

Essential UML Applied™ Workshop

— Tool-independent edition —

Accelerate your Model-Driven Software Engineering project with this intense, hands-on UML 2 workshop that emphasizes pragmatic principles and techniques, and shows how to apply them using any UML 2 compliant modeling tool.

The goal of Model-Driven Software Engineering is to improve both the speed and quality of traditional software development processes by facilitating a transition from linear document-based and code-centric methods to model-driven methods that support an iterative, incremental system lifecycle. The **Unified Modeling Language (UML) is a key enabling technology for Model-Driven Software Engineering processes. The UML is a general-purpose visual modeling language for software-intensive applications** that is standardized by the Object Management Group. With the UML 2.x major revision the UML has evolved into an **architecture description language that can precisely specify enterprise architecture blueprints and automate software code generation**. The UML has been successfully applied to wide variety of domains, ranging from finance and healthcare to aerospace and telecommunications.

This introductory UML workshop **provides students with a solid foundation for applying Model-Driven Software Engineering principles and best practices with UML 2**. The workshop teaches students **how to solve practical problems using all UML 2 diagram types**. Learning modules are punctuated with frequent Q&A sessions and hands-on practice exercises. Students who desire integrated modeling tool training may also choose versions of this workshop that are customized for popular SysML modeling tools. (For a list of workshops customized for popular visual modeling tools see the Training page of the PivotPoint web).

WHY TRAIN WITH US? – PIVOTPOINT TRAINING ADVANTAGES

- PivotPoint workshops are **authored and taught by Model-Based Engineering experts** with 10+ years practical application experience.
- PivotPoint workshops **are intense (high Instructor/Student ratio) and pragmatic—punctuated with frequent Q&A sessions and hands-on practice exercises**.
- PivotPoint workshops are **based on proven tool-independent principles and techniques**, so you can learn a leading modeling language or architecture framework with/without a modeling tool. (For a list of workshops customized for popular visual modeling tools see the *Training* page on the PivotPoint web.)
- PivotPoint workshops are **modular and can be customized to meet your team and project needs**. To begin with, you can pick-and-choose your modeling language, and then select from modeling tool and architecture framework training options.
- PivotPoint workshops **offer flexible choices of venues (onsite, offsite, webconference) and durations (#days)**.

For more details about the advantages of PivotPoint's Model-Based Engineering training check out the [“Why Train with Us?”](#) page on the PivotPoint web. But don't just take our word for it; you should also check out the [Client Testimonials](#) page on our web.

Workshop **learning objectives, prerequisites, syllabus, and logistical information are described below.**

WHAT WILL YOU LEARN?

- What is Model-Driven Software Engineering (MDSE) and how does UML 2 enable it?
- UML's basic and advanced constructs for modeling requirements, structure, and behavior (includes all 14 UML 2 diagrams)
- How UML can specify large, complex system architectures and the full System Development Life Cycle
- How to trace Requirements and perform Verification & Validation (V&V) on a UML model
- Practical guidelines for specifying correct, complete, clear, concise, and consistent models
- How you can customize UML for specific domains, platforms, and processes
- How UML work artifacts can be used with Model-Driven Software Engineering processes
- How to select UML tools and processes
- How to draw UML diagrams, execute UML diagrams, and generate reports using a selected UML tool: Optional
- How to plan your transition to a MDSE approach
- How to learn more about MDSE and UML 2 modeling

WHO SHOULD PARTICIPATE?

Software architects/engineers/developers, system architects, systems engineers, project managers, and others who want to learn how the UML 2 language can improve how they architect, analyze, design, and manage systems will benefit from this workshop.

PREREQUISITES: Software or systems engineering experience in building large, complex systems. No other experience or prior training is required.

WORKSHOP AUTHOR & CHIEF INSTRUCTOR



Cris Kobryn is the CEO and Founder of PivotPoint Technology Corporation, a company that specializes in Model-Based Engineering Solutions™ for tough business and engineering problems. He is an internationally recognized expert in visual modeling and Model-Based Engineering, and has successfully applied these technologies to diverse industries ranging from aerospace-defense and communications to financial services and manufacturing. Cris chaired large international teams of vendors and users to specify the Unified Modeling Language (UML) 1.x and 2.0 standards for software engineering, and the Systems Modeling Language (SysML) 1.0 standard for systems engineering. In recognition of Cris's contributions to the UML the Object Management Group (OMG) presented him with its Distinguished Service Award, and in acknowledgement of his contributions to the SysML the International

Council on Systems Engineering (INCOSE) presented him with its Outstanding Service Award.

WORKSHOP SYLLABUS: The workshop syllabus, in a menu form that can be customized to meet your team/project needs, is described at the end of this document. NOTE: This workshop description and syllabus are subject to revision. Check the *Training* page on the PivotPoint web for the most recent update.

FLEXIBLE VENUES: All of our workshops are available onsite (at a Client training facility), offsite (at a PivotPoint training facility), and via webconference.

WORKSHOP CUSTOMIZABILITY: All of our workshops are based on flexible learning modules that can be reconfigured your project and team training needs. Please contact us to discuss details.

FOLLOW-UP CONSULTING/COACHING SERVICES: All of our workshops can be followed up with consulting or coaching (mentoring) services that will keep your Model-Based Engineering project on track. Please check out the Consulting services page on the PivotPoint web, or contact us to discuss details.

SCHEDULING AND COST: Workshops must be reserved in advance by Purchase Order or prepayment. We generally require at least 4 weeks lead time for scheduling workshops, but longer lead time is desirable to reserve your preferred training dates. Workshop cost depends upon workshop duration (number of days), venue choice (onsite, offsite, webconference), and number of students.

