Wavewin Training Classes (Outlines & Agendas)

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On Data Collection, Management and Analysis

Prepared By

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Training on Fault Analysis (Wavewin 101)

(One Day Class)

The main objective of the training class is to provide an understanding of the basic Wavewin data analysis features and how to use them.

Summary:

Students will learn how to evaluate real events on their system using collected digital fault recordings. They will also learn how to correct problems with the data collected and avoid traps in analysis. Techniques for converting measurements from digital devices to phasor quantities will also be reviewed.

The highlighted features will include, but are not limited to, scaling and shifting cycles, synchronizing multiple data records, appending and merging channels, calculating envelops, sequence components, harmonics, and fault impedances, generating sequence of event summaries, and saving results. The fault analysis class is composed of 5 sessions as follows:

Session 1: Status, transient, and steady state data files (sources and formats)

Session 2: IEEE Std C37.232-2007 Naming convention

Session 3: IEEE Std C37.111-1999 Comtrade

Session 4: Data displays (plots, editors, and spread sheets)

Session 5: Data analysis (measurements, calculations, and interfaces)

Class Agenda:

08:30 - 09:00	Introduction
09:00 - 09:45	Session 1 (data files)
09:45 - 10:30	Session 2 (naming conventions)
10:30 - 10:45	Break I
10:45 - 12:00	Session 3 (Comtrade)
12:00 - 01:00	Lunch
01:00 - 02:30	Session 4 (data displays)
02:30 - 02:45	Break II
02:45 - 04:15	Session 5 (data analysis)
04:15 - 04:30	Class summary

Training on Data Collection (Wavewin 102)

(One Day Class)

The main objective of the training class is to provide an understanding of the basic Wavewin data collection features and how to use them.

Summary:

Students will learn how to communicate with their digital devices including relays, fault recorders, sequence of events recorders, phasor measurements units, transformer monitors, meters, remote terminals and so on. The students will also learn how to manually and/or automatically retrieve the latest events, faults, and periodic load records form their devices. Techniques for communicating with modems, RS232, and Ethernet ports over various types of cables and wireless connections will also be reviewed.

The highlighted features will include, but are not limited to, addressing various types of networks, topologies and protocols, working with telephone and port switchers, configuring data concentrators and master stations, reporting by exception and/or upon demand, and also managing remote access, security and the massive amounts of collected data. The data collection class is composed of 4 sessions as follows:

Session 1: Communication ports and topologies and networks (integration)

Session 2: Standard and proprietary protocols (formats and drivers)

Session 3: Configurations and polling schemes (data collection)

Session 4: Reporting and managing collected data (repository and security)

Class Agenda:

08:30 - 09:00	Introduction
09:00 - 10:30	Session 1 (integration)
10:30 - 10:45	Break I
10:45 - 12:00	Session 2 (formats and drivers)
12:00 - 01:00	Lunch
01:00 