LDRA
Software Technology

Training Courses From LDRA Certification Experts

Venue:
LDRA Technical Centre
Bangalore, India

LDRA tool suite Training (LTST)

Course Duration: 3 days

Topic List:

- **Introduction and LDRA tool suite® overview**
- **Analysis Scope** – Configuring the tool to analyse source code and establishing the scope of analysis
- **Code and Quality Review** – How to use these components to apply coding rules, analyse complexity density, testability, maintainability and clarity of source code
- **Design Review** – How to use the design review component to analyse your as-built design using control and data flow analysis
- **Test Verification** – How to perform dynamic analysis and determine code coverage metrics
- **Unit Test - Part 1** – Introduction to the use of the unit test component (TBrun®)
- **Test Manager** – Use of test manager in TBrun and LDRA Testbed®
- **Unit Test - Part 2** – More in depth instructions on the use of TBrun
- **LDRA deployment on host and target systems**

Pre-requisites:

- A good understanding of C/C++ programming languages and knowledge of software engineering fundamentals such as software development life cycle (SDLC) and software testing methodologies, etc.

Basics of Software Testing and Methodologies (BSTM)

Course Duration: 2 days

Topic List:

- Why and when testing activity should start
- Introduction to software development life cycle and process models
- Testing methods: static testing and dynamic testing
- The box approach: black box, white box and grey box
- Testing levels: unit testing, integration testing and system testing
- Testing artefacts and certification overview
- Testing tools: LDRA case study/demonstrations

Pre-requisites:

- A good understanding of the C/C++ programming languages

DO–254

Course Duration: 3 days

Introduction to Course:

- Review of course overview and agenda
- Expectations from the course
- Ground rules

Document Overview

- Document background, purpose, organisation and contents

System Aspect of Hardware Design Assurance

- System life cycle processes
- System safety assessment process, hardware safety assessment considerations, failure conditions classifications leading to design assurance level

DO-254 Goals and Core Considerations, General Considerations, Core Processes, Objectives and Activities

Integral Process

- Hardware validation and verification process: objectives, methods and artefacts
- Hardware configuration management process: objectives and artefacts
- Hardware process assurance process: objectives and artefacts
- Certification liaison process

Hardware Planning Process

- Objectives and activities

Hardware Development Process

- Hardware requirements capture process: objectives and activities
- Hardware conceptual design process: objectives
- Hardware detail design process: objectives
- Hardware implementation process: objectives and activities
- Hardware testing process: objectives and activities
- Production transition process: objectives

Life Cycle Data and Guidance for their Generation (Section 10 of DO-254)

Appendix A

Additional Considerations

Pre-requisites

- Exposure to avionics hardware design, development and verification activities. Awareness of process based development for aerospace applications

DO–178B

Course Duration: 3 days

Topic List:

Introduction to Course

- Review of course overview and agenda
- Expectations from the course
- Ground rules

Document Overview

- Document background, purpose, organisation and contents

System Aspect Related to Software

- System life cycle processes
- Failure classifications and their criteria, software level determination

Software Planning Process

Software Development Process

- Software requirements process
- Software design process
- Software coding process
- Integration process

Integral Process

- Software verification process
- Software configuration management process
- Software quality assurance process
- Certification liaison process

Life Cycle Data

- Artefact characteristics
- How to read DO-178B annex A and tables

Certification Submittals

Pre-requisites:

- General exposure to avionics hardware design, development and verification activities and specific exposure to avionics software design, development and verification activities. Awareness of process based development for aerospace applications

DO–178C

Course Duration: 3 days

Topic List:

Introduction to Course:

- Review of course overview and agenda
- Expectations from the course
- Ground rules

Document Overview

- Document background, purpose, organisation and contents
- Extent of coverage in the present course

Inclusion: Complete coverage of DO-178C, COTS

Exclusion: Tool qualification, model based development and object oriented technology

System Aspect Related to DO-178C

- Allocation of requirements
- Safety related requirements
- Types of system requirements
- Software considerations in system life cycle for various categories of software

Design Assurance Level (DAL) Based on System Failure Conditions Leading to SW Level Determination

- Recommended methods for reduction of DAL

Software Planning Process

Software Development Process

- Software requirements processes
- Software design process
- Software coding process
- Integration process

Integral Process

- Software verification process : objectives and activities
- Software configuration management process: objectives and activities
- Software quality assurance process: objectives and activities (SQAR)
- Certification liaison process: objectives and activities

Life Cycle Data

- Data generated during life cycle processes
- Data required for evidences
- Reviews data
- Data as indicated in annex A and associated tables
- Guidance for generation of data

COTS

- Common COTS software
- COTS process and their objectives

Topics of Interest and Wrap Up

Pre-requisites:

- General exposure to avionics hardware design, development and verification activities and specific exposure to avionics software design, development and verification activities. Awareness of process based development for aerospace applications

An add-on session that demonstrates compliance to DO-178B/C using LDRA tools is available. Duration: 4 hours

Customised Training Programs

LDRA can deliver customised training programs on compliance issues on software standards such as IEC 61508, IEC 62304, ISO 26262, IEEE 12207 etc.

Ways to Contact

1. Telephone our India Office: +91 80 4080 8707
2. Send us an enquiry by post at: #2989/1B, 3rd Floor, 12th Main, HAL 2nd Stage, Bangalore-560008, India
3. By Fax: +91 80 4204 3186
4. By e-mail: india@ldra.com



Certificate Number FM 26376

www.ldra.com

LDRA

LDRA UK & Worldwide
Portside, Monks Ferry,
Wirral, CH41 5LH
Tel: +44 (0)151 649 9300
e-mail: info@ldra.com

LDRA Technology Inc.
2540 King Arthur Blvd, 3rd Floor, 12th Main Lewisville Texas 75056
Tel: +1 (855) 855 5372
e-mail: info@ldra.com

LDRA Technology Pvt. Ltd
#2989/1B, 3rd Floor, 12th Main, 80 Feet Road,
HAL II Stage, Bangalore- 560008. Near BSNL Building
Tel: +91 80 4080 8707
e-mail: india@ldra.com

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