



SERVICE TECHNOLOGY SCHOOL



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.

For more information, visit the Service Technology School home page: www.arcitura.com/servicetech

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SELF-STUDY



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.



ONLINE **COACHING**

Arcitura Certified Trainers are available to provide online coaching services that can be scheduled on an hourly basis. Scheduling is available in all time zones and is based on your preferences and trainer availability.



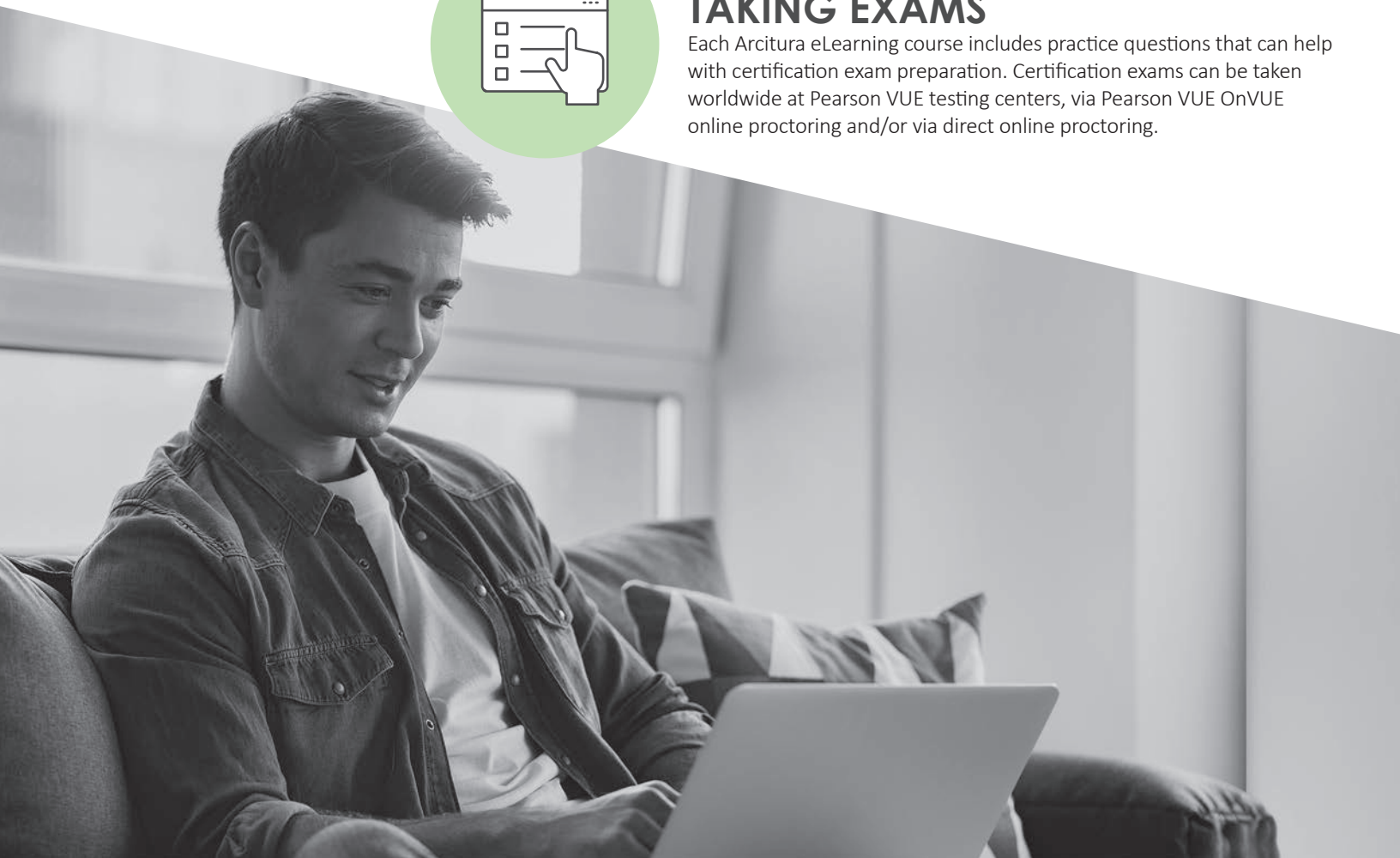
ENHANCED SELF-STUDY WITH **ADD-ONS**

Arcitura eLearning courses can be supplemented with downloadable course files, printed course materials and other add-on resources.



EXAM PREPARATION & **TAKING EXAMS**

Each Arcitura eLearning course includes practice questions that can help with certification exam preparation. Certification exams can be taken worldwide at Pearson VUE testing centers, via Pearson VUE OnVUE online proctoring and/or via direct online proctoring.





Onsite Classroom

Virtual Classroom

WORKSHOPS



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 eLearning course materials. Each workshop agenda, format and schedule can be tailored to client requirements. Onsite workshops allow for the option to deliver onsite paper-based exams.



VIRTUAL WORKSHOPS

Private virtual workshops can be delivered by Certified Trainers from Arcitura and authorized training partners for small and large groups, as well as individual participants. Each workshop participant can receive access to the full Arcitura eLearning course materials. Each workshop agenda, virtual delivery platform and schedule can be tailored to client requirements. In addition to a typical delivery schedule based on consecutive workshop days, virtual workshops allow for a delivery schedule to be distributed as shorter sessions across weeks or months.



ONLINE COACHING

Arcitura Certified Trainers are available to provide online coaching services that can be scheduled on an hourly basis. Scheduling is available in all time zones and is based on your preferences and trainer availability. For workshop participants, coaching sessions can be scheduled during or after a given workshop, for groups or individuals.



EXAM PREPARATION & TAKING EXAMS

Onsite and virtual workshop participants can receive complimentary practice exam questions as part of their eLearning course accounts. Certified Trainers can supervise and provide guidance for participants completing the self-tests and the Exam Prep Kit practice questions provided in the eLearning accounts. Certification exams can be taken worldwide at Pearson VUE testing centers, via Pearson VUE OnVUE online proctoring and/or via direct online proctoring.



The Service Technology School curriculum is comprised of 20 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.

www.arcitura.com/servicetech

QUESTIONS?

