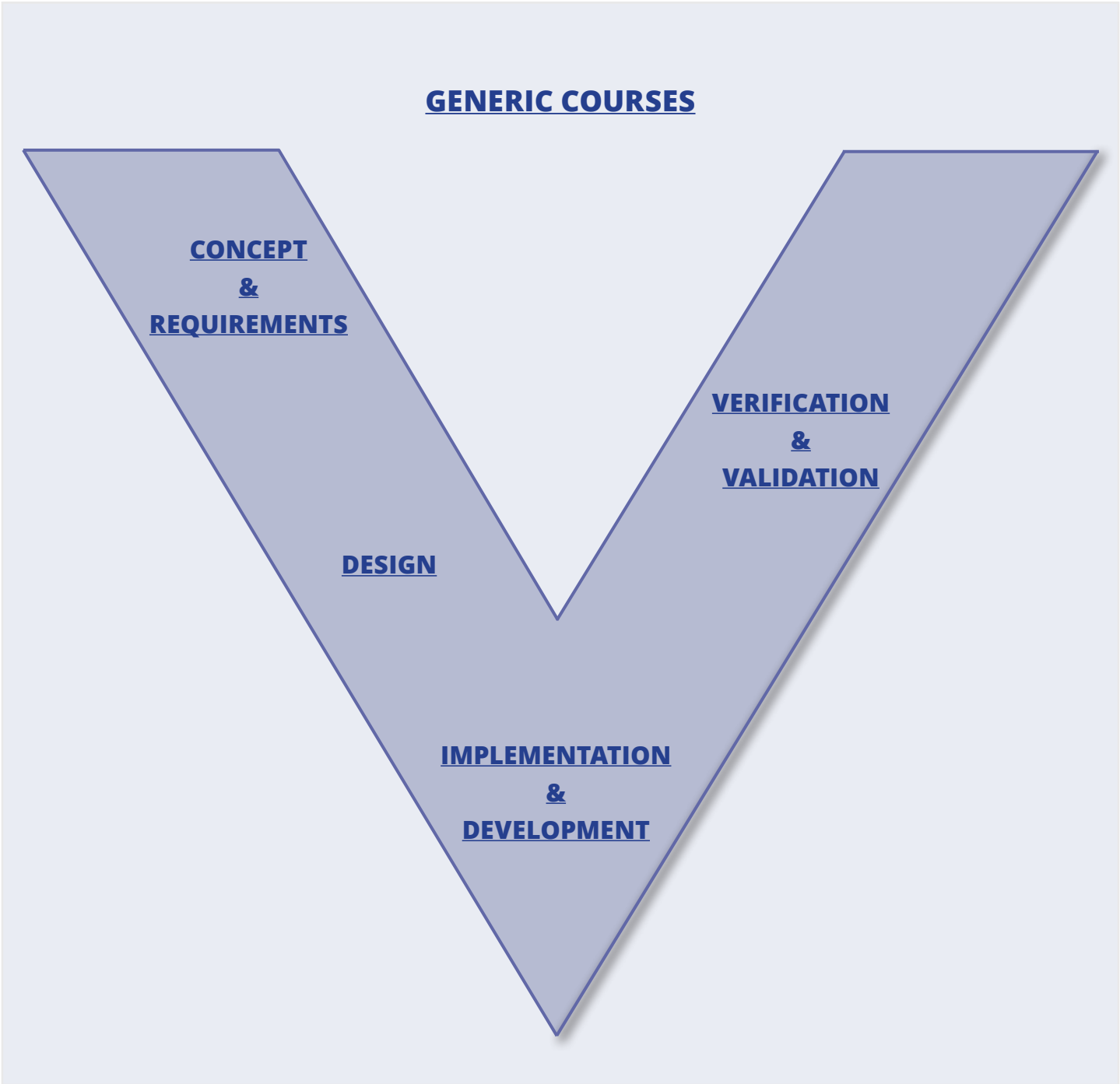
ENGINEERING COURSES

ULMA

ULMA EMBEDDED SOLUTIONS

Engineering courses



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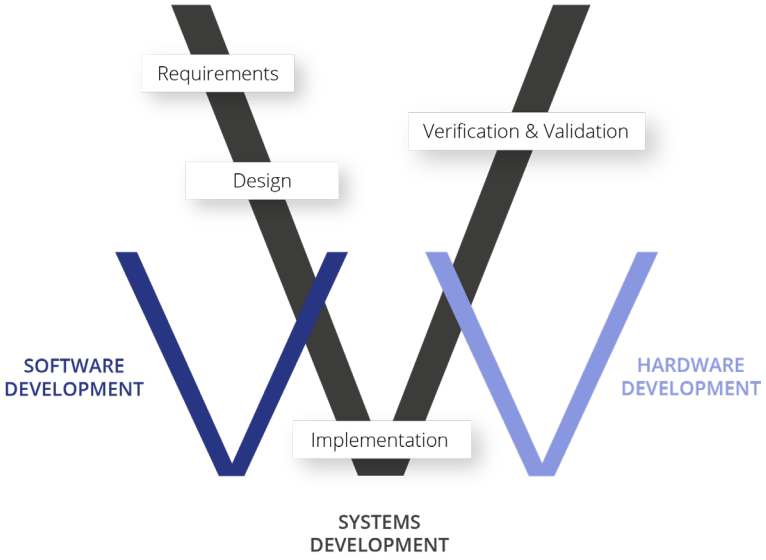
INTRODUCTION

ULMA EMBEDDED SOLUTIONS is a cooperative engineering and consultancy services company in the field of electronic products that covers its design, development and validation phases.

Our mission is to create and implement high-value technological solutions in any phase of the product life cycle of our clients, thanks to a highly qualified team.

We can help you improve your software & hardware design, development and testing skills through the following training courses included in this catalogue.

We can provide to our customers competency assessments, face-to-face training and consultancy. Choosing ULMA Embedded Solutions as your partner for embedded software development improvement gives, you access to:



- On-site team training (ask for group pricing)
- Public training for individual engineers in Madrid, Barcelona and Bilbao
- Pre and post-your courses
- Graduate training programs
- Re-skilling from other software development and engineering disciplines

Our customised training courses are tailored to the specific requirements and abilities of each customer. We can provide from the basics of introduction to advanced training or a course that meets the needs of your team or specific project, we deliver training on your site and demonstrate techniques and tutorials to help your team gain greater programming efficiency and increase their productivity.

We enhance our teaching with our vast practical experience in each of these areas and share this valuable experience with your team by giving real-world examples of application areas where each of these can be applied.

FUNCTIONAL SAFETY

E/E/EP

[FE101] IEC 61508 Functional Safety for E/E/PE - Basic

OBJECTIVE

This course introduces the processes needed in the safety life cycle. It is highly recommended for beginners.

