MERCURY

Application Programming Development and Solutions

25 – 29 July 2027
Amman (Jordan)



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Ref: 121389_1030549 **Date:** 25 – 29 July 2027 **Location:** Amman (Jordan) **Fees:** 4200 Euro

Introduction

The Application Programming Development and Solutions course equips professionals with the structured knowledge to build modern software applications that meet evolving business needs. It explores the full lifecycle of application development, from requirements analysis to deployment and maintenance. Participants gain practical theoretical insight into software design principles, programming workflows, and quality assurance practices. It emphasizes creative problem-solving and innovative use of modern development tools to build scalable and secure systems. The program also addresses software testing strategies, performance optimization, and maintainability standards. Learners will contribute effectively to professional application development environments.

Targeted Groups

This Application Programming Development and Solutions training targets professionals seeking knowledge and skills:

- Software developers seeking structured application development practices.
- IT specialists transitioning into software engineering roles.
- Computer science graduates entering the programming field.
- System analysts are involved in application design decisions.
- Technical team leaders supervise development projects.
- QA professionals expanding into the development lifecycle understanding.
- Digital transformation staff supporting enterprise applications.
- Professionals interested in modern software development tools.

Course Objectives

Participants will achieve the following objectives by completing the Application Programming Development and Solutions course:

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- Understand modern application programming concepts and architectures.
- Analyze software requirements using structured development approaches.
- Design scalable and maintainable software applications.
- Apply best practices in coding standards and clean code principles.
- Evaluate appropriate software development tools and frameworks.
- Implement effective software testing and debugging techniques.
- Manage application lifecycle from development to deployment.
- Improve application performance and reliability systematically.
- Apply secure coding practices in enterprise environments.
- Support software maintenance and continuous improvement processes.
- Strengthen innovation in solving programming challenges.
- Align development outputs with business and user requirements.

Targeted Competencies

Participants will gain the following competencies during the Application Programming Development and Solutions program:

- Proficiency in structured application development workflows.
- Ability to design modular and scalable software systems.
- Skill in using modern programming and development tools.
- Competence in software testing and debugging practices.
- Capability to maintain and enhance existing applications.
- Understanding of secure and reliable coding techniques.
- Ability to interpret and implement technical design requirements.
- Skill in documenting software development processes clearly.
- Capability to support continuous integration environments.
- Analytical thinking in solving complex programming issues.

Studying Scenarios

In this Application Programming Development and Solutions training, participants develop skills through the following scenarios:

- Designing a business application based on defined requirements.
- Improving the performance of an existing enterprise software system.
- Debugging and resolving critical software defects.
- Selecting appropriate development tools for a new project.
- Maintaining and upgrading a legacy application environment.
- Applying secure coding practices to protect sensitive data.
- Reviewing code quality and enforcing development standards.
- Supporting the deployment of a scalable web application.

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Course Content

Unit 1: Fundamentals of Application Programming and Software Development

- Overview of modern application programming environments and ecosystems.
- Understanding the software development lifecycle in enterprise contexts.
- Key principles of structured programming and modular design.
- Introduction to programming paradigms used in modern software development.
- Role of requirements analysis in successful application projects.
- Understanding user needs and translating them into technical specifications.
- Importance of documentation in professional software engineering.
- Common challenges in application programming and how to avoid them.

Unit 2: Software Design and Architecture for Scalable Applications

- Principles of software architecture for enterprise applications.
- Designing layered and modular application structures.
- Applying object-oriented design concepts effectively.
- Understanding design patterns in application development.
- Building scalable web and business applications.
- Ensuring maintainability through clean architecture practices.
- Evaluating technology stacks for different project requirements.
- Aligning system design with performance and reliability goals.

Unit 3: Programming Practices and Development Tools

- Writing clean, efficient, and maintainable source code.
- Using integrated development environments effectively.
- Version control fundamentals for collaborative development.
- Automating builds and managing development workflows.
- Applying coding standards in professional teams.
- Debugging techniques for complex software applications.
- Managing dependencies and external libraries securely.
- Enhancing developer productivity with modern tooling.

Unit 4: Software Testing, Quality Assurance, and Maintenance

- The importance of software testing for application reliability.
- Unit testing strategies for robust application components.
- Integration and system testing approaches.
- Identifying and resolving software defects efficiently.
- Performance testing and application optimization techniques.
- Maintaining and updating production applications safely.
- Managing technical debt in long-term software projects.
- Supporting continuous improvement in software quality.

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Unit 5: Secure, Innovative, and Future-Ready Application Development

- Applying secure coding practices in software development.
- Protecting applications from common security vulnerabilities.
- Innovation strategies in modern application programming.
- Leveraging automation and continuous integration concepts.
- Preparing applications for cloud and distributed environments.
- Ensuring compliance with software design requirements.
- Monitoring application health and performance metrics.
- Future trends in application programming and software engineering.

Final Insights & Key Takeaways

Effective application programming requires a disciplined approach that integrates design quality, testing rigor, and continuous improvement. Mastering modern development tools and structured methodologies enables professionals to build scalable, secure, and high-performing software solutions.