Contact us at: info@arcitura.com





A Certified Microservice Professional has an understanding of technologies, models, messaging patterns and implementation mediums commonly utilized for the creation of microservices and other types of services.



A Certified SOA Professional has an understanding of service technology, microservices, APIs and service-oriented architecture (SOA), as well as knowledge of design principles for building services and assembling service-oriented solutions.



A Certified SOA Analyst has an in-depth understanding of analysis techniques and processes for modeling service APIs, microservice APIs and service compositions for service portfolio and service-oriented solution blueprints.



A Certified SOA Architect has an in-depth understanding of the technology and application architecture models and mechanics of service, microservice and service composition implementations, and knowledge of how to engineer modern-day services-oriented solutions.



A Certified Microservice Architect has knowledge of the technology architecture models and mechanics of microservice implementations and containerization environments, as well as an understanding of associated design techniques for engineering microservices.



A Certified Microservice Consultant has knowledge of a cross-section of service technologies, solution design practices, API design techniques and security considerations relevant to microservices and other types of services.



A Certified Service API Specialist has in-depth knowledge of service API design and coupling techniques, and REST and web-capable RPC protocols, as well as associated management practices, including monetization and versioning.



A Certified Service Governance Specialist has an in-depth understanding of project delivery methodology, as well as the definition and evolution of a service governance framework comprised of formal precepts, roles and processes.



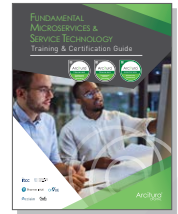
A Certified Service Security Specialist has comprehensive knowledge of common threats and vulnerabilities associated with solutions based on the use of services and microservices, and has an understanding of how to equip solution architectures with security controls.





Fundamental Microservices & Service Technology

Provides an understanding of the concepts, models and industry technologies relevant to contemporary microservices and other API-driven service technology implementations.



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MODULE 01 | Fundamental SOA, Services & Microservices

Provides comprehensive coverage of contemporary concepts, models and technologies pertaining to modern-day microservices and other forms of API-driven services, including coverage of service-oriented computing and service-oriented architecture (SOA).



MODULE 02 | Microservice Technology Concepts

Covers industry technologies, implementation mediums and messaging protocols relevant to microservices and other forms of API-driven services, as well as basic coverage of relevant cloud computing topics.



Fundamental SOA Design with Services & Microservices

Establishes an essential understanding of the technologies and concepts associated with designing and composing API-driven services and microservices, as well as models and characteristics of service-oriented architecture.



Request this Guide



MODULE 01 | Fundamental SOA, Services & Microservices

Provides comprehensive coverage of contemporary concepts, models and technologies pertaining to modern-day microservices and other forms of API-driven services, including coverage of service-oriented computing and service-oriented architecture (SOA).



MODULE 03 | Design & Architecture with SOA, Services & Microservices

Essential topics pertaining to service architectural models and practices and service-orientation principles relevant to service and microservice design, along with a range of distinct considerations for designing service-oriented solutions with REST services and Web services.



SOA Analysis & Modeling with Services & Microservices

Provides in-depth coverage of service and API modeling for microservices and other types of services, include the modeling of complex service compositions and service inventory blueprints.



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MODULE 04 | Fundamental SOA Analysis & Modeling with Services & Microservices

Provides comprehensive coverage of SOA analysis techniques, models and approaches, including strategies and concepts for service modeling, service composition modeling and microservice modeling.



MODULE 05 | Advanced SOA Analysis & Modeling with Services & Microservices

Delves into the step-by-step processes for the analysis and modeling of services and microservices for REST service and Web service mediums, with an emphasis on establishing effective service layers as part of an overall conceptual blueprint.



MODULE 06 | SOA Analysis & Modeling Lab with Services & Microservices

Provides a series of real-world exercises for applying service modeling and SOA analysis techniques for a range of different services-based solutions.



SOA Design & Architecture with Services & Microservices

Provides in-depth coverage of service-oriented technology and application architecture models, design patterns and integration techniques.



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MODULE 03 | Design & Architecture with SOA, Services & Microservices

Essential topics pertaining to service architectural models and practices and service-orientation principles relevant to service and microservice design, along with a range of distinct considerations for designing service-oriented solutions with REST services and Web services.



MODULE 07 | Advanced SOA Design & Architecture with Services & Microservices

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 others.



MODULE 08 | SOA Design & Architecture Lab with Services & Microservices

Provides a series of real-world exercises for applying service-oriented technology architecture models and techniques to design a variety of service-oriented solution architectures.



CONTINUED



Microservice Design & Architecture

Provides comprehensive coverage of microservice technology architecture models and design practices, as well as associated containerization technology components and design approaches.



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MODULE 09 | Fundamental Microservice Architecture & Containerization

Establishes foundational microservice technology architecture and design models and further introduces containerization concepts and container characteristics. Topics covered include microservice deployment, provisioning, registration and isolation levels, as well as logical containers, PODs and composition architecture.



MODULE 10 | Advanced Microservice Architecture & Containerization

Provides an in-depth exploration of the practices, models and technology architectures behind microservices and containerization. Topics include microservice scaling, data management and autonomous ownership and versioning, as well as event sourcing, CQRS, composite isolated containers and container hosting models.



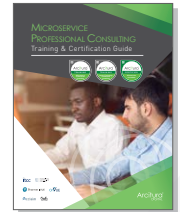
MODULE 11 | Microservice Architecture & Containerization Lab

Provides a series of real-world exercises for applying architectural and design exercises pertaining to microservices and the use of containerization.



Microservice Professional Consulting

Provides a cross-section of topic coverage that includes microservice application architecture, containerization, service API design and management, and security technology and practices relevant to microservices.



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MODULE 09 | Fundamental Microservice Architecture & Containerization

Establishes foundational microservice technology architecture and design models and further introduces containerization concepts and container characteristics. Topics covered include microservice deployment, provisioning, registration and isolation levels, as well as logical containers, PODs and composition architecture.



MODULE 12 | Fundamental Service API Design & Management

Essential topics are covered pertaining to modern-day service API design and management practices and models. Coverage includes positive and negative API coupling types, API granularity levels, the use of API proxies and API gateways, as well as service API versioning.