After the course, you will be familiar with the basic principles IEC 61508 by means of using examples. Explanations of the necessary work products and appropriate treatment of the safety plan are also provided during this course.

AUDIENCE

This training is suitable for managers, software developers, hardware developers, project leaders, quality representatives, test engineers and all who are involved in functional safety projects and lifecycle primarily focusing on the development of programmable electronic safety systems.

AGENDA

- Day 1: IEC 61508-1 General Requirements
- Day 2: IEC 61508-2 Safety-related requirements for E/E/PE
- Day 3: IEC 61508-3 Software Requirements

Duration: 3 Days

Price: To be consulted

Prerequisites: N/A

FUNCTIONAL SAFETY

E/E/EP

[FE102] IEC 61508 Functional Safety for E/E/PE - Advanced

OBJECTIVE

This course introduces you to the safety life cycle and focuses on specific aspects (on-demand). After the course, you will have the needed knowledge for developing a complete IEC 61508 compliant E/E/PE system. Explanations of the necessary work products and appropriate treatment of the safety plan and safety analyses are discussed during this course.

AUDIENCE

This training is suitable for managers, software developers, hardware developers, project leaders, quality representatives, test engineers and all who are involved in functional safety projects and lifecycle primarily focusing on the development of programmable electronic safety systems.

AGENDA

- Day 1: IEC 61508-1 General Requirements
- Day 2: IEC 61508-2 Safety-related requirements for E/E/PE
- Day 3: IEC 61508-3 Software Requirements
- Day 4: Clarification of on-demand specific aspects
- Day 5: Clarification of on-demand specific aspects

Duration: 5 Days

Price: To be consulted

Prerequisites: N/A

FUNCTIONAL SAFETY

Automotive

[FA101] ISO 26262 Road Vehicles - Basic

OBJECTIVE

Whether you are a complete novice with ISO 26262, need a refresh, or are curious about the changes to the 2018 revision, this course will give you a great foundation in the fundamentals of functional safety in general, and ISO 26262 in particular.

