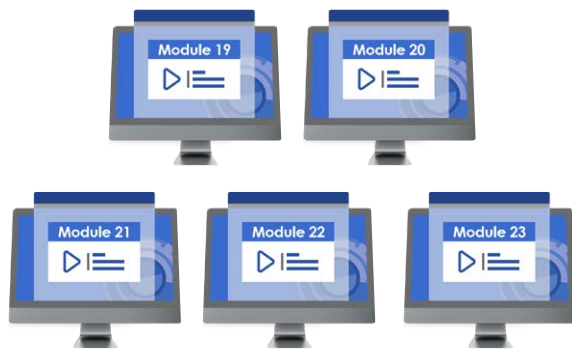**Cloud AI Architecture
& Design**

HOW TO GET STARTED

Welcome to the Cloud AI Architecture & Design course! This course is comprised of a set of modules. Each module has a set of lessons and is further supplemented with exercises to help reinforce your understanding of key topics. Upon completing the course, you can optionally proceed to prepare yourself for the certification exam (as explained on the *How to get Certified* page).

Additional resources are available to assist you with completing this course, including downloadable digital course files, printed course materials, coaching hours and instructor-led training services (as explained on the *Training and Exam Preparation Resources* page.)

A Certified Cloud AI Architect has in-depth, proven knowledge of AI-specific cloud architectural models, design patterns and infrastructure to help realize the design, implementation and integration of enterprise-grade, cloud-based AI solutions.

Module 19
Module 20
Module 21
Module 22
Module 23

CERTIFICATION EXAM

Arcitura® Cloud AI Architect

Arcitura® Cloud AI Architect

Jane Smith
has successfully completed the requirements to be recognized as a certified Cloud AI Architect.
HONORS

Arcitura®
CERTIFIED
Cloud AI Architect

HOW TO GET CERTIFIED

You can become a Certified Cloud AI Architect! This course can prepare you for the official Cloud AI Architect Certification exam, which can be taken worldwide.

Upon attaining a passing grade on the certification exam, you will achieve the Cloud AI Architect Certification, after which you will automatically receive an official digital Accreditation Certificate and a digital Certification Badge from Acclaim/Credly with an account that supports the online verification of your certification status. Digital accreditation certificates and badges are free of charge.

Additional resources are available to assist you with preparing for the certification exam, including practice exam questions, downloadable digital course files, printed course materials, coaching hours and instructor-led training services (as explained on the *Training and Exam Preparation Resources* page.)

MORE INFO

To learn more about this certification and exam, visit:
www.arcitura.com/certifications

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# Fundamental Cloud AI Technology & Automation
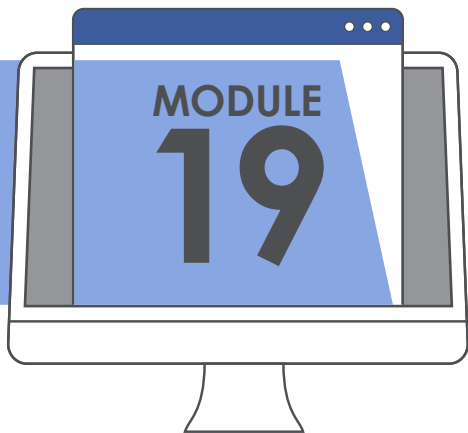
MODULE 19

This course module focuses on cloud computing technology, infrastructure and practices specific to establishing and running cloud-based predictive AI and generative AI solutions. Topics include GPU and TPU for AI learning workloads, cloud-based AI services such as AWS SageMaker, Azure Machine Learning and Google AI Platform for model development, training and deployment, as well as mechanisms for scaling AI applications in the cloud, data storage and pipeline options.

The following primary topics are covered:

- Overview of Cloud Computing Related to Predictive AI and Generative AI
- Fundamental Cloud AI Infrastructure
- Types of Cloud Infrastructure (GPUs, TPUs) and their AI Applications
- AI Services in the Cloud
- Exploring AWS SageMaker, Azure Machine Learning and Google AI Platform
- Leveraging Pre-Built AI APIs
- Managing AI Data in the Cloud
- AI Data Storage (Object Storage, Data Warehouses, Data Lakes)
- Building and Training AI Models in the Cloud
- Training Models with Cloud-based Services
- Deploying AI Models in the Cloud
- Data Compliance and Governance in AI
- Monitoring and Optimizing AI Workloads
- Security and Privacy Considerations