MODULE 18 | Fundamental Security for Services, Microservices & SOA

Provides coverage of essential security concepts and controls, as well as techniques and industry technologies that pertain to establishing security measures and security architectures for microservices and other types of services.



Service API Design & Management

Provides comprehensive coverage of API design techniques, coupling and granularity considerations, and API management practices including API versioning. Also covered are serialization protocols, as well as topics pertaining to REST and RPC protocols.



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MODULE 12 | Fundamental Service API Design & Management

Essential topics are covered pertaining to modern-day service API design and management practices and models. Coverage includes positive and negative API coupling types, API granularity levels, the use of API proxies and API gateways, as well as service API versioning.



MODULE 13 | Advanced Service API Design & Management

Advanced coverage of service API design and management techniques and practices, binary and non-binary data serialization protocols (such as Protocol Buffers and Apache Avro), as well as RPC-based service API protocols (such as gRPC, GraphQL and Falcor).



MODULE 14 | Service API Design & Management Lab

Provides a series of real-world exercises for applying service API design techniques and management practices for a range of different solution scenarios.



Service Governance & Project Delivery

Provides end-to-end coverage of service technology project delivery stages and SOA governance phases, along with numerous associated precepts, processes and roles.



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MODULE 15 | Fundamental Service Governance & Project Delivery

Service project delivery methodologies are explained, along with governance technology and task types and service vitality triggers and processes. Coverage includes SOA adoption planning and information and service policy governance precepts, processes and roles.



MODULE 16 | Advanced Service Governance & Project Delivery

A range of service governance precepts and processes for SOA is covered, including those that address service usage, monitoring, legal data audits, testing practices, as well as service analysis, design and programming.



MODULE 17 | Service Governance & Project Delivery Lab

Provides a series of real-world exercises for establishing service lifecycle governance programs and measuring and identifying weaknesses in existing governance systems.



Security for Microservices & SOA

Provides in-depth coverage of industry technologies, practices and controls used to secure microservice-based applications and other types of service-oriented solutions and counter common security threats.



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MODULE 18 | Fundamental Security for Services, Microservices & SOA

Provides coverage of essential security concepts and controls, as well as techniques and industry technologies that pertain to establishing security measures and security architectures for microservices and other types of services.



MODULE 19 | Advanced Security for Services, Microservices & SOA

Covers a series of technical and complex security topics pertaining to contemporary microservice deployments, service-oriented solution design, infrastructure, API gateways and modern service technologies.

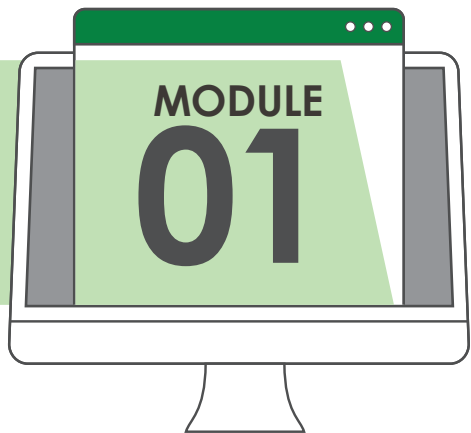


MODULE 20 | Security Lab for Services, Microservices & SOA

Provides a series of real-world exercises for applying security practices and technologies to counter threats and solve complex service technology security problems.



Fundamental SOA, Services & Microservices

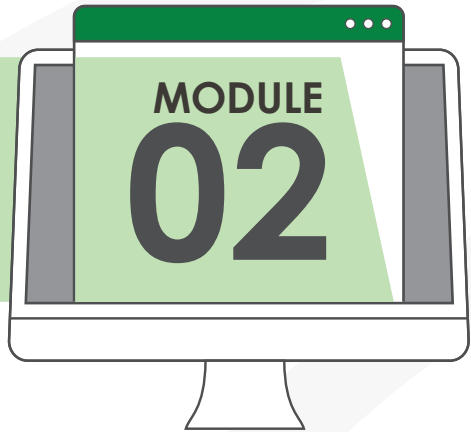


This course module provides an easy to understand, end-to-end overview of contemporary service-oriented computing, including concepts and technologies pertaining to modern-day services and microservices, as well as business and technology-related topics pertaining to service-oriented architecture (SOA).

The following primary topics are covered:

- Business and Technology Drivers for SOA, Services and Microservices
- Strategic Goals and Benefits of Service-Oriented Computing
- Plain English Introduction to Services and Microservices
- Fundamental Characteristics of a Service-Oriented Architecture
- Understanding Service-Orientation as a Design Paradigm, including coverage of the Four Pillars of Service-Orientation
- Introduction to Service Layers, Service Models and Service Compositions
- Service Inventories, Service Layers and Service API Governance and Management
- Introduction to Common Service Technologies, including API Gateways, Virtualization, Containerization
- Introduction to Cloud Computing and Cloud Services
- Adoption Impacts and Requirements, including considerations for Governance, Infrastructure, Performance and Standardization

Microservice Technology Concepts

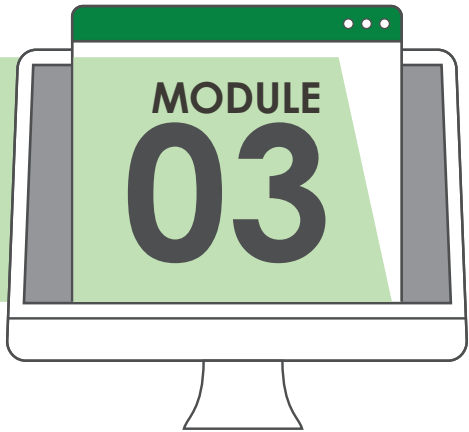


This course module focuses on modern service technologies, models and concepts that have established de facto implementation mediums for building contemporary services-based solutions. Also covered are fundamental terms, concepts and models pertaining to cloud computing and cloud-based services.