You will learn the importance about the functional safety in the automotive industry and how general functional safety principles are interpreted in ISO 26262, and you will take away a “check list” of the critical best practices for any development team looking to adhere to its principles.

AUDIENCE

This training is suitable for software practitioners and managers requiring an awareness of functional safety, and an overview of ISO 26262.

AGENDA

- Day 1: Overview, management and concept
- Day 2: Safety development at system and hardware levels
- Day 3: Safety Development at hardware and software levels

Duration: 3 Days

Price: To be consulted

Prerequisites: N/A

FUNCTIONAL SAFETY

Automotive

[FA102] ISO26262 Road Vehicles - Advanced

OBJECTIVE

Whether you are a complete novice with ISO 26262, need a refresh, or are curious about the changes to the 2018 revision, this course will give you a great foundation in the fundamentals of functional safety in general, and ISO 26262 in particular.

You will learn about the importance of functional safety in the automotive industry and how general functional safety principles are interpreted in ISO 26262. You will take away a "checklist" of the critical best practices for any development team looking to adhere to its principles.

In addition, this course includes 1.5 days for focusing on specific parts of ISO 26262 that you want to deepen and clarifying any doubt that you could have regarding the application of the standard to your product.

AUDIENCE

This training is suitable for software practitioners and managers requiring an awareness of functional safety, and an overview of ISO 26262.

AGENDA

- Day 1: Overview, management and concept
- Day 2: Safety development at system and hardware levels
- Day 3: Safety development at hardware and software levels
- Day 4: Clarification of on-demand specific aspects
- Day 5: Clarification of on-demand specific aspects

Duration: 4,5 Days

Price: To be consulted

Prerequisites: N/A

FUNCTIONAL SAFETY

Automotive

[FA103] ISO 25119 Functional Safety for Agricultural and Forestry - Basic

OBJECTIVE

Whether you are a complete novice with ISO 25119, need a refresh, or are curious about this standard, this course will give you a great foundation in the fundamentals of functional safety in general, and ISO 25119 in particular.

You will learn the importance of functional safety in the automotive industry and how general functional safety principles are interpreted in ISO 25119, and you will take away a “check list” best practices for any development team looking to adhere to its principles.

AUDIENCE

This training is suitable for software practitioners and managers requiring an awareness of functional safety, and an overview of ISO 25119.

AGENDA

- Day 1: Overview, management and concept
- Day 2: Safety development at system and hardware levels
- Day 3: Safety development at hardware and software levels

Duration: 3 Days

Price: To be consulted

Prerequisites: N/A

FUNCTIONAL SAFETY

Automotive

[FA104] ISO 25119 Functional Safety for Agricultural and Forestry - Advanced

OBJECTIVE

Whether you are a complete novice with ISO 25119, need a refresh, or are curious about this standard, this course will give you a great foundation in the fundamentals of functional safety in general, and ISO 25119 in particular.

You will learn the importance of functional safety in the automotive industry and how general functional safety principles are interpreted in ISO 25119, and you will take away a “check list” of best practices for any development team looking to adhere to its principles.

This course also includes some days for clarifying specific questions that you could have based on your product or needs.

AUDIENCE

This training is suitable for software practitioners and managers requiring an awareness of functional safety, and an overview of ISO 25119.

AGENDA

- Day 1: Overview, management and concept
- Day 2: Safety development at system and hardware levels
- Day 3: Safety development at hardware and software levels
- Day 4: Clarification of on-demand specific aspects
- Day 5: Clarification of on-demand specific aspects

Duration: 4,5 Days

Price: To be consulted

Prerequisites: N/A

FUNCTIONAL SAFETY

Machinery

[FS101] ISO 13489&IEC 62061 Functional Safety for Machinery - Basic

OBJECTIVE

The objective of this training is to explain the processes and standards that are important in the design and evaluation of safety relevant control systems.