# Advanced Cloud AI Technology & Automation
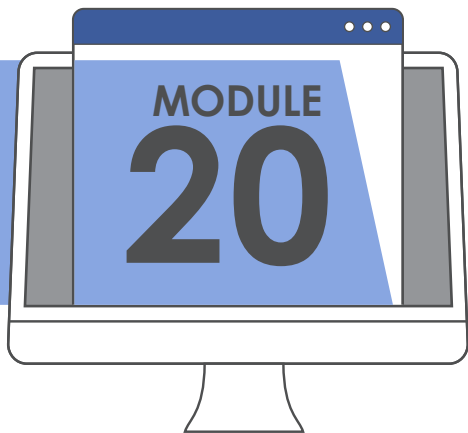
MODULE
20

This course module covers a range of advanced topics, including cloud-based AI model management, AI pipeline orchestration, optimization techniques, scaling and failover, MLOps, as well as multi-cloud and hybrid AI strategies. Also covered are cloud-based data pipeline services, including AWS Glue, Azure Data Factory and Google Dataflow.

The following primary topics are covered:

- AI Model Orchestration for Multi-Step AI Workflows
- Resource Optimization Cloud-based AI
- Multi-Cloud and Hybrid AI Frameworks
- MLOps and Continuous Integration and Delivery (CI/CD) Pipelines for AI Models
- AI Data Pipeline Services, including AWS Glue, Azure Data Factory, Google Dataflow
- Performance Tuning and Distributed AI Architectures
- Managing Distributed Data and Computation in AI Applications
- Security Strategies for AI Data and Models
- Disaster Recovery and Failover Planning
- Scaling and Managing AI Applications with Containerization and Serverless
- Automated Failover Mechanisms for High-Availability AI
- Advanced Analytics and AI Services
- Cloud-Native Advanced AI Services

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# Fundamental Cloud AI Architecture & Design
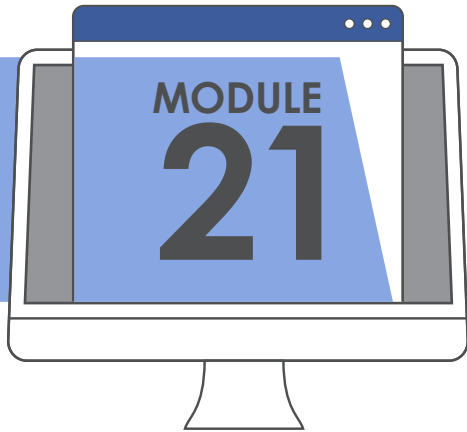
MODULE
21

This course module explores cloud-based architectural models and design patterns specific to predictive AI and generative AI applications, including the selection and configuration of specialized cloud AI infrastructure, AI-optimized compute instances and network topologies for data-intensive workloads, as well as strategies for integrating AI services within existing cloud environments. Topics also include the utilization of containerization and multi-clouds, as well as scalability, failover and security considerations.

The following primary topics are covered:

- Introduction to Cloud-Based AI Architectures
- Specialized Cloud AI Infrastructure
- Understanding AI-Optimized Compute and Storage Options
- Network Design for AI Workloads
- Integrating AI into Existing Cloud Architectures
- Data Governance and Orchestration for AI
- Serverless AI and Structuring AI Applications as Microservices
- Containerization of AI Environments
- AI Architectures for Hybrid and Multi-Cloud Environments
- Securing AI Architectures in the Cloud
- Compliance and Privacy in AI Architectures
- Scalability and Performance Optimization

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Advanced Cloud AI Architecture & Design
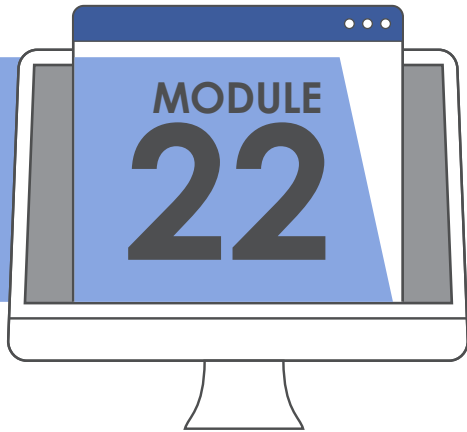
MODULE
22

This course module delves into complex architectural models and design patterns, as well as deployment strategies and optimization techniques for AI solutions. Topics covered include designing for high availability and fault tolerance in AI applications, implementing sophisticated data streaming architectures for real-time AI analytics, as well as exploring the utilization of containerization and microservices for AI systems.

