

TT3530 Implementing Agile Test Driven Development for Non-Programmers

Duration: 2 days

Skill Level: Introductory

Focus: Software testing in Agile context

Audience: Test professionals, test managers, project leaders, quality analysts and developers

Format: Expert lecture combined with open discussions and high-level demonstrations

Delivery Format: Available for onsite private classroom presentation, or live online / virtual presentation

Customizable: Yes

Implementing Agile Test Driven Development for Non-Developers is a two day, in-depth Agile-testing training course that provides students with a solid introduction to Test Driven Development and “test first” design within the context of Agile processes and practices.

► **Course Objectives: What You’ll Learn**



Test-driven development (TDD) is an evolutionary approach to development where you must first write a test that fails before you write new functional code. This process was developed by Kent Beck and Ward Cunningham. It is

primarily an agile approach to software development and is one of the core principles of Extreme Programming.

Working within in a dynamic, learning environment, guided by our expert Agile TDD team, attendees will:

- Be introduced to the concept of development agility and the Agile Manifesto
- Review each of the major agile development methods underscoring their strengths and weaknesses
- Understand how to manage an agile environment even within a structured organizational approach
- Learn how to introduce agility into a development organization
- Examine what unit testing is and how various xUnit frameworks facilitate unit testing
- Review the xUnit family of unit testing tools
- Understand the concepts of and motivations for Test-Driven Development
- Relate unit testing, test driven development, and test coverage to agile processes
- Understand the importance of refactoring in supporting agile and test driven processes
- Understand what Continuous Integration is and what the components of CI are
- Examine the motivations for CI
- Review best practices for everything from CI to testing within the context of agile development

Throughout the course, students will be led through a series of progressively advanced topics, where each topic consists of lecture, group discussion, comprehensive lab exercises and review.

If your team requires more advanced materials or custom topics, this course may be easily adjusted to accommodate. We offer

many additional Agile, TDD and software engineering courses which may be blended with this course for a track that best suits your development objectives.

► **Audience & Pre-requisites: Who Should Attend**

This is a **beginner- level** course, designed for test professionals, test managers, project leaders, quality analysts, and developers. No specific prerequisites are assumed. Knowledge of current development processes, such as structured top-down development and the waterfall method is beneficial.

► **Related Courses – Suggested Learning Path**

Take Before: Students should have skills equivalent to or should have taken **TT1515 Understanding the Agile Process – A Technical Overview** as a pre-requisite.

Take Instead: We offer other courses that provide different levels of knowledge or focus:

- Agile technicians who want a hands-on coding exploration of Agile / TDD concepts should consider **TT3500 Mastering Test Driven Development using JUnit** or **TT3510 Core Test Driven Development using JUnit**

Please note all development courses may also be offered in other programming languages or environments, as well as tailored to best suit your needs. Please contact us for details.

Take After: We offer a variety of introductory through advanced development, project management, engineering, architecture and design courses.

- Advanced Agile or test-driven development topics
- Software engineering or business analysis topics
- Security software design topics
- Service-Oriented Analysis and Design

Please contact us for recommended next steps tailored to your longer term education, project or development objectives.

► **Student Materials: What You'll Receive**

Our robust course materials include much more than a simple slideshow presentation handout. Student materials include a comprehensive hard-copy course manual, complete with detailed course notes, code samples, diagrams and current reference materials, all directly related to the course at hand, indexed for ease of use. For hands-on courses or demos, step-by-step lab instructions and project descriptions are clearly illustrated and commented for maximum learning. Our course kits are designed to serve as an excellent and useful reference set, long after we leave your classroom.

► **Optional Pre / Post-Testing & Skills Assessment**

We work with you to ensure that your resources are well spent. Through our basic course pre-testing and/or post-course assessments, we ensure your team is up to the challenges that this course offers. Our goal is to structure the best solution to ensure your needs are met, whether we customize the material, or devise a different educational path to prepare for this course.