This training course addresses how EN ISO 13849 (the safety-related control systems standard) is applied in automation and equipment design. The same is presented for EN/IEC 62061 standard, where we will focus on this standard's specific aspects and we will expose the differences with EN ISO 13849.

AUDIENCE

This training is suitable for software practitioners and managers requiring an awareness of functional safety, and an overview of ISO 25119.

AGENDA

- Day 1: Overview of Functional Safety, Risk Analysis and Introduction to ISO 13849-1
- Day 2: Safety Functions of Machines, Safety Devices
- Day 3: Continue with ISO 13849, validation
- Day 4: Introduction to EN 62061
- Day 5: Examples according to EN 62061 and ISO 13849

Duration: 4,5 Days

Price: To be consulted

Prerequisites: N/A

FUNCTIONAL SAFETY

Machinery

[FSM102] ISO 13489&IEC 62061 Functional Safety for Machinery - Advanced

OBJECTIVE

The objective of the training is to explain the processes and standards that are important in the design and evaluation of safety-relevant control systems.

This training course addresses how EN ISO 13849 (the safety-related control systems standard) is applied in automation and equipment design. The same is presented for EN/IEC 62061 standard, where we will focus on this standard's specific aspects and we will expose the differences with EN ISO 13849.

The course includes 1.5 days for clarifying your product specific questions and on any part of the standard where you have an interest or need.

AUDIENCE

This training is suitable for engineers, testers, project managers, and quality managers requiring an awareness of functional safety and an overview of ISO 13849 and IEC 62061 machinery standards.

AGENDA

- Day 1: Overview of Functional Safety, Risk Analysis and Introduction to ISO 13849-1
- Day 2: Safety Functions of Machines, Safety Devices
- Day 3: Continue with ISO 13849, Validation
- Day 4: Introduction to EN 62061
- Day 5: Examples according to EN 62061 and ISO 13849
- Day 6: Clarification of on-demand specific aspects
- Day 7: Clarification of on-demand specific aspects

Duration: 6 Days

Price: To be consulted

Prerequisites: N/A

FUNCTIONAL SAFETY

Machinery

[FSM103] EN 17206 Functional Safety for Entertainment Industry - Basic

OBJECTIVE

This course provides stage machinery designers, system integrators, and operators with an in-depth understanding of the specifications and requirements related to performer lifts, compensators, and stage lifts used in the entertainment industry.

During this course, we will explore the fundamentals of mechanical design requirements, protective measures, testing, and documentation. We will navigate through the entire design process, obtaining the needed knowledge to designing entertainment industry's machinery.

AUDIENCE

This training is suitable for control engineers, testers, project managers, Maintenance / Instrumentation Technician, Project Engineer, Reliability Engineer, Machinery Engineer, Engineering / Operations Management and operators requiring an awareness of functional safety and an overview of EN 17206.

AGENDA

- Day 1: Introduction to EN 17206, HARA, design requirements, safety devices and safety functions.
- Day 2: Overview day 1, verification, validation and practical examples.

Duration: 2 Days

Price: To be consulted

Prerequisites: N/A

AUTOMOTIVE SPICE

[AS101] Automotive SPICE

OBJECTIVE

This training introduces the VDA Automotive SPICE® Guidelines, a guide for assessors and users of the Process Assessment Model (PAM) "Automotive SPICE® ".

Discussions, group works and examples will illustrate the challenges that may arise during the interview and assessment phases of an assessment.

AUDIENCE

System, software and hardware developers, test engineers, project managers, safety managers, quality managers and other participants in development projects in the automotive environment.

AGENDA

- Day 1: Introduction to ASPICE, System and Software Requirements, Architectural Design, Implementation and Testing.
- Day 2: Supporting Processes and Supplier Monitoring, Introduction to QMS, ISO 26262.

Duration: 2 Days

Price: To be consulted

Prerequisites: N/A

REPORTING

[RPE201] IBM Rational Publishing Engine - Essentials

OBJECTIVE

This course is intended for people using RPE to design and create templates, to add advanced formatting information, to learn the best practices and finally to generate documents.

These are some objectives of the course;

- Use the Rational Publishing Engine to configure documentation generation for projects
- Generate documents that integrate information from various sources
- Design document templates that meet the document generation needs of the company
- Design and customize advanced Rational Publishing Engine templates using complex expressions and scripting

AUDIENCE

People engaged in the document generation process using IBM Rational Publishing Engine.