The following primary topics are covered:

- Comparing Service Implementation Mediums
- Service Roles and Service Agents
- Message Exchange Patterns and Service Activities
- Basic XML, XML Schema, JSON and JSON Schema Concepts
- HTTP Methods, Response Codes and Headers
- Basic REST Service Concepts, including Properties and Constraints
- REST Services, Contracts, Resources and Messaging
- Hypermedia and Late Binding
- Basic WSDL and SOAP Concepts
- WS-* Technologies
- Web Service Contracts, Messaging and Registries
- Cloud Computing Concepts
- Vertical and Horizontal Scaling
- Multitenancy, Elasticity and Resiliency
- On-Demand Usage, Ubiquitous Access and Measured Usage
- Public, Private and Hybrid Clouds
- IaaS, PaaS and SaaS

Design & Architecture with SOA, Services & Microservices

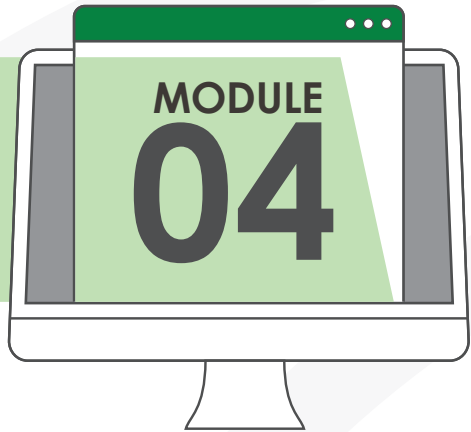


This course module delves into the service-oriented architectural model and the service-orientation design paradigm and establishes the unique characteristics and dynamics that constitute service-oriented solution logic. The module raises a series of distinct considerations for designing service-oriented 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

Fundamental SOA Analysis & Modeling with Services & Microservices

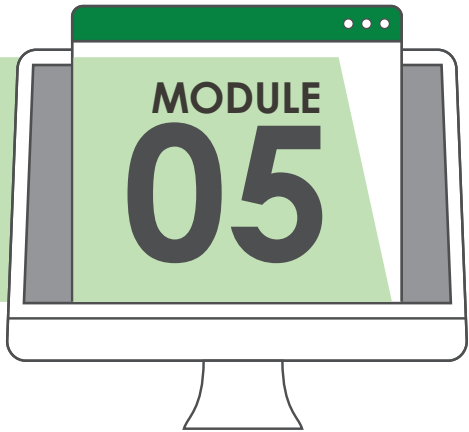


This course module provides comprehensive coverage of SOA analysis techniques and approaches, including strategies and concepts for service modeling, composition modeling and microservice modeling. Topics include service models and service layer abstraction, entity, utility and micro task abstraction, as well as specialized service API modeling techniques.

The following primary topics are covered:

- Introduction to SOA Analysis
- Roles of Service Analysts, Service Architects and Service Custodians
- Service, Capability, Data and Constraint Granularities
- Service Models and Service Layer Abstraction
- Business and Utility Services
- Agnostic and Non-Agnostic Services
- Service Inventory Definition Basics
- Domain and Enterprise Service Inventories
- Service Normalization and Logic Centralization
- Service Modeling Basics
- Service Modeling and the Separation of Concerns
- Functional Decomposition and Service Encapsulation
- Entity, Utility and Task Abstraction
- Micro Task Abstraction for Microservice Modeling
- Composition and Recomposition
- Service API Modeling
- Service Decomposition, Proxy Capability and Decomposed Capability
- Endpoint Redirection, Lightweight Endpoint and Entity Linking

Advanced SOA Analysis & Modeling with Services & Microservices

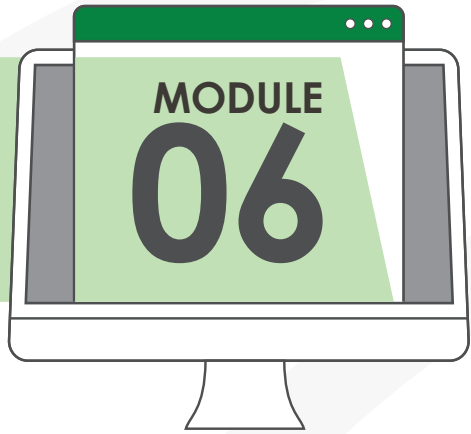


This course module delves into the step-by-step processes for the analysis and modeling of services and microservices for REST service and Web service environments. It covers a range of topics with an emphasis on business service context, service models, microservices, functional scope definition, balanced granularity and establishing effective service layers as part of an overall conceptual blueprint.

The following primary topics are covered:

- SOA Project and Lifecycle Stages
- SOA Adoption Planning and Service Profiles
- Service-Oriented Analysis and Service Modeling
- Analysis and Modeling with REST Services and Microservices
- Resource Identification and REST Composition Modeling
- Modeling REST Services as Microservices
- Uniform Contract Modeling and REST Capability Granularity
- Understanding Resources vs. Entities
- Analysis and Modeling with Web Services and Microservices
- Modeling Utility and Entity Web Services
- Modeling Web Services as Microservices
- Service Modeling with BPMN and DMN
- BPMN Process Modeling for Service Modeling
- Decision Modeling with DMN

SOA Analysis & Modeling Lab with Services & Microservices

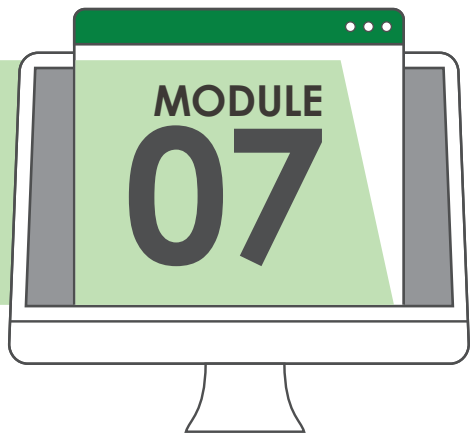


This course module presents participants with a series of exercises and problems that are designed to test their ability to apply their knowledge of topics covered in previous modules. Completing this lab will help highlight areas that require further attention and will help prove proficiency in SOA analysis processes and service modeling techniques.

