

# SOA DESIGN & ARCHITECTURE WITH SERVICES & MICROSERVICES

## Training & Certification Guide



Arcitura  
DIGITAL

## About the Service Technology School

/// The Service Technology School from Arcitura provides formal education and accreditation programs dedicated to the fields of Microservices, Service APIs and SOA, including analysis, modeling, design, architecture, security and governance.

The Service Technology School curriculum is comprised of 20 course modules and 9 certification tracks. Exams are available worldwide via Pearson VUE testing centers, as well as via Pearson VUE OnVue 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](http://www.arcitura.com/elearning)

To enroll, visit: [digital.arcitura.com/courses](http://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.

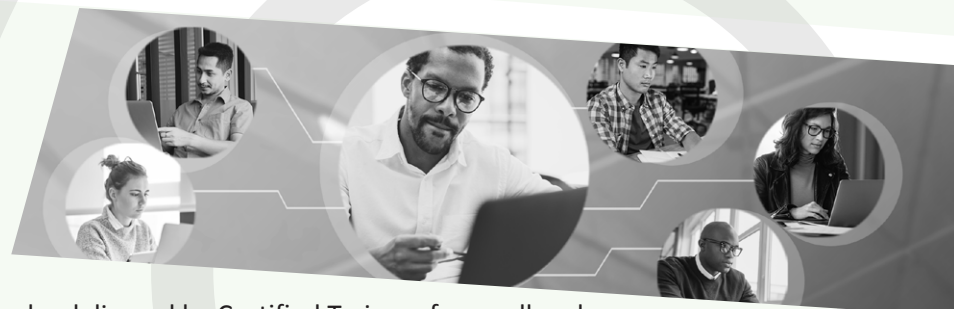
To learn more, visit: [www.arcitura.com/workshops](http://www.arcitura.com/workshops)



### 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](http://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.*



## HOW TO GET STARTED

Welcome to the SOA Design & Architecture with Services & Microservices 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).

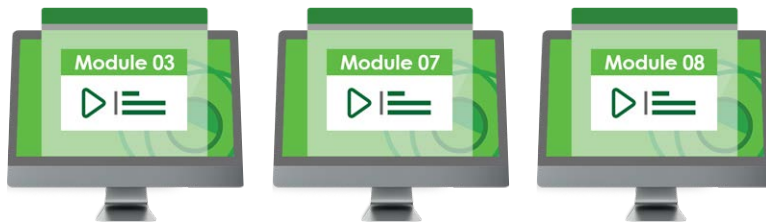
Additional resources are available to assist you with completing this course, including downloadable digital course files, printed course materials, coaching hours and instructor-led training services (as explained on the *Training and Exam Preparation Resources* page.)

## PREREQUISITE

The prerequisite for this course is the completion of the Fundamental Microservices & Service Technology course. It is recommended that you complete the Fundamental Microservices & Service Technology course prior to starting the SOA Design & Architecture with Services & Microservices course.

### MORE INFO

To enroll in this course, visit:  
[digital.arcitura.com/courses](https://digital.arcitura.com/courses)



## HOW TO GET CERTIFIED

You can become a Certified SOA Architect! This course can prepare you for the official SOA Architect Certification exam, which can be taken worldwide at Pearson VUE testing centers, via Pearson VUE online proctoring and/or Arcitura direct proctoring.

Upon attaining a passing grade on the certification exam (and fulfilling any other prerequisite exam requirements) you will achieve the SOA 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.)

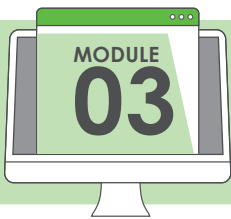
### MORE INFO

To learn more about this certification and exam, visit:  
[www.arcitura.com/certifications](http://www.arcitura.com/certifications)

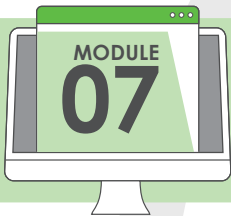


## COURSE MODULE OUTLINES

The SOA Design & Architecture with Services & Microservices course is comprised of the following course modules. Outlines for these course modules are provided on the subsequent pages.