AGENDA

- Install and configure Rational Publishing Engine
- Design and create basic Rational Publishing Engine templates
- Add formatting information
- Customize Master Page and Footer sections
- Use advanced expressions to create RPE conditions and RPE filters
- Use native filter and native sort
- Use external and internal variables
- Use external stylesheets and macros
- Use and properly configure the User Templates Library
- Using JavaScript to integrate charts in documents
- Use pre and post commands to customize the document generation
- Using RPE API to customize generation process
- Best practices
- Generate documents (local or remote)

Duration: 2 Days

Price: To be consulted

Prerequisites:

- Basic knowledge of XML language and XML schema definitions
- Some knowledge of IBM Rational tools
- Some knowledge of OOP concept and JavaScript language

REQUIREMENTS MANAGEMENT

[RM101] IBM Engineering Requirements Management - Foundation

OBJECTIVE

This course is recommended for people who use Requirements Management (RM) processes to underpin their development lifecycle. The course will provide you grounding in the fundamental concepts and methods involved in RM and is applicable to all market sectors.

Course will be conducted by industry experts, using practical examples, and it is highly participative.

AUDIENCE

This course is designed for anyone who is new to RM and is looking for a thorough grounding in the basic concepts and methods.

AGENDA

- Concept Overview
- Analysis and Modelling
- Understand the Problem
- Derive a Solution
- Write Requirements
- Requirements Quality
- Qualification and Acceptance
- Put This into Context
- Lifecycles
- Planning
- Maintenance

Duration: 1 Day

Price: To be consulted

Prerequisites: N/A

REQUIREMENTS MANAGEMENT

[RM102] IBM Engineering Requirements Management - Practitioner

OBJECTIVE

This course is recommended to consolidate the concepts covered in the associated Requirements Management (RM)—Foundation course through the participation in a series of interactive scenarios.

Through this role-play-based course, you will work in small teams, experiencing the full RM lifecycle and practicing the use of a wide range of concepts and methods. You will be encouraged to be as creative as possible during each of the set tasks.

The course is designed to create an entertaining and stimulating learning environment. Courses are conducted by industry experts, using practical examples, and are highly participative.

AUDIENCE

This course is designed for anyone who is looking for practical experience in the use of RM processes from the safety of a classroom environment. Job roles might include business analysts, systems and software engineers, requirements managers and project managers.

AGENDA

- RM Planning
- Bidding for the Job
- Developing the Requirements
- Coping with Customer Changes
- Delivering the Capability

Duration: 1 Day

Price: To be consulted

Prerequisites:

- You must successfully have completed the course Requirements Management Foundation [RM101]

REQUIREMENTS MANAGEMENT

[RD204] Customizing IBM Rational DOORS Using DXL

OBJECTIVE

This course teaches the basic principles of writing and applying the IBM Rational DOORS extension language (DXL) to customize IBM Rational DOORS.

These are some objectives of the course;

- Process projects, folders, modules, and objects
- Process traceability
- Process history
- Process access rights
- Process views and view settings
- Create customized Attribute and Layout DXL
- Create customized IBM Rational DOORS menus
- Develop user interfaces

AUDIENCE

This course is for experienced IBM Rational DOORS users who want to customize IBM Rational DOORS.

AGENDA

- DXL Fundamentals
- Rational DOORS Architecture
- Reporting Information
- File Input/Output (I/O) Operations
- Rational DOORS Dialog Boxes
- History, Discussions, and Access
- DXL Libraries
- Rational DOORS Menus
- Advanced DXL

Duration: 2 Days

Price: To be consulted

Prerequisites:

- Knowledge of structured procedural programming, preferably in C
- Proficiency in IBM Rational DOORS

REQUIREMENTS MANAGEMENT

[RD101] IBM Rational DOORS - Foundation

OBJECTIVE

This course is for new IBM Rational DOORS users. It introduces basic IBM Rational DOORS concepts and functionality. It includes hands-on exercises that teach users to create, edit, manipulate, and analyse requirements data in IBM Rational DOORS.