The following exercises are provided:

- Reading Exercise 6.1: Property and Casualty Insurance Company Mini Case Study
- Lab Exercise 6.2: Process Models vs. Service Models
- Lab Exercise 6.3: Granularity and Microservices
- Lab Exercise 6.4: Reusable Contract and DMN
- Reading Exercise 6.5: E-Commerce Assist (ECA) Mini Case Study Background
- Lab Exercise 6.6: Service Candidate Modeling
- Lab Exercise 6.7: Service Candidate Re-Modeling

Advanced SOA Design & Architecture with Services & Microservices

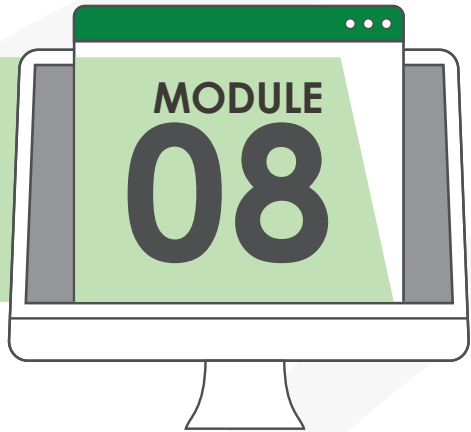


This course module provides an in-depth exploration of the overarching models and underlying mechanics of service-oriented technology architecture. A wide range of topic areas is covered to provide techniques, insights and perspectives of the inner workings of service and composition architectures, including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

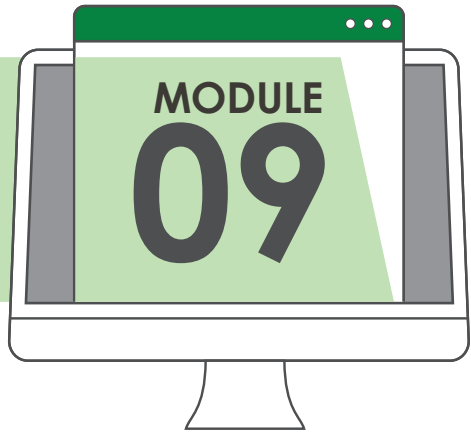
Participants are required to study case study backgrounds and carry out a series of exercises to solve a number of inter-related problems, with the ultimate goal of applying design patterns to design their own services and service-oriented solutions.

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

Fundamental Microservice Architecture & Containerization

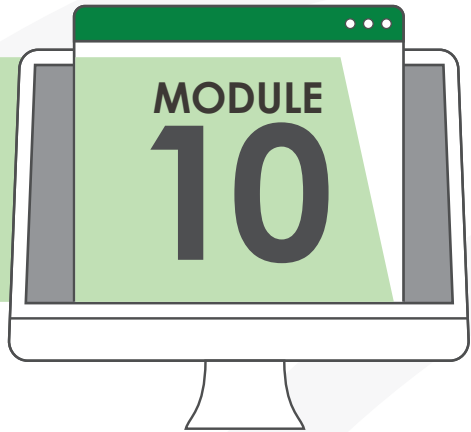


This course module establishes foundational microservice architecture and design principles, and further introduces containerization concepts and container characteristics, along with a series of enabling technologies and technology drivers for cloud-based microservices. A set of fundamental design patterns are provided and the module concludes with an overview of DevOps process and practices.

The following primary topics are covered:

- The following primary topics are covered:
- Introduction to Microservice Architecture
- Common Microservice Design Challenges
- Microservices and Design Granularity
- Microservice Guiding Design Principles
- Introduction to Containerization
- Containerization vs. Virtualization
- Fundamental Container Architecture Elements
- Container Engines, Build Files, Images and Networking
- Microservice Automation, Logging and Monitoring
- Microservice Instance Registration
- Scaling Technology, Basic Scalability Types and Mechanisms
- Technology Drivers for Cloud-based Microservice Deployments
- Micro Task Abstraction and Micro Task Segregation
- Rich Containers and Logical Pod Containers
- DevOps Practices and Benefits
- DevOps Stages and Toolchains
- Domain-Driven Design and Microservices

Advanced Microservice Architecture & Containerization

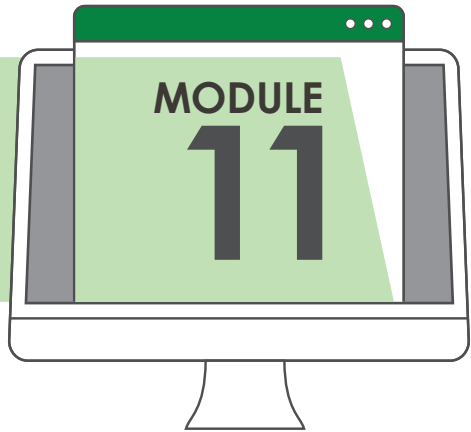


This course module provides an in-depth exploration of the practices, models and technology architectures behind microservices and containerization.

The following primary topics are covered:

- Microservice Compositions and Compositor Services
- Autonomous Proxy Services
- Shared Isolated Databases
- Microservice Layers and Isolation Levels
- Pre-Defined Data Views
- Microservice Instance Registrations
- Workload Distribution and Service Load Balancing
- Synchronized Cross-Instance Events
- Event-Driven Messaging for Microservices
- Atomic Event Processing and Appended Events
- Centralized Isolated State Databases
- Container Chains
- Single-Node Multi-Containers
- Multi-Container Isolation Control
- Volatile Container Configurations
- Serverless Microservice Deployments
- Dynamic Scalability Models
- Micro Scatter-Gather Compositions
- Leader Node Election for Microservice Instances
- Redundant Microservice Implementations
- Microservice Composition Autonomy
- Container Sidecars and Microservice Ambassadors
- Log Aggregation for Microservices
- Distributed Diagnostics for Microservices

Microservice Architecture & Containerization Lab



As a continuation of course modules 9 and 10, this hands-on workshop allows attendees to apply the concepts, processes, techniques, patterns and principles previously covered in order to complete a set of architectural and design exercises.

