<AICoders/>

# Comprehensive Course Syllabus

Master the art of creating and testing modern software applications, leveraging AI to supercharge your development and testing capabilities. From building robust applications to implementing cutting-edge automation - embrace the future of tech with AI as your co-pilot.

## Career Impact

Upon completion of this comprehensive course, you'll be equipped with cutting-edge skills in software development, testing, and AI integration. You'll be prepared to take on roles such as:

- AI Automation Engineer
- Test Automation Engineer
- QA Automation Specialist
- AI Engineer
- AI Integration Specialist
- Technical Lead

## 1 Software Development Fundamentals

Master the core principles of modern software development, from frontend to backend. Learn to build responsive web applications, understand server-side architecture, and implement robust database solutions.

**What You'll Learn:**

- Frontend Development (HTML5, CSS3, JavaScript)
- Backend Architecture and RESTful Services
- Database Design and Management
- API Design and Implementation
- Error Handling and Debugging Strategies
- Console Operations and Logging
- Network Architecture and Protocols

## 2 Software Testing Foundation

Develop a strong foundation in software testing methodologies. Understand the complete software development and testing life cycles, and learn industry-standard practices.

**What You'll Learn:**

- SDLC (Software Development Life Cycle)
- STLC (Software Testing Life Cycle)
- Testing Principles and Methodologies
- Types of Testing (Unit, Integration, System, UAT)
- Test Case Design Techniques
- Risk-Based Testing Approaches
- Test Planning and Strategy

## 3 Advanced Debugging & Troubleshooting

Gain expertise in advanced debugging techniques using modern tools and methodologies. Learn to investigate and resolve complex software issues.

**What You'll Learn:**

- Browser Developer Tools Mastery
- Network Call Analysis and Debugging
- Console Error Investigation
- Performance Profiling
- Memory Leak Detection
- Cross-browser Compatibility Testing
- Security Testing Fundamentals

## 4 API Testing & Automation

Master comprehensive API testing strategies using both manual and automated approaches with Postman and Playwright.

**What You'll Learn:**

- Postman for Manual API Testing
- REST API Testing Fundamentals
- API Authentication Methods
- Playwright API Testing Framework
- API Mocking and Stubbing
- Performance Testing for APIs
- API Security Testing

## 5 UI Automation with Playwright

Learn to create reliable, maintainable test suites that can run across multiple browsers using Playwright.

**What You'll Learn:**

- Playwright Architecture and Setup
- Locator Strategies and Best Practices
- Page Object Model Implementation
- Test Data Management
- Visual Testing and Snapshots
- Cross-browser Testing
- Parallel Test Execution

## 6 AI-Powered Testing

Harness the power of AI to enhance your testing capabilities with MCP Server integration and intelligent test automation.

**What You'll Learn:**

- MCP Server Integration
- AI-Assisted Test Case Generation
- Automated Test Script Writing
- Smart Test Maintenance
- AI-Based Test Analysis
- Failure Analysis and Reporting
- Continuous Learning and Optimization

## 7 Version Control & CI/CD

Master version control with Git and GitHub Desktop, and implement continuous integration and deployment pipelines.

**What You'll Learn:**

- Git Fundamentals and Workflow
- GitHub Desktop Operations
- Branch Management Strategies
- Jenkins Pipeline Setup
- CI/CD Pipeline Configuration
- Automated Test Integration
- Deployment Strategies

## 8 AI Integration & Future Skills

Prepare for the future with advanced AI integration skills, prompt engineering, and AI-assisted development practices.

**What You'll Learn:**

- AI Tools for Development
- Prompt Engineering
- Agent Mode Operations
- AI-Assisted Debugging
- Automated Code Review
- Future of AI in Testing
- Career Path and Growth



For inquiries, contact: aaqib817819@gmail.com