These are some objectives of the course;

- Navigate within a Rational DOORS database
- Create structured data in a Rational DOORS formal module
- Modify existing data in a Rational DOORS formal module
- Review existing data in a Rational DOORS formal module
- Create relationships in a Rational DOORS database
- Report on relationships in a Rational DOORS database

AUDIENCE

This basic course is for new IBM Rational DOORS users.

AGENDA

- View information
- Edit information
- Structure information
- Get Word documents into Rational DOORS
- Generate requirements documents
- Use attributes to capture information about requirements
- Find data
- Manipulate the display
- Create and analyse traceability
- Insert information in other formats

Duration: 1 Day

Price: To be consulted

Prerequisites:

- Principles of Requirement Management Foundation course is recommended

REQUIREMENTS MANAGEMENT

[RD102] IBM Rational DOORS - Practitioner

OBJECTIVE

This course builds on the content learned in the IBM Rational DOORS Foundation course. It is designed for those who will be in the role of team lead or project manager, or who want to learn more about advanced Rational DOORS end-user functionality. It discusses creating and structuring Rational DOORS projects, defining linking relationships and attributes, setting access permissions, and managing change. It also discusses external linking, working with spreadsheets, and applying configuration management strategies to Rational DOORS data.

These are some objectives of the course;

- Build projects in Rational DOORS, including defining data structure, linking schema, attributes, and access permissions
- Use Rational DOORS external linking facilities
- Share Rational DOORS information with 3rd parties
- Control the flow of changes through your Rational DOORS database
- Apply configuration management and backup strategies to your Rational DOORS data.

AUDIENCE

This basic course is for Business Analyst, Systems Engineer, Software Engineer, Requirements Engineer, Requirements Manager, and Requirements Team Leader.

AGENDA

- Creating and structuring projects
- Creating linking relationships; analysing relationships
- Getting information in and out of Rational DOORS
- Defining attributes
- Access permissions
- Round-tripping requirements
- Recording and managing changes
- Advanced relationship management
- Advanced display management
- Creating forms
- Archive and restore

Duration: 1 Day

Price: To be consulted

Prerequisites:

- IBM Rational DOORS Foundation completed
- Principles of Requirement Management Foundation completed

REQUIREMENTS MANAGEMENT

[RD203] IBM Rational DOORS - Essentials

OBJECTIVE

This course is designed for new and professional Rational DOORS users. It introduces basic Rational DOORS concepts and functionality. It includes hands-on exercises that teach users to create, edit, manipulate, and analyse requirements data in Rational DOORS.

It is designed for those who will be in the role of team lead or project manager, or who want to learn more about advanced Rational DOORS end-user functionality. It discusses creating and structuring Rational DOORS projects, defining linking relationships and attributes, setting access permissions, and managing change. It also discusses external linking, working with spreadsheets, and applying configuration management strategies to Rational DOORS data.

These are some objectives of the course;

- Navigate within a Rational DOORS database
- Create structured data in a Rational DOORS formal module
- Modify and review existing data in a Rational DOORS formal module
- Create relationships in a Rational DOORS database
- Report on relationships in a Rational DOORS database
- Build projects in Rational DOORS, including defining data structure, linking schema, attributes, and access permissions
- Use Rational DOORS external linking facilities
- Share Rational DOORS information with 3rd parties
- Control the flow of changes through your Rational DOORS database
- Apply configuration management and backup strategies to your Rational DOORS data.

AUDIENCE

This basic course is for Business Analyst, Systems Engineer, Software Engineer, Requirements Engineer, Requirements Manager, and Requirements Team Leader.

AGENDA

This course is a combination of IBM Rational DOORS Foundation and IBM Rational DOORS Practitioner courses.

Duration: 1 Day

Price: To be consulted

Prerequisites:

- Principles of Requirement Management Foundation course is recommended

REQUIREMENTS MANAGEMENT

[DN101] IBM Rational DOORS Next Generation - Essentials

OBJECTIVE

This course teaches analysts and engineers how to define, elaborate, organize, and manage textual and graphical requirements and requirements-related information in IBM Rational DOORS Next Generation.

AUDIENCE

This course is oriented for business analyst, system engineers, software engineers, requirements engineer, requirement managers and requirement team leaders.