FURTHER INFORMATION & PRICE QUOTES: Please visit our web site at www.PTCorp.com, email us at workshops@PTCorp.com, or call us at +1-760-728-9747 to discuss workshop details and receive a price quote.

WORKSHOP MENU

All PivotPoint workshops include both structured presentations and interactive hands-on work sessions to reinforce learning principles and best practices. In addition, all workshops can be customized to address special project or team requirements.

- **3 day workshop** includes: *UML2 – Basic* and *UML2 – Intermediate*, and one of the following: *UML2 – Advanced* or *UML2 – Basic Modeling Tool*.
- **4 day workshop** includes: *UML2 – Basic*, *UML2 – Intermediate*, *UML2 – Advanced*, and *UML2 – Basic Modeling Tool*.
- **5 day workshop** includes: *UML2 – Basic*, *UML2 – Intermediate*, *UML2 – Advanced*, *UML2 – Basic Modeling Tool*, and *UML2 – Project Practicum*.

<p style="text-align: center;">UML 2 – BASIC [Module# LU101]</p> <p>Introduction to Model-Driven Software Engineering</p> <ul style="list-style-type: none"> • Basic concepts • Principles and best practices <p>UML 2 Quick Tour</p> <ul style="list-style-type: none"> • Language overview • Diagram walkthrough <p>Diagram Techniques</p> <ul style="list-style-type: none"> • Use Case • Class • Sequence • Activity <p>Lifecycle Phases</p> <ul style="list-style-type: none"> • Requirements • Analysis 	<p style="text-align: center;">Goals</p> <ul style="list-style-type: none"> • Learn about the advantages of a Model-Driven Software Engineering approach to software development • Understand the basic concepts and principles for modeling complex systems with UML 2 • Learn how to apply basic UML 2 diagram techniques • Understand how to specify a correct, complete, clear, concise, and consistent model
<p style="text-align: center;">UML 2 – INTERMEDIATE [Module# LU102]</p> <p>Topics</p> <ul style="list-style-type: none"> • Requirements traceability/Verification and Validation (V&V) • Model integrity and quality guidelines • Model metrics • Interface-based design/Component-based design • Service Oriented Architectures <p>Diagram Techniques</p> <ul style="list-style-type: none"> • Composite Structure • State Machine • Component • Deployment • Object • Package • Profile • Other Interaction diagrams <p>Lifecycle Phases</p> <ul style="list-style-type: none"> • Design • Construction • Testing 	<p style="text-align: center;">Goals</p> <ul style="list-style-type: none"> • Learn how to apply UML to MDSE techniques such as Requirements traceability • Understand how to apply UML to the full System Development Life Cycle (SDLC) • Learn how to improve the integrity, scalability, and quality of your UML models • Understand how to Verify and Validate your UML models

<p style="text-align: center;">UML 2 – ADVANCED [Module# LU103]</p> <p>UML 2 Review <i>[If UML 2 refresher required]</i></p> <p>Topics</p> <ul style="list-style-type: none"> • Recursive design • Advanced structural techniques • Advanced behavioral techniques • Large-scale model management for team modeling • Analysis/design/architecture patterns • Model simulation and execution • Customizing UML for domains, platforms, and processes • Model-based process selection and customization • Modeling tool selection and customization 	<p style="text-align: center;">Goals</p> <ul style="list-style-type: none"> • Learn advanced UML modeling techniques to refine structural and behavioral models • Understand how to define and apply patterns for reuse • Learn how models can drive simulations and generate executable code • Understand how to customize UML for your work domain and target platform • Learn how to select and customize model-based processes and tools
<p style="text-align: center;">UML 2 – BASIC MODELING TOOL: OPTIONAL [Module# LU111-TI]</p> <p><i>[All Model-Based Engineering workshops are based on tool-independent principles and best practices. If you have already chosen a UML modeling tool, we can integrate optional tool training into your workshop. If you have not, we can help you select one that best meets your project and team needs. For a list of workshops customized for popular visual modeling tools see the Training page of the PivotPoint web.]</i></p> <p>Topics</p> <ul style="list-style-type: none"> • Projects and diagrams • Generating documentation • Importing/exporting models • Requirements traceability • Model validation and metrics • Round-Trip Engineering • Team modeling <p>Diagram Techniques</p> <ul style="list-style-type: none"> • Use Case • Class • Sequence • Activity • Composite Structure • State Machine • Other diagrams TBD 	<p style="text-align: center;">Goals</p> <ul style="list-style-type: none"> • Gain familiarity with the user interface and basic features of selected UML modeling tool • Learn how to model most common UML diagram types using selected modeling tool • Understand the strengths and weaknesses of selected modeling tool • Assess UML and XMI standards compliance for selected modeling tool
<p style="text-align: center;">UML 2 – PROJECT PRACTICUM [Module# LU121]</p> <p>The project practicum provides an opportunity to apply UML 2 modeling principles and best practices to solve project modeling problems in a creative and supervised workshop environment. The practicum can be used to facilitate:</p> <ul style="list-style-type: none"> • UML 2 model peer reviews • UML 2 model revisions and extreme makeovers • UML 2 modeling tool customization/selected advanced topics [prerequisite: <i>UML 2 – Basic Modeling Tool</i> module] <p>Students can identify project modeling problems in advance, or Instructor will work with students to identify them.</p>	<p style="text-align: center;">Goals</p> <ul style="list-style-type: none"> • Identify the UML 2 modeling principles and best practices that are most important to your team and your project • Apply UML 2 modeling techniques to project-specific problems that you choose