

LAPT

LONDON ACADEMY OF PROFESSIONAL TRAINING

CERTIFICATE

Master Certificate in Software Architecture & DevOps

Leadership Level



LAPT — London Academy of Professional Training

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Reference IT-SDA-L • IT Centres

UKPRN 10067351 • Registered in England and Wales, company 4984798

AT A GLANCE

REFERENCE	IT-SDA-L
AWARD	Certificate
ASSESSMENT	430 marks — 258 to pass (60%)
PREREQUISITES	None
VALIDITY	Lifetime
AWARDING BODY	LAPT — London Academy of Professional Training

CURRICULUM

1

Advanced Software Architecture

5 chapters · 30 classes 85 marks

• 1 Foundations of Modern Software Architecture — 6 classes

› 1.1 Understanding Modern Software Architecture Principles

› 1.2 Exploring Component-Based Architecture

› 1.3 Analyzing Microservices and Their Impact

› 1.4 Integrating Cloud-Native Architecture Concepts

› 1.5 Evaluating Architectural Patterns in Modern Applications

› 1.6 Implementing Scalability and Resilience in Software Design

• 2 Designing for Scalability and Performance — 6 classes

› 2.1 Understanding Scalability Principles in Software Architecture

› 2.2 Identifying Performance Bottlenecks in System Design

› 2.3 Implementing Load Balancing Techniques

› 2.4 Designing Systems for Horizontal and Vertical Scaling

› 2.5 Applying Caching Strategies for Enhanced Performance

› 2.6 Evaluating Trade-offs in Scalability and Performance Optimization

• 3 Microservices Architecture and Implementation — 6 classes

› 3.1 Understanding Microservices: Principles and Key Components

› 3.2 Designing Microservices: Best Practices and Patterns

› 3.3 Implementing Inter-Service Communication in Microservices

› 3.4 Managing Data in a Microservices Architecture

› 3.5 Securing Microservices: Strategies and Tools

› 3.6 Deploying and Monitoring Microservices in Production

• 4 Integrating Continuous Delivery and DevOps Practices — 6 classes

› 4.1 Understanding Continuous Delivery in DevOps

› 4.2 Exploring the DevOps Lifecycle: Key Concepts and Benefits

› 4.3 Integrating Continuous Integration for Seamless Deployment

› 4.4 Implementing Automated Testing Strategies in DevOps

› 4.5 Streamlining Release Management within DevOps Practices

› 4.6 Analyzing Metrics and Feedback Loops for Continuous Improvement

• 5 Advanced Architectural Decision-Making and Leadership — 6 classes

› 5.1 Understanding the Role of Decision-Making in Software Architecture

› 5.2 Analyzing Architectural Trade-Offs and Their Impacts

› 5.3 Leveraging Patterns and Best Practices for Effective Decision-Making

› 5.4 Facilitating Collaborative Architectural Decisions

› 5.5 Implementing Governance and Leadership in Architecture

› 5.6 Evaluating Architectural Decisions Through Case Studies

• 1 Understanding DevOps Principles and Culture — 6 classes

- › 1.1 Exploring the Core Principles of DevOps
- › 1.2 Identifying Key Components of a DevOps Culture
- › 1.3 Understanding Continuous Integration and Continuous Delivery
- › 1.4 Examining the Role of Automation in DevOps
- › 1.5 Fostering Collaboration between Development and Operations
- › 1.6 Aligning DevOps Practices with Business Goals

• 2 Continuous Integration and Deployment Strategies — 6 classes

- › 2.1 Understanding Continuous Integration
- › 2.2 Exploring Continuous Deployment Pipelines
- › 2.3 Implementing Automated Testing in CI/CD
- › 2.4 Integrating CI/CD with Version Control Systems
- › 2.5 Monitoring and Feedback in Deployment
- › 2.6 Optimizing CI/CD for DevOps Efficiency

• 3 Infrastructure as Code and Configuration Management — 6 classes

- › 3.1 Understanding Infrastructure as Code Principles
- › 3.2 Exploring Configuration Management Tools
- › 3.3 Setting Up Version Control for Infrastructure
- › 3.4 Automating Infrastructure Deployment Pipelines
- › 3.5 Implementing Configuration Management Strategies
- › 3.6 Evaluating Best Practices for IaC and Configuration Management

• 4 Monitoring, Logging, and Observability in DevOps — 6 classes

- › 4.1 Understanding Monitoring Fundamentals in DevOps
- › 4.2 Exploring Logging Techniques and Tools
- › 4.3 Implementing Observability Concepts
- › 4.4 Integrating Monitoring and Logging
- › 4.5 Utilizing Observability for Proactive Operations
- › 4.6 Analyzing Data for Continuous Improvement in DevOps

• 5 DevOps Security Practices and Compliance — 6 classes

- › 5.1 Understanding the Importance of DevOps Security
- › 5.2 Identifying Common Security Vulnerabilities in DevOps
- › 5.3 Implementing Secure Coding Practices in DevOps
- › 5.4 Integrating Automated Security Testing in CI/CD Pipelines
- › 5.5 Navigating Compliance Requirements and Best Practices
- › 5.6 Developing a Culture of Security within DevOps Teams