► **Bridging the Gap: Collaborative Mentoring Services**

Our team of technical experts is also available for various project assistance services to help your team apply their newly-learned classroom skills to their real-world project in a meaningful, practical way, right after the training ends. This may be especially helpful for COBOL and Mainframe or non-programmer students moving to web based technologies, which can be an overwhelming prospect for some students, and their organizations.

Our custom **collaborative mentoring programs** integrate with or extend your team's classroom training experience, to help bring these skills into existing (or inherited) legacy projects, into new projects, or to simply keep your students sharp them in between projects. Our programs can be highly involved and closely integrated with your project timelines or group development efforts, or can be less involved, serving simply as an overarching educational framework or 'spot check' to keep your group skills moving forward in between projects or waiting for projects to begin. Please contact us for details about this exciting custom service.

We will work with you to come up with the best solution to ensure your needs are met, whether we customize the material, or devise a different educational path to prepare for this course.

Workshop Topics Covered

Need more details? Please note that a more detailed outline of the course table of contents, lists of lab exercises and project descriptions is available. Please contact us at Training@triveratech.com for info.

Need courseware? This course is fully customizable, and also available for license with complete support for qualified organizations. Please contact Courseware@triveratech.com for details.

Session Agile Development

Lesson Agile Software Development

- What This Course is Really About
- Controlling Risk
- Agile Development
- Motivation: Risk Reduction
- The Discipline of Timeboxing
- Incremental Delivery and Evaluation
- Agile Software Development Manifesto
- Same Approach with Documentation
- Change Wins Out Over Following a

Set Plan

- Refactoring is Artifact of Change
- Rules
- Extreme Values
- The XP Practices
- Continuous Integration (CI)
- Agile Testing
- The Lowest Bar of Unit Testing
- Agile Testing Stages
- Test First
- Acceptance Tests
- Test-Driven Development
- General Agile Principles
- Adopting or Trying Agile
- Setting User Expectations

Session Test-Driven Development

Lesson Unit Testing

- What is Unit Testing?
- Purpose of Unit Testing
- Successful Unit Testing
- Unit Testing Frameworks
- XUnit: JUnit, NUnit, etc.
- Reasons to Use XUnit
- How XUnit works

Lesson The ROI of TDD

- Rationale for Test-driven Development
- The Process of TDD
- Advantages to TDD
- Side-effects of TDD
- Observations About Tests
- Tools to support TDD
- Automation and Coverage
- Working With Coverage Analysis
- The Concept of Test "Close" Development

Session Improving Code Quality Through Refactoring

Lesson Refactoring

- Refactoring Overview
- Sample of Refactorings
- Refactoring and Testing
- Suggested Refactoring
- The Impact of Refactoring

Lesson Advanced Refactoring

- Design Patterns
- Code That Feels Wrong

- Refactoring to Design Patterns
- Abstract Factory Design Patterns
- Sample Refactorings
- Adapter Design Patterns
- Sample Refactorings
- Strategy Design Patterns
- Sample Refactorings

Session Advanced Topics

Lesson Continuous Integration

- Overview of Continuous Integration
- Typical Continuous Integration Process
- Local Development Environment

- CI Server
- Potential Benefits of Continuous Integration
- Continuous Integration Best Practices Overview
- Automate Source Code Management
- Automate Build Process
 - Goal: Consistent Build Process
 - Why Use Build Management in an IDE?
 - Decoupling the IDE from Code
- Automate Testing
- Automate Deployment
- Commit Code Early and Often
- Manage the Build Process

- Separate Integration Environment
- Mimic Production Environment
- Increase Visibility

Lesson Agile Testing Best Practices

- Coding Practices
- State- vs. Interaction-based Testing
- Source Control
- Pair Programming and Code Reviews
- Continuous Integration
- Legacy Code

► Why Work With Trivera Technologies?