AGENDA

- View and work with requirements and requirements-related information in a collaborative context
- Capture, define, elaborate, and edit requirements and requirements-related information, and create hierarchically organized requirements documents
- Create and manage traceability relationships between requirements and requirements- related information
- Manage requirements throughout a project lifecycle

Duration: 1 Day

Price: To be consulted

Prerequisites: N/A

FPGA

[FPGA101] FPGA Development using VHDL

OBJECTIVE

The objective of this training is to provide a strong foundation on FPGA development.

You will learn the main challenges that are faced developing FPGA based designs. VHDL language will be used both for design and simulation.

AUDIENCE

It is suitable for engineers ranging from beginners to intermediates in the field of FPGA-based development.

AGENDA

- Day 1: Introduction to FPGAs
- Day 2: VDHL for Synthesis and Simulation
- Day 3: Implementation and Debugging

Duration: 3 Days

Price: To be consulted

Prerequisites:

- Basics on digital circuits

CAE TOOLS

[CAE101] CAE Tools I

OBJECTIVE

This course introduces the main CAE tools of the market, focusing on Altium Designer.

We will present the basic concepts and functionalities of the most used tool, such as the user interface, creating projects and capturing schematics, PCB design, documentation or schematics generation.

AUDIENCE

The course is suitable for new designers and professionals with wide experience that want to know about PCB designing tools, especially Altium Designer.

AGENDA

- Most common CAE tools in the market
- Getting started with Altium Designer
- Libraries management techniques
- Schematic captures
- PCB
- Documentation

Duration: 3 Days

Price: To be consulted

Prerequisites: N/A

CAE TOOLS

[CAE102] CAE Tools II

OBJECTIVE

This course analyses the different CAE Tools and presents more advanced functionalities of Altium Designer including designing rules, differential pair routing and templates customization.

AUDIENCE

This course is suitable for experimented Altium Designer users that want to expand their knowledge of the tool.

AGENDA

- Analysis of different CAE Tools
- Advanced schematic capture
- Advanced PCB design

Duration: 3 Days

Price: To be consulted

Prerequisites:

- To have completed CAE Tools I course [CAE101]

TEST MANAGEMENT

[TM101] Test Management with IBM Engineering Test Management

OBJECTIVE

This course introduces test managers to the basics of using IBM Rational Quality Manager to manage a test effort within a software development project.

The course teaches how to plan the test effort, develop test artefacts, align with requirements and development, manage the test team's work, monitor progress, submit and track defects, and report test results and status.

Through hands-on lab exercises that reinforce learning, you will experience the benefits of test management that is integrated with requirements and development through the Rational solution for Collaborative Lifecycle Management (CLM).

AUDIENCE

Anyone who need to understand how to plan and manage a test effort with IBM Engineering Test Management (ETM).

AGENDA

- CLM Introduction
- Introduction to RQM
- Planning the test effort
- Developing the test plan
- Evaluation the test plan
- Developing test cases
- Developing test suites
- Developing test scripts
- Managing test execution records
- Running tests
- Reporting test status

Duration: 2 Days

Price: To be consulted

Prerequisites: N/A

NATIONAL INSTRUMENTS

[NI101] Introduction to LabVIEW programming language

OBJECTIVE

The objective of this course is to acquire the basic notions of LabVIEW programming language. Know the environment, controls, functions and structures to be able to program simple applications. Create applications that connect with measurement equipment to acquire, view, analyse and save the data.

AUDIENCE

This course is suitable for those who want to acquire basic knowledge of LabVIEW to undertake simple applications.

AGENDA

- Create and program a LabVIEW application that acquires, analyses, and visualizes data
- Create user interfaces with tables, graphs and buttons
- Use programming structures, data types, and signal analysis and processing algorithms in LabVIEW
- Interactively acquire and analyse data from NI devices and non-NI instruments (GPIB instruments)
- Debug and troubleshoot apps
- Work with single channel and multichannel data sets
- Record data to file
- Use best programming practices for code reusability and readability

Duration: 2 Days

Price: To be consulted

Prerequisites:

- Basic programming knowledge is required

NATIONAL INSTRUMENTS

[NI102] Scalable and modular programming in LabVIEW

OBJECTIVE

The objective of this course is to learn the concept of framework as a work methodology to program in LabVIEW in a reliable and sustainable way.

AUDIENCE

This course is suitable for LabVIEW programmers who want to know a framework that allows them to develop modular and scalable codes.