• 1 Understanding Problem-Solving Frameworks in Software Architecture — 6 classes

- › 1.1 Introduction to Problem-Solving Models in Software Architecture
- › 1.2 Analyzing Common Challenges in Architectural Design
- › 1.3 Exploring the Role of Heuristics in Problem-Solving
- › 1.4 Applying Decision-Making Frameworks to Architectural Problems
- › 1.5 Leveraging Analytical Techniques for Optimal Solutions
- › 1.6 Integrating Agile and DevOps Practices in Problem Solving

• 2 Identifying and Analyzing Complex System Challenges — 6 classes

- › 3.1 Uncovering Hidden Complexities in Systems
- › 3.2 Mapping Interdependencies and Interactions
- › 3.3 Identifying Root Causes of Systemic Issues
- › 3.4 Utilizing Analytical Frameworks for Problem Diagnosis
- › 3.5 Evaluating System Impact of Potential Solutions
- › 3.6 Prioritizing Challenges Based on Strategic Goals

• 3 Innovative Approaches to Design Solutions in DevOps — 6 classes

- › 3.1 Understanding DevOps Design Principles
- › 3.2 Identifying Innovative Design Strategies
- › 3.3 Exploring Cutting-edge Technologies in DevOps
- › 3.4 Integrating Feedback Loops for Continuous Improvement
- › 3.5 Implementing Collaborative Design Thinking
- › 3.6 Evaluating the Impact of Innovative Solutions

• 4 Leveraging Emerging Technologies for Problem Solving — 6 classes

- › 4.1 Exploring Emerging Technologies: An Overview
- › 4.2 Identifying Opportunities with Artificial Intelligence
- › 4.3 Harnessing the Power of Blockchain for Innovation
- › 4.4 Utilizing Cloud Solutions to Enhance Scalability
- › 4.5 Implementing Internet of Things in Problem Solving
- › 4.6 Developing a Strategy for Integrating New Technologies

• 5 Leadership in Implementing and Evaluating Solutions — 6 classes

- › 5.1 Understanding Leadership Roles in Solution Implementation
- › 5.2 Identifying Challenges in Solution Deployment
- › 5.3 Developing Effective Implementation Strategies
- › 5.4 Evaluating Solutions: Metrics and Feedback
- › 5.5 Enhancing Team Collaboration for Solution Success
- › 5.6 Applying Continuous Improvement in Leadership

• 1 Understanding Architectural Principles in DevOps — 6 classes

- › 1.1 Exploring the Foundations of DevOps and Architecture
- › 1.2 Analyzing Core Architectural Principles
- › 1.3 examining DevOps Practices Through Architectural Lenses
- › 1.4 Integrating Continuous Integration and Delivery with Architecture
- › 1.5 Adopting Infrastructure as Code within Architectural Frameworks
- › 1.6 Evaluating DevOps Architectural Success Through Metrics

• 2 Designing for Continuous Integration and Delivery — 6 classes

- › 2.1 Understanding Continuous Integration and Delivery Principles
- › 2.2 Analyzing the Role of DevOps in Software Architecture
- › 2.3 Exploring Techniques for Automated Testing in CI/CD
- › 2.4 Designing Scalable Architecture to Support Continuous Deployment
- › 2.5 Implementing Tools for Effective CI/CD Pipelines
- › 2.6 Evaluating Performance Metrics in Integrated DevOps Environments

• 3 Infrastructure as Code and Automation in Architecture — 6 classes

- › 3.1 Understanding Infrastructure as Code: Core Concepts and Benefits
- › 3.2 Exploring Key Tools for Infrastructure Automation
- › 3.3 Implementing Continuous Integration with Infrastructure as Code
- › 3.4 Designing Scalable Architectures with Automated Infrastructure
- › 3.5 Integrating Security Practices in Infrastructure as Code
- › 3.6 Case Study: Successful DevOps and Architecture Automation

• 4 Monitoring and Feedback Loops in Architectural Design — 6 classes

- › 4.1 Understanding the Role of Monitoring in DevOps
- › 4.2 Exploring Key Metrics for Architectural Design
- › 4.3 Implementing Effective Feedback Loops
- › 4.4 Analyzing Monitoring Tools and Technologies
- › 4.5 Integrating Feedback into Architectural Decisions
- › 4.6 Case Study: Monitoring and Feedback in Action

• 5 Architectural Evolution in a DevOps Paradigm — 6 classes

- › 5.1 Understanding the DevOps Paradigm Shift
- › 5.2 Analyzing the Impact of Continuous Delivery on Architecture
- › 5.3 Identifying Architectural Patterns Compatible with DevOps
- › 5.4 Integrating Feedback Loops into Architectural Practices
- › 5.5 Adapting Legacy Systems for a DevOps Environment
- › 5.6 Applying DevOps Principles to Optimize Architectural Decision-Making