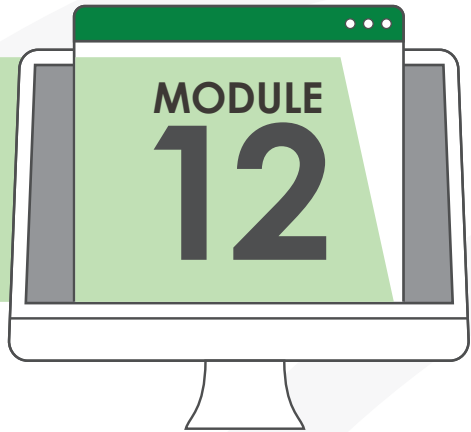
Participants are required to analyze case study backgrounds and carry out a series of exercises to solve a number of inter-related problems, with the goal of producing architectural solutions or fulfilling specific solution requirements.

For individual completion of this course 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

Fundamental Service API Design & Management

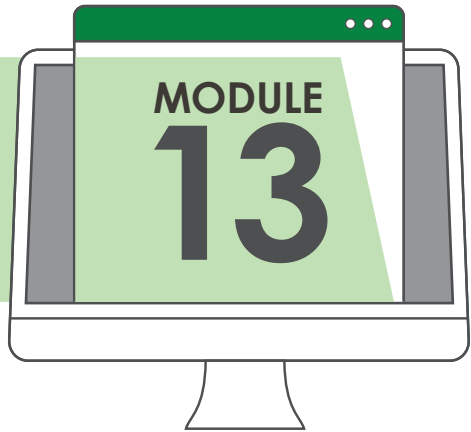


This course module covers essential topics pertaining to modern-day service API design and management, including API roles, the API lifecycle and fundamental API patterns and coupling types. Also covered are established and alternative data serialization technologies, API gateways and a comprehensive tutorial of REST and related patterns.

The following primary topics are covered:

- Introduction to APIs and API Roles
- Public, Private and Partner API Models
- The Service API Lifecycle
- Decoupled Contracts and Service Façades
- Contract Centralization and Service Agents
- Positive and Negative Service Coupling Types
- Text-based Data Serialization Formats (XML, JSON)
- Binary Data Serialization Protocols (Apache Avro, Thrift, Google Protocol Buffer)
- REST APIs and REST Properties
- Endpoint Redirection, Entity Linking and Idempotent Capabilities
- Lightweight Endpoints and Uniform Contracts
- API Gateways and Service Brokers
- Data Model and Format Transformation, Protocol Bridging
- Intermediate Routing, Brokered Authentication and Multi-Channel Endpoints

Advanced Service API Design & Management

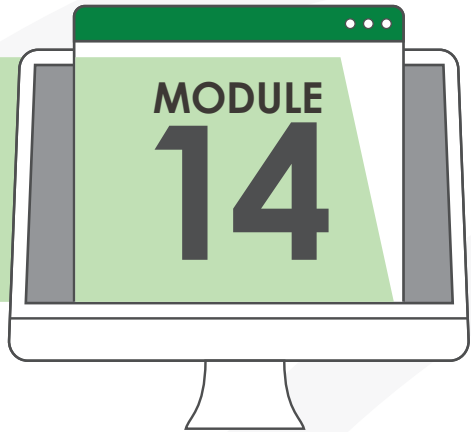


This course module delves into established and alternative service API protocols to explore how each functions and to provide a comparison that helps determine when one service protocol may be more suitable than others. A series of service API design and management patterns are covered, along with an exploration of the service mesh model and how it compares with API gateways.

The following primary topics are covered:

- Understanding gRPC for (.proto and XML)
- Unary RPC, Client/Server Streaming RCP and Bidirectional RPC
- Understanding GraphQL, Data Requests and Fetches, Caching
- Understanding Falcor, Falcor vs. GraphQL, Request Batching
- Understanding Thrift (Processor, Protocol and Transport Layers)
- Concurrent Contracts, Contract Denormalization and Canonical Schema
- Schema Centralization, Policy Centralization and Canonical Protocol
- Dual Protocols and Legacy Wrappers
- Messaging Metadata and State Messaging
- Service Mesh Model, Library, Proxy and Sidecar
- Service Mesh vs. API Gateway
- Service API Management
- Decomposed Capability, Distributed Capability and Proxy Capability
- Validation Abstraction and Partial Validation

Microservice Architecture & Containerization Lab



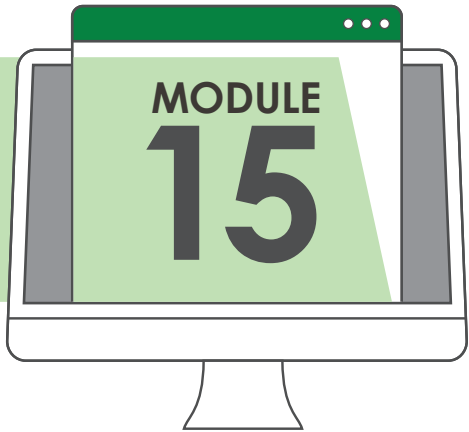
As a continuation of course modules 12 and 13, this hands-on workshop allows attendees to apply the technologies, concepts, techniques and patterns previously covered in order to complete a set of lab exercises.

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 technologies and design patterns to design their own service API solutions.

The following exercises are provided:

- Reading Exercise 14.1: Case Study Background: Handy
- Lab Exercise 14.2: Define Lines of Communication
- Lab Exercise 14.3: Define Service API View
- Lab Exercise 14.4: Define Communication Support in Processing Logic
- Lab Exercise 14.5: Identify Coupling Types
- Lab Exercise 14.6: Identify Hidden Coupling Issues
- Lab Exercise 14.7: Solve Coupling Problems
- Reading Exercise 14.8: Order Processing Service APIs
- Lab Exercise 14.9: Optimize Service API for Performance
- Lab Exercise 14.10: Deal Service Extension
- Lab Exercise 14.11: Design Product Service Lab Exercise 14.12: Enhance Product Service Architecture

Fundamental Service Governance & Project Delivery

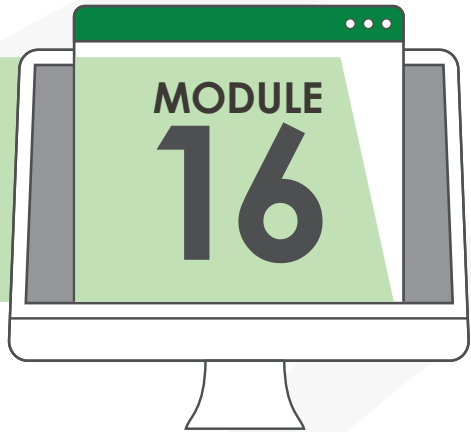


Service project delivery methodologies are explained, including top-down and agile delivery. Governance technology and task types are established, along with service vitality triggers and processes. The basics of governing services, microservices and service-oriented solutions are then covered, including models and frameworks for addressing lifecycle management and individual service governance issues.