### Design & Architecture with SOA, Services & Microservices



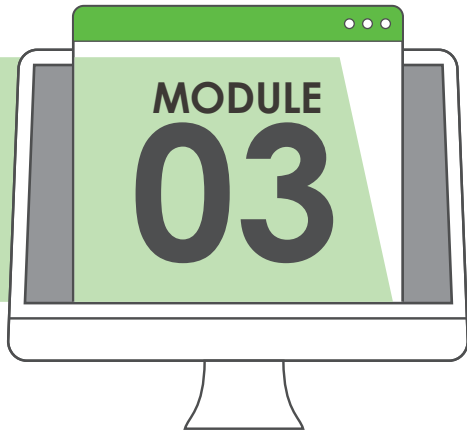
### Advanced SOA Design & Architecture with Services & Microservices



### SOA Design & Architecture Lab with Services & Microservices



# Design & Architecture with SOA, Services & Microservices



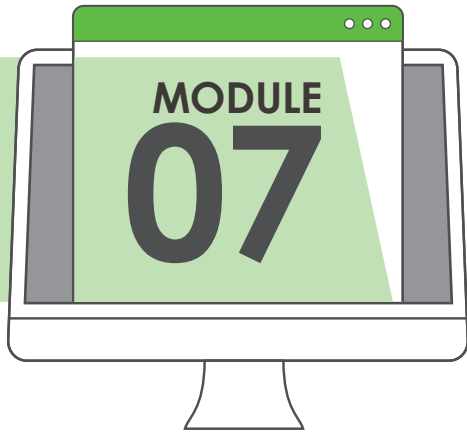
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This course module delves into the service-oriented architectural model and the service-orientation design paradigm and establishes the unique characteristics and dynamics that constitute service-oriented solution logic. The module raises a series of distinct considerations for designing service-oriented solutions with microservices, as well as REST services and Web services.

The following primary topics are covered:

- Fundamental Application Design with SOA
- Service-Orientation vs. “Silo”-Based Design
- Service-Oriented Application Design with Microservices
- Understanding Services and Service Capabilities
- Understanding the Functional Context of Microservices
- Complex Service Composition Design, Composition Runtime Roles and Responsibilities
- Composition with Microservices
- Distinguishing Characteristics of the SOA Model
- The Eight Design Principles of Service-Orientation
- Contract-First Design, Standardized Service Contracts and Uniform Contracts
- Service Loose Coupling and Coupling Types, Service Abstraction and Information Hiding
- Service Reusability and Agnostic Design, Service Autonomy and Runtime Control
- Service Statelessness and State Deferral, Service Discoverability and Interpretability
- Design Guidelines for REST Services
- Design Guidelines for Web Services
- Design Guidelines for Microservices

# Advanced SOA Design & Architecture with Services & Microservices



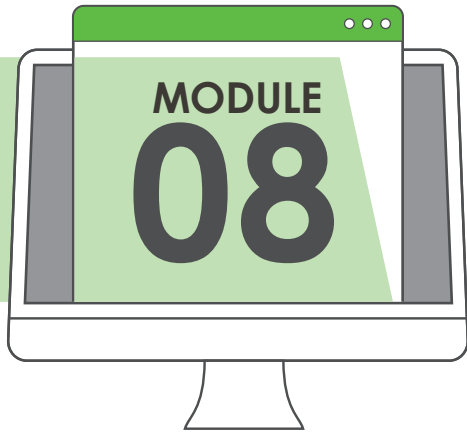
This course module provides an in-depth exploration of the overarching models and underlying mechanics of service-oriented technology architecture. A wide range of topic areas is covered to provide techniques, insights and perspectives of the inner workings of service and composition architectures, including messaging, microservice deployments, service contracts, API gateways, containerization and many more.