• 1 Fundamentals of Strategic Decision Making in Software Architecture — 6 classes

- › 1.1 Understanding the Role of Strategic Decision Making in Software Architecture
- › 1.2 Identifying Key Components of Effective Strategy in Software Design
- › 1.3 Analyzing Decision-Making Models for Architecting Software Systems
- › 1.4 Evaluating the Impact of Technology Choices on Strategic Goals
- › 1.5 Aligning Architectural Decisions with Business Objectives
- › 1.6 Applying Strategic Thinking to Resolve Architectural Challenges

• 2 Analyzing Business Requirements and Strategic Objectives — 6 classes

- › 2.1 Understanding Business Requirements and their Impact on Strategy
- › 2.2 Identifying and Evaluating Strategic Objectives
- › 2.3 Aligning Business Goals with Organizational Strategy
- › 2.4 Utilizing SWOT Analysis in Strategic Decision Making
- › 2.5 Prioritizing Business Requirements for Strategy Development
- › 2.6 Applying Strategic Objectives to Drive Business Outcomes

• 3 Risk Management and Decision-Making Frameworks — 6 classes

- › 3.1 Understanding Risk in Software Projects
- › 3.2 Identifying and Analyzing Potential Risks
- › 3.3 Applying Risk Management Frameworks
- › 3.4 Implementing Decision-Making Models
- › 3.5 Integrating Risk Assessment in Strategic Planning
- › 3.6 Evaluating and Adapting Decisions in Dynamic Environments

• 4 Strategic Decision-Making Tools and Techniques — 6 classes

- › 4.1 Understanding Strategic Decision-Making Frameworks
- › 4.2 Exploring Data-Driven Decision Tools
- › 4.3 Analyzing Case Studies in Strategic Decisions
- › 4.4 Implementing Decision-Making Software
- › 4.5 Evaluating the Impact of Decisions
- › 4.6 Reviewing Best Practices in Strategic Leadership

• 5 Leadership in Implementing Strategic Decisions — 6 classes

- › 5.1 Understanding Leadership Roles in Strategic Decision-Making
- › 5.2 Analyzing the Impact of Leadership Styles on Decision Implementation
- › 5.3 Developing Communication Strategies for Effective Decision Execution
- › 5.4 Evaluating Risk Management in Strategic Leadership
- › 5.5 Facilitating Team Alignment for Strategic Goals
- › 5.6 Applying Leadership Techniques for Overcoming Implementation Challenges

• 1 Understanding IT Team Dynamics — 6 classes

- › 1.1 Exploring Key Roles and Responsibilities in IT Teams
- › 1.2 Analyzing Communication Styles and Their Impact on Team Dynamics
- › 1.3 Identifying and Mitigating Common Team Conflicts
- › 1.4 Leveraging Diverse Skill Sets for Effective Collaboration
- › 1.5 Implementing Strategies for Enhancing Team Motivation
- › 1.6 Evaluating Team Performance and Continuous Improvement

• 2 Agile Leadership in Software Development — 6 classes

- › 2.1 Understanding Agile Principles in Leadership
- › 2.2 Facilitating Collaboration and Communication
- › 2.3 Leading Agile Rituals: Stand-Ups and Retrospectives
- › 2.4 Empowering Teams through Ownership and Responsibility
- › 2.5 Adapting Leadership Styles for Agile Environments
- › 2.6 Evaluating Success and Continuous Improvement in Agile Teams

• 3 Facilitating Technical Innovation and Creativity — 6 classes

- › 3.1 Understanding the Role of Innovation in IT Leadership
- › 3.2 Fostering a Culture of Creativity in Tech Teams
- › 3.3 Techniques for Generating Innovative Ideas
- › 3.4 Encouraging Cross-Disciplinary Collaboration
- › 3.5 Utilizing Feedback Loops for Continuous Improvement
- › 3.6 Implementing Agile Practices to Support Innovation

• 4 Strategic Decision-Making in IT Leadership — 6 classes

- › 4.1 Understanding Strategic Decision-Making Fundamentals
- › 4.2 Identifying Key Factors in IT Leadership Decisions
- › 4.3 Analyzing Risks and Opportunities in IT Strategies
- › 4.4 Applying Analytical Tools for Strategic IT Choices
- › 4.5 Evaluating Decision Outcomes in IT Projects
- › 4.6 Leading Effective Decision-Making Teams in IT

• 5 Leading Change and Managing Resistance in IT Teams — 6 classes

- › 5.1 Understanding the Dynamics of Change in IT Teams
- › 5.2 Identifying Common Sources of Resistance in IT Settings
- › 5.3 Strategies for Communicating Change Effectively
- › 5.4 Techniques for Building Team Buy-In and Commitment
- › 5.5 Methods for Overcoming Persistent Resistance
- › 5.6 Evaluating the Impact of Change and Adjusting Strategies