The following primary topics are covered:

- Principles of Advanced AI Architecture Design
- Hyper-Scaling AI Infrastructure
- Real-Time Data Architectures for AI
- Microservices and Service Meshes in AI Applications
- Advanced Security Architectures for AI Systems, including Zero-Trust Models
- Lifecycle Management of Cloud-Based AI
- AI-Specific Resource Management and Automation
- Managing State and Dataflow in AI Applications
- Distributed AI Systems and Patterns for Data Flow
- Monitoring and Observability of AI Systems
- Disaster Recovery and Business Continuity
- Interoperability and Standardization in AI Architecture

Cloud AI Architecture & Design Lab
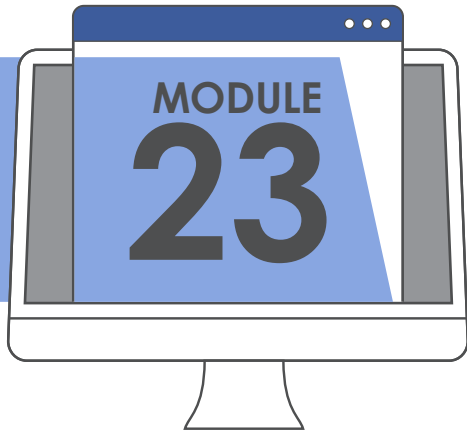
MODULE 23

This course module provides a series of case-study driven, lab-style exercises and problems that are designed to test your ability to apply your knowledge of topics covered in previous modules. Completing this lab helps reinforce understanding of preceding topics and further demonstrates how different practices and technologies can be applied together as part of greater solutions.

TRAINING AND EXAM PREPARATION RESOURCES

You can supplement this course with a number of available resources to assist with both learning and exam preparation. Contact info@arcitura.com with any questions.

Certification Exam Prep Kit

A set of additional practice questions is available to support exam preparation.
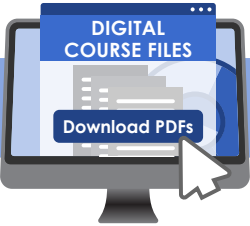
Digital Course Files

For each course you can order a set of downloadable digital course materials comprised of printable, watermarked workbook and poster PDF files.

Printed Course Materials

The printed workbooks and posters for each course can be ordered in B&W and full-color, and can be shipped worldwide.

One-on-One Coaching

Certified Trainers are available to provide online coaching on an hourly basis and in all time zones.

Instructor-Led Training

Certified Trainers are available to provide virtual and onsite training workshops for this and other Arcitura courses.

COURSES / CERTIFICATIONS	Predictive AI / Predictive AI Specialist	Generative AI / Generative AI Specialist	AI Engineering / AI Engineer	AI Architecture & Design / AI Architect	AI Professional Consulting / AI Consultant	AI Chatbot Concepts & Design / AI Chatbot Specialist	NLP Engineering / NLP Engineer	Cloud AI Technology & Automation / Cloud AI Professional	Cloud AI Architecture & Design / Cloud AI Architect
MODULE 01 Fundamental Predictive AI	●		●	●	●				
MODULE 02 Advanced Predictive AI	●								
MODULE 03 Predictive AI Lab	●								
MODULE 04 Fundamental Generative AI		●	●	●	●				
MODULE 05 Advanced Generative AI		●							
MODULE 06 Generative AI Lab		●							
MODULE 07 Fundamental AI Engineering			●		●				
MODULE 08 Advanced AI Engineering			●						
MODULE 09 AI Engineering Lab			●						
MODULE 10 Fundamental AI Architecture				●	●				
MODULE 11 Advanced AI Architecture				●					
MODULE 12 AI Architecture Lab				●					
MODULE 13 Fundamental AI Chatbot Concepts & Design						●			
MODULE 14 Advanced AI Chatbot Concepts & Design						●			
MODULE 15 AI Chatbot Concepts & Design Lab						●			
MODULE 16 Fundamental NLP Engineering							●		
MODULE 17 Advanced NLP Engineering							●		
MODULE 18 NLP Engineering Lab							●		
MODULE 19 Fundamental Cloud AI Technology & Automation								●	●
MODULE 20 Advanced Cloud AI Technology & Automation								●	●
MODULE 21 Fundamental Cloud AI Architecture & Design									●
MODULE 22 Advanced Cloud AI Architecture & Design									●
MODULE 23 Cloud AI Architecture & Design Lab									●

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COURSES → CERTIFICATIONS	Digital Transformation / Digital Transformation Specialist	Fundamental Digital Technology / Digital Technology Professional	Digital Technology & Architecture / Digital Technology Architect	Fundamental AI & Data Science for Digital Transformation / Digital Data Science Professional	AI & Data Science for Digital Transformation / Digital Data Scientist	Fundamental Security for Digital Transformation / Digital Security Professional	Security for Digital Transformation / Digital Security Specialist	Fundamental Intelligent Automation for Digital Transformation / Intelligent Automation Professional	Intelligent Automation for Digital Transformation / Intelligent Automation 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									●

Attaining a certification that encompasses all of the course modules also associated with another certification results in the other certification also being automatically awarded.