The following primary topics are covered:

- SOA vs. Traditional Architectures
- Understanding Service and Composition Architectures
- Logic Centralization, Schema Centralization and Canonical Schemas
- Dual Protocols, Canonical Resources and Inventory Endpoints
- Contract Centralization, Official Endpoints and Services with Concurrent Contracts
- Lightweight Endpoints, Reusable and Uniform Contracts
- Service Façades, Legacy Wrappers and Service Data Replication
- Microservice Deployments and Containerization
- Redundant Implementations, Content Negotiation and Idempotent Capabilities
- Messaging Metadata, State Messaging and Event-Driven Messaging
- Service Instance Routing, Endpoint Redirection, Service Agents and Intermediate Routing
- API Gateways and Asynchronous Queuing
- Data Format Transformation, Data Model Transformation and Protocol Bridging
- Service Brokers and the Enterprise Service Bus
- Orchestration and Compensating Service Transactions
- Composition Autonomy, Entity Linking and State Repositories



# SOA Design & Architecture Lab with Services & Microservices



As a continuation of course modules 3 and 7, this hands-on workshop allows attendees to apply the technologies, concepts, techniques, patterns and principles previously covered in order to complete a set of design exercises.

Participants are required to study case study backgrounds and carry out a series of exercises to solve a number of inter-related problems, with the ultimate goal of applying design patterns to design their own services and service-oriented solutions.

For individual completion of this module as part of the Study Kit, a number of supplements are provided to help participants carry out exercises with guidance and numerous resource references.

The following exercises are provided:

- Reading Exercise 8.1: Case Study Background E-Commerce Assist (ECA)
- Lab Exercise 8.2: Shopping Platform Upgrades
- Lab Exercise 8.3: Re-Modeling Web Services as REST Services
- Lab Exercise 8.4: API Gateway and Inventory Endpoint Design
- Reading Exercise 8.5: Case Study Background FRC
- Lab Exercise 8.6: Flight Plan Service Re-Design
- Lab Exercise 8.7: Platform Upgrades
- Lab Exercise 8.8: Regulatory Compliance Service Architecture
- Reading Exercise 8.9: Case Study Background Alleywood and Tri-Fold
- Lab Exercise 8.10: GetERPIInvData Service Re-Design



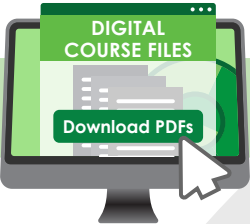
## TRAINING AND EXAM PREPARATION RESOURCES

You can supplement this course with a number of available resources to assist with both learning and exam preparation. Contact [info@arcitura.com](mailto: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		Digital Transformation	Digital Transformation: Fundamental Technology	Digital Transformation: Advanced Technology & Architecture	Digital Transformation: Fundamental Data Science	Digital Transformation: Advanced Data Science	Digital Transformation: Fundamental Security	Digital Transformation: Advanced Security	Digital Transformation: Fundamental Intelligent Automation	Digital Transformation: Advanced Intelligent Automation
CERTIFICATIONS		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 Intelligent Automation Professional	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									●
MODULE 19	Fundamental AI Decisioning								●	●
MODULE 20	Advanced AI Decisioning									●

Gray circles indicate prerequisite modules.

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								●

COURSES		Big Data Analytics & Fundamental Data Science	Big Data Analysis & Advanced Data Science	Data Science Professional Consulting	Machine Learning	Artificial Intelligence	Big Data Engineering	Big Data Architecture	Data Science Governance	AI Decisioning
CERTIFICATIONS		Big Data Science Professional	Big Data Scientist	Data Science Consultant	Machine Learning Specialist	Artificial Intelligence Specialist	Big Data Engineer	Big Data Architect	Data Science Governance Specialist	AI Decisioning 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 Artificial Intelligence			●		●				
MODULE 11	Advanced Artificial Intelligence					●				
MODULE 12	Artificial Intelligence Lab					●				
MODULE 13	Fundamental Big Data Engineering						●			
MODULE 14	Advanced Big Data Engineering						●			
MODULE 15	Big Data Engineering Lab						●			
MODULE 16	Fundamental Big Data Architecture							●		
MODULE 17	Advanced Big Data Architecture							●		
MODULE 18	Big Data Architecture Lab							●		
MODULE 19	Fundamental Data Science Governance for Big Data, Machine Learning & AI								●	
MODULE 20	Advanced Data Science Governance for Big Data, Machine Learning & AI								●	
MODULE 21	Data Science Governance Lab for Big Data, Machine Learning & AI								●	
MODULE 22	Fundamental AI Decisioning									●
MODULE 23	Advanced AI Decisioning									●
MODULE 24	AI Decisioning Lab									●

Gray circles indicate prerequisite modules.



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.

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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