- **We provide a solid application development and testing foundation.** Students will learn how to develop (and reuse!) essential design and testing skills and concepts properly, using best practices, grounding them for advanced curriculum. Students will be prepared for designing and implementing real solutions, right after the class ends. Students will learn the importance of developing and testing well-designed applications.
- **Our courses are focused - no "fluff" included.** We offer more than a “laundry list” approach to teaching. All lessons have clear objectives, are fundamental to core Agile and testing practices, and are reinforced by hands-on labs and solid practical examples. Each lesson has performance driven objectives that ensure students will learn technologies and skills core to fundamental testing and design – nothing more, nothing less.
- **Our materials are comprehensive, and current.** Our comprehensive manuals include not only a hard copy of the course presentation, but also detailed reference notes, pertinent diagrams and charts, current lists of suggested online resources and articles, and often technical tutorials or white papers geared to the topics at hand. Our dedicated course development team keeps everything as current as possible with both industry trends and software editions to ensure your team is getting the most current information available.
- **We set you up!** Hands-on courses also include our unique materials for each student, complete with our *LoadNGo Instant Classroom* course set up DVD, software, and a multitude of learning resources that complement the course. Run the course right off the DVD – minimal set up for your company – maximum results for your students.
- **We foster "Learning by Doing".** Progressive labs are designed in such a way that students get a firm grasp on fundamental skills while they work toward designing a complete application. All labs are take-home, and all solution code is presented in an easy to use self-study format for future use and review.
- **True content ownership gives us flexibility & quality above the rest.** These course materials are wholly-owned by our company and fully customizable - at little or no cost- to help you best meet your learning objectives. We have many dedicated experts available worldwide to instruct your team, and can provide services around the globe, either locally or virtually. We work closely with you to produce the most effective events and materials for your team, within your desired timeframe and budget.
- **We have to adhere to higher standards.** As a courseware provider, our content and hands-on lab materials are licensed internationally by dozens of firms, and are therefore subject to very stringent quality requirements. Not only will your organization benefit from our own technical team’s technical expertise, but also the feedback of hundreds of students and trainers using these materials, worldwide, on a regular basis. This unique fact guarantees that our materials are not only robust and interesting, but also technically correct, current and of the highest quality and usability.
- **We bring years of practical, current experience into the classroom and content.** Our instructors and course authors are also skilled mentors, Java, JEE/ JavaEE, J2EE, .Net, SOA, Agile and web services developers, architects and security-oriented professionals. We believe that learning, using and maintaining solid software execution and delivery methods are as important as gaining sharp coding skills. Best Practices for software development and execution, beyond technical coding skills, are enforced throughout all of our courses and discussions. Our team brings this extensive experience into every classroom and engagement.
- **We're skills-centric.** Although our team has extensive experience using a variety of tools and solutions, our core content is “technology-centric”. Our aim is to teach you the best skills and solutions out there – not to sell you software from any particular vendor.

- **We're Java & JEE / J2EE authors and industry speakers.** Our team was selected to write the online *J2EE, EJB, EJB CMP-CMR and Web Services Tutorial Series for IBM developerWorks®* (www.ibm.com) These are the same instructors who train our classes and author the courseware. Most of our trainers/consultants have also authored additional articles on web services, EJB< Struts, J2EE and advanced Java topics, and are recognized speakers and presenters on the industry technical seminar circuit. Our team is comprised on several successful published authors. Members of our team have written or contributed to: *Eclipse Kick Start, Mastering Eclipse; Professional Jakarta Struts; Using Java Tools for Extreme Programming; Mastering Resin; Mastering TomCat and others.*
- **Our services are guaranteed.** Whether you're a stakeholder organizing your firm's educational services, a student in our live or virtual classroom or a trainer using our materials to educate your own client or team – **Our core mission is to make YOU a success in the classroom.**

► **For Additional Information**

Need dedicated training? All courses can be brought onsite or produced virtually for a **private presentation**, customized to suit your unique requirements or goals. Please contact Training@triveratech.com for course details, Public Schedule dates and locations, and Special Discount Offers.



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Please contact us for details & pricing.

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