The following primary topics are covered:

- Service Project Delivery Methodologies (including top-down and agile delivery)
- Understanding Service Governance Programs, Models, and Controls
- Authoring Service Governance Precepts, Policies, and Regulations
- Identifying and Defining Organizational Roles in Relation to Governance Tasks
- Defining Service Governance Processes to Coordinate Precepts and Roles
- Service Vitality Triggers and Processes
- Establishing a Governance Program
- Governance Automation Tasks and Technology Types
- Common Service Governance Technology Products
- Basic Service Information Governance and Policy Governance
- Governing SOA Adoption Planning

Advanced Service Governance & Project Delivery

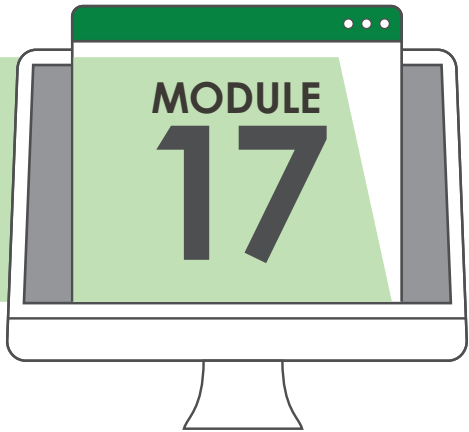


This course module covers a range of service governance precepts and processes, including those that address service usage, monitoring, legal data audits, testing practices, as well as service analysis, design and programming. Also addressed are SLA versioning and service policies and systems/continuous engineering and agile delivery.

The following primary topics are covered:

- Governing Service Analysis and Design
- Governing Service Design and Development
- Service Logic Design and Programming Reviews, Legal Data Audit
- Governing Service Testing and Deployment
- Service Testing Standards, Cloud Integration Testing, Service Certification and Maintenance Reviews
- Governing Service Usage, Monitoring, Discovery, and Versioning
- Runtime Service Usage Thresholds, Service Registry Centralization and Review
- Service and SLA Versioning, Service Retirement
- Advanced Service Information and Service Policy Governance
- Mapping Precepts, Processes and Organizational Roles
- Service Contract and Schema Precepts and Reviews

Service Governance & Project Delivery Lab

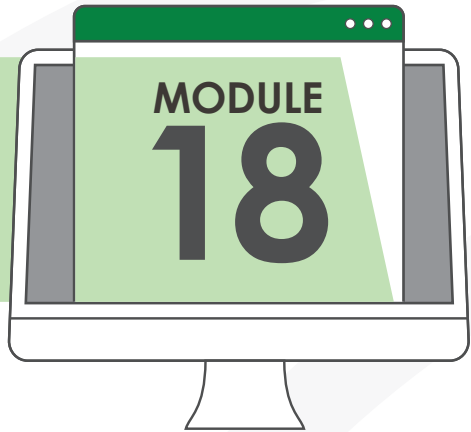


As a continuation of course modules 15 and 16, this module allows attendees to apply the frameworks, models, practices and strategies previously covered in order to complete a set of exercises. Participants are required to solve a number of SOA governance-related problems associated with establishing project and service lifecycle governance programs, measuring and identifying weaknesses in existing governance systems, and applying service governance precepts and processes in response to business requirements.

The following exercises are provided:

- Reading Exercise 17.1: MLI Mini Case Study Background
- Lab Exercise 17.2: Organizational Assessment and Jurisdiction Model
- Lab Exercise 17.3: Service Information Governance Controls
- Lab Exercise 17.4: Define Vitality Triggers
- Lab Exercise 17.5: Complete Vitality Process
- Reading Exercise 17.6: TFC Mini Case Study Background
- Lab Exercise 17.7: Improving a Flawed Governance Precept
- Lab Exercise 17.8: Identify Missing Governance Controls
- Lab Exercise 17.9: Identify and Apply New SOA Governance Controls
- Lab Exercise 17.10: Automate SOA Governance Tasks

Fundamental Security for Services, Microservices & SOA

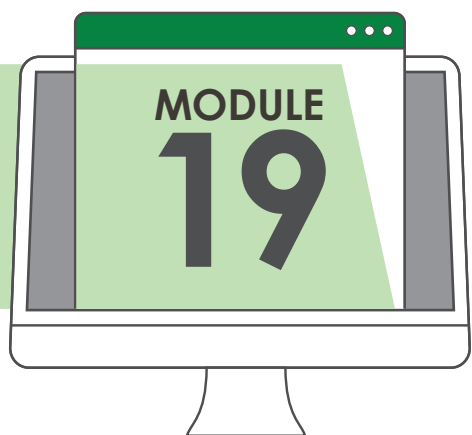


This course module provides essential techniques, patterns and industry technologies that pertain to establishing security controls and security architectures for services, microservices and service-oriented solutions.

The following primary topics are covered:

- Security and the Service-Oriented Architectural Model
- SOA Security Considerations for Service and Composition Architectures
- Security Implications of Service-Oriented Principles
- Trust, Claims, Tokens, Identity, Authentication, Authorization, Transport and Message Layer Security
- Encryption, Hashing, Digital Signatures, Identity and Access Management (IAM)
- Public Key Infrastructure (PKI), Digital Certificates, Certificate Authorities, Single Sign-On (SSO)
- REST Services and JSON Industry Standards
- JavaScript Object Signing and Encryption (JOSE) Framework, OAuth2
- HTTP Basic and Digest Authentication, API Key, JWT with X.509 certificates
- Service Interaction Security Patterns (Data Confidentiality, Data Origin Authentication, Direct Authentication, Brokered Authentication)
- Web Services and XML Industry Standards
- XML Encryption, XML Signature, WS-Security, Token Profiles, SAML
- Microservice Security Considerations
- Implementing SOA Security and Service-Oriented Security

Advanced Security for Services, Microservices & SOA

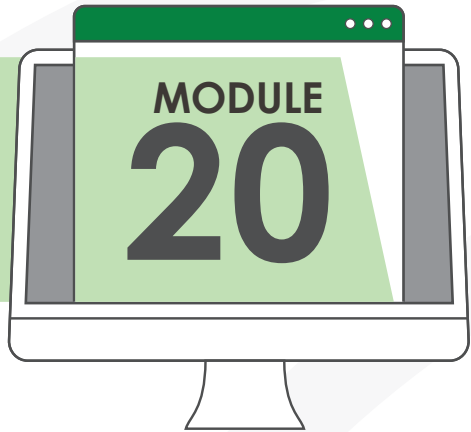


This course module covers a series of technical and complex security topics pertaining to contemporary service-oriented solution design, infrastructure, microservices, API gateways and modern service technologies.