	COURSES	DevOps	Blockchain Architecture	IoT Architecture	Cybersecurity	Robotic Process Automation	Digital Business Technology	Containerization Architecture	Quantum Computing
	CERTIFICATIONS	DevOps Specialist	Blockchain Architect	IoT Architect	Cybersecurity Specialist	RPA Specialist	Digital Business Technology Professional	Containerization Architect	Quantum Computing Specialist
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		●						
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				●				
Robotic Process Automation	MODULE 01 Fundamental RPA					●			
	MODULE 02 Advanced RPA & Intelligent Automation					●			
	MODULE 03 RPA Lab					●			
Digital 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							●	
Quantum Computing	MODULE 01 Fundamental Quantum Computing								●
	MODULE 02 Advanced Quantum Computing								●
	MODULE 03 Quantum Computing Lab								●

NEXT-GEN DATA SCIENCE ACADEMY

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COURSES	Big Data Analytics & Fundamental Data Science	Big Data Analysis & Advanced Data Science	Big Data Consutling	Data Science Professional Consulting	Machine Learning	Big Data Engineering	Big Data Architecture	Data Science Governance
CERTIFICATIONS	Big Data Science Professional	Big Data Scientist	Big Data Consultant	Data Science Consultant	Machine Learning Specialist	Big Data Engineer	Big Data Architect	Data Science Governance Specialist
MODULE 01 — Fundamental Big Data Science & Analytics	●	○	○	○		○	○	○
MODULE 02 — Big Data Analysis & Technology Concepts	●	○	○	○		○	○	○
MODULE 03 — Big Data Analysis & Technology Lab	●		○	○				
MODULE 04 — Big Data Analysis & Science		●	●					
MODULE 05 — Advanced Big Data Analysis & Science		●						
MODULE 06 — Big Data Analysis & Science Lab		●						
MODULE 07 — Fundamental Machine Learning				●	●			
MODULE 08 — Advanced Machine Learning					●			
MODULE 09 — Machine Learning Lab					●			
MODULE 10 — Fundamental Predictive & Generative Artificial Intelligence				●				
MODULE 11 — Fundamental Big Data Engineering						●		
MODULE 12 — Advanced Big Data Engineering						●		
MODULE 13 — Big Data Engineering Lab			●			●		
MODULE 14 — Fundamental Big Data Architecture							●	
MODULE 15 — Advanced Big Data Architecture							●	
MODULE 16 — Big Data Architecture Lab							●	
MODULE 17 — Fundamental Data Science Governance for Big Data, Machine Learning & AI								●
MODULE 18 — Advanced Data Science Governance for Big Data, Machine Learning & AI								●
MODULE 19 — Data Science Governance Lab for Big Data, Machine Learning & AI								●

Gray circles indicate prerequisite modules.

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CLOUD COMPUTING SCHOOL

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COURSES	Cloud Computing	Cloud Computing Professional Consulting	Cloud Architecture	Cloud Security	Cloud Governance	Cloud Storage	Cloud Virtualization
CERTIFICATIONS	Cloud Technology Professional	Cloud Computing Consultant	Cloud Architect	Cloud Security Specialist	Cloud Governance Specialist	Cloud Storage Specialist	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							●

Gray circles indicate prerequisite modules.

SERVICE TECHNOLOGY SCHOOL

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COURSES	Fundamental Microservices & Service Technology	Fundamental SOA Design with Services & Microservices	SOA Analysis & Modeling with Services & Microservices	SOA Design & Architecture with Services & Microservices	Microservice Design & Architecture	Microservice Professional Consulting	Service API Design & Management	Service Governance & Project Delivery	Security for Microservices & SOA
CERTIFICATIONS	Microservice Professional	SOA Professional	SOA Analyst	SOA Architect	Microservice Architect	Microservice Consultant	Service API Specialist	Service Governance Specialist	Service Security Specialist
MODULE 01 — Fundamental SOA, Services & Microservices	●	●	○	○	○	○	○	○	○
MODULE 02 — Microservice Technology Concepts	●			○	○	○	○		○
MODULE 03 — Design & Architecture with SOA, Services & Microservices		●	○	●				○	
MODULE 04 — Fundamental SOA Analysis & Modeling with Services & Microservices			●						
MODULE 05 — Advanced SOA Analysis & Modeling with Services & Microservices			●						
MODULE 06 — SOA Analysis & Modeling Lab with Services & Microservices			●						
MODULE 07 — Advanced SOA Design & Architecture with Services & Microservices				●					
MODULE 08 — SOA Design & Architecture Lab with 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									●

Gray circles indicate prerequisite modules.

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