AGENDA

- Create modular applications
- Variables
- State machine
- Communication between parallel loops
- Queues
- User Events
- Notifiers
- Create Data Structures Message Format
- Project Organization
- Modular Design Patterns
- Producer Consumer QMH
- User Interface Management
- Error management and logging
- Debug modular applications
- DQMH Framework

Duration: 4 Days

Price: To be consulted

Prerequisites:

- Basic LabVIEW training is required

NATIONAL INSTRUMENTS

[NI103] Real Time LabVIEW and FPGA

OBJECTIVE

The purpose of this course is to acquire the basic concepts to be able to program NI devices with LabVIEW with warranty in PXI RT and CompactRIO.

AUDIENCE

This course is oriented to those who have basic knowledge of LabVIEW and want to know the implications of working with LabVIEW FPGA and LabVIEW Real Time.

AGENDA

LabVIEW Real Time (2 days)

- Identify application requirements
- Document your design
- Configure hardware
- Access Your I/O in LabVIEW
- Programming Using LabVIEW Real-Time
- Communication between processes in LabVIEW Real-Time
- Communicate between the devices in real time and host PC
- Manage memory and monitor system status
- Reliability and evaluation
- Implementation and replication

LabVIEW FPGA (1 day)

- Programming in LabVIEW FPGA
- Use FPGA I/O and timing
- Signal Processing in LabVIEW FPGA
- Communication between processes in LabVIEW FPGA
- Communicate between FPGA and RT
- Optimize the FPGA

Duration: 3 Days

Price: To be consulted

Prerequisites:

- Basic knowledge of LabVIEW is required

NATIONAL INSTRUMENTS

[NI104] Tools to develop HIL systems

OBJECTIVE

The aim of this hands-on course is to introduce the basic concepts and functionalities of NI VeriStand, software tool for HIL systems. At the same time, during the course also will be explored the possibilities offered by PXI Real Time and cRIO embedded platforms.

AUDIENCE

This course is suitable for those who are going to implement a HIL solution based on commercial software and hardware platforms of NI.

AGENDA

- Introduction to real-time systems
- Integration of models in VeriStand
- Channel mapping
- Validation of test requirements
- Registration and visualization of test

Duration: 3 Days

Price: To be consulted

Prerequisites: N/A

XJTAG

[XJTAG101] Standard XJTAG training

OBJECTIVE

The objective of this course is to introduce the basic concepts about "Boundary Scan" technology and XJTAG tools, to be able to develop test sequences with this technology.

AUDIENCE

The course is suitable for those who want to acquire basic knowledge of XJTAG without prior knowledge of the tool.

AGENDA

- Implementing tests for non JTAG elements
- Introduction to XJTAG tools
- Communicating with JTAG chain
- Interacting with JTAG devices
- Introducing board testing with JTAG
- Describing a circuit to enable JTAG testing
- Running an infrastructure connection test
- Introducing testing non JTAG elements of a board using JTAG

Duration: 1 Day

Price: To be consulted

Prerequisites: N/A

- However, is recommendable to have basic knowledge on Boundary Scan technology

XJTAG

[XJTAG102] Advanced XJTAG training

OBJECTIVE

This course provides the necessary tools to be able to get the most out of “Boundary Scan” technology and XJTAG in each type of electronic card to be tested.

AUDIENCE

The course is suitable for those that already have basic knowledge of “Boundary Scan” and have experience using XJTAG technology and want to go one-step further in order to get the most out of these tools, by putting them intro practice on a real case.

AGENDA

- General review of “Boundary Scan” technologies and XJTAG Tools (HW/SW)
- Description of the concept “Design for Test to reduce time-to-market” and how to optimally use XJTAG tools to achieve this purpose
- Advanced Resources: Analysis and review of the advanced features introduced by XJTAG in the latest versions of its offer (HW/SW)
- Benefits and limitations of the use of XJTAG depending on the test setup and type of electronics to verify
- Development process defined by ULMA Embedded Solutions to get the most out of XJTAG technology depending on the type of electronic card to be verified
- Application of the previously mentioned concepts on a real case

Duration: 1 Day

Price: To be consulted

Prerequisites: N/A

- Is required to have completed XJTAG standard course or have developed at least 2-3 test projects with this technology

Contact

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Do not hesitate to contact us if you need further information about our courses