



visualATE7 Applications – DDP Digital

ASL_x Training Course Syllabus

Course #0210

The visualATE7 Applications – DDP Digital training course provides comprehensive introduction to the Dynamic Digital subsystem of the ASL_x test system. It enables attendees to work comfortably in the LTX-Credence visualATE tools, user interface, and programming instructions to create digital tests, and control sequences.

This course applies to ASL_x test systems using the DDP digital subsystem. Please reference the overview flyer on this course for information on who should attend, prerequisites, and course structure and benefits.

Digital versus Analog Testing Overview

This unit explains the differences between analog and digital devices, and provides an introduction to the concepts of testing a simple digital device:

- Digital versus Analog devices
- Digital Test Considerations

DDP Digital Subsystem

This unit introduces the hardware elements of the DDP Digital subsystem.

- Functional overview of Digital subsystem
- Features of the Digital Sequencer Card
- Features of the Digital Pin Card
- Features of the Parametric Measurement Unit (PMU)
- Features of the Time Measurement Unit (TMU)

DDP Programming Statements

This unit presents the programming statements (APIs) available to accommodate exceptions that cannot be programmed using the tools.

- Programming statements (API) Categories
- Connection, Levels, Format, Timing, Keep Alive, PMU, Time Measurement, and Pattern execution and loading.
- Failure Processing, Send and Acquire, and History RAM.

DDP Pattern Concepts

This module provides a detailed description of the structure of the digital patterns used by the DDP.

- Pattern Concepts and Components
- Signal Header Section
- Vector Data Section
 - Vector Data Characters
- Microcode instructions
 - OpCodes and Labels
 - Extended Microcode
- TimeSets
- Send and Acquire Control
- Asynchronous Receive
- Flags and Synchronization

Programming Tools

In this module the student will learn how to use the Graphical User Interface (GUI) tools to develop and debug a test program.

- Summary of Available Tools
- Launching the Tools
- Levelset Editor
- Timing Setup Editor
- Pattern Manager
- Pattern Debugger Tool
- visualISE DPC and DSQ Support

Parametric Measurement Unit

This module provides the student with an understanding of the PMU on the DDP, the capabilities and programming instructions.

- PMU features and specification summary
- PMU programming instructions

Practical Exercises Preparation

This module reviews the required program infrastructure need for the practical exercises. The student will be required to build the necessary infrastructure, including:

- Review of Device Interface Hardware
- Resource Maps
- System Utilities

DDP Functional Operation

In this module the student will be able to use appropriately selected data formats, differentiate between data dependent and non-data dependent formats, and understand vector memory usage.

- Clocking
- Generating Patterns
- Processing waveforms
- Generating Timing Data
- Formatting Pattern Data
- Data Dependent, Data Independent Formats
- Comparator Operation
- Failure Detection

Digital Time Measurement

The DDP capabilities for Time Measurement are described in this module. The Student will be able to describe the characteristics of the digital time measurement operation, and perform measurements on a simple digital device.

- Hardware Functional Overview
- Measurement Types

Send and Acquire

This module enables the student to program Send and Acquire features for both serial and parallel operation. The module includes:

- Send Memory Theory of Operation
- Preparing the send data
- Pattern Requirements for Send Operation
- Programming Instructions for Send Operation
- Acquire Memory Theory of Operation
- Pattern Requirements to Acquire Operation
- Programming Instructions for Acquire Operation

I2C bus Concepts and Application

This module describes the I2C bus protocol and how this can be implemented with the DDP to control devices.

- I2C Bus Protocol Overview
- I2C Implementation using DDP

Information and Registration

Please visit www.ltx-credence.com and click on the Training Center located in the Support section to get comprehensive course information, schedules and registration information. If you have any questions, please contact your local LTX-Credence sales representative or training coordinator.

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