The following primary topics are covered:

- Understanding SOA Security Threats
- STRIDE (Spoofing, Tampering, Repudiation, Information Disclosure, Denial-of-Service, Elevation of Privilege)
- SOA Security Patterns for Internal Service Architecture (Exception Shielding, Message Screening, Trusted Subsystem, Service Perimeter Guard)
- Security Token Structures and Issuance (JWT, Username, X.509, SAML)
- Authentication Sessions and Secure Conversations
- Federation and Trust Brokering Security
- Policy Design and Governance
- REST Security Controls and Designs
- Open API Specification (OAS v 3.0), Open ID Connect
- Web service Security Controls and Designs
- WS-Policy, WS-SecurityPolicy, WS-Trust and WS-Secure Conversation with SAML
- Microservices and Containerization Security Considerations
- Security Extensions and Controls for API Gateways and ESBs
- Security Risks and Considerations for Cloud-based Services and Service Compositions
- Preparing for Common SOA Security Threats

Security Lab for Services, Microservices & SOA



As a continuation of course modules 18 and 19, this hands-on workshop allows attendees to apply the security concepts, techniques, patterns and technologies previously covered in order to complete a set of exercises.

Participants are required to analyze case study backgrounds and carry out a series of exercises to solve a number of inter-related problems, with the goal of producing a range of security solutions.

The following exercises are provided:

- Reading Exercise 20.1: Cutit Saws Mini Case Study Background
- Lab Exercise 20.2: Ordering Service Security Architecture Redesign
- Lab Exercise 20.3: Ordering Service Security Architecture Hardening for Threat Protection
- Lab Exercise 20.4: Aggregate Report Service Security Architecture
- Lab Exercise 20.5: REST Inventory Service Security Architecture
- Lab Exercise 20.6: Three-Party Permit Service Security Architecture
- Lab Exercise 20.7: Auction Solution Security Architecture
- Reading Exercise 20.8: YouSave Automotive Parts Mini Case Study Background
- Lab Exercise 20.9: ProcessOrder Service Security Architecture
- Lab Exercise 20.10: ProcessOrder Service Security Architecture Redesign

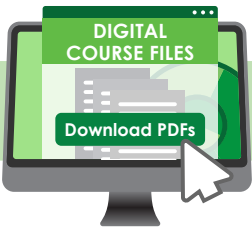
TRAINING AND EXAM PREPARATION RESOURCES

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.



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Instructor-Led Training

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AI Professional Academy

- Predictive AI Specialist Certification Exam
- Generative AI Specialist Certification Exam
- AI Engineer Certification Exam
- AI Architect Certification Exam
- AI Consultant Certification Exam
- AI Chatbot Specialist Certification Exam
- NLP Engineer Certification Exam
- Cloud AI Professional Certification Exam
- Cloud AI Architect Certification Exam

Digital Transformation Professional Academy

- Digital Transformation Specialist Certification Exam
- Digital Transformation Technology Professional Certification Exam
- Digital Transformation Technology Architect Certification Exam
- Digital Transformation Data Science Professional Certification Exam
- Digital Transformation Data Scientist Certification Exam
- Digital Transformation Security Professional Certification Exam
- Digital Transformation Security Specialist Certification Exam
- Digital Transformation IA Professional Certification Exam
- Digital Transformation IA Specialist Certification Exam

Next-Gen IT Academy

- DevOps Specialist Certification Exam
- Blockchain Architect Certification Exam
- IoT Architect Certification Exam
- Cybersecurity Specialist Certification Exam
- RPA Specialist Certification Exam
- Digital Business Technology Professional Certification Exam
- Containerization Architect Certification Exam
- Quantum Computing Specialist Certification Exam

Next-Gen Data Science Academy

- Big Data Science Professional Certification Exam
- Big Data Scientist Certification Exam
- Machine Learning Specialist Certification Exam
- Artificial Intelligence Specialist Certification Exam
- Data Science Consultant Certification Exam
- Big Data Engineer Certification Exam
- Big Data Architect Certification Exam
- Data Science Governance Specialist Certification Exam
- AI Decisioning Specialist Certification Exam

Cloud Computing School

- Cloud Technology Professional Certification Exam
- Cloud Computing Consultant Certification Exam
- Cloud Architect Certification Exam
- Cloud Security Specialist Certification Exam
- Cloud Governance Specialist Certification Exam
- Cloud Storage Specialist Certification Exam
- Cloud Virtualization Specialist Certification Exam

Service Technology School

- Microservice Professional Certification Exam
- SOA Professional Certification Exam
- SOA Analyst Certification Exam
- SOA Architect Certification Exam
- Microservice Architect Certification Exam
- Service API Specialist Certification Exam
- Service Governance Specialist Certification Exam
- Service Security Specialist Certification Exam
- Microservice Consultant Certification Exam

COURSES		Predictive AI	Generative AI	AI Engineering	AI Architecture & Design	AI Professional Consulting	AI Chatbot Concepts & Design	NLP Engineering	Cloud AI Technology & Automation	Cloud AI Architecture & Design
CERTIFICATIONS		Predictive AI Specialist	Generative AI Specialist	AI Engineer	AI Architect	AI Consultant	AI Chatbot Specialist	NLP Engineer	Cloud AI Professional	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									●

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

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									•

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							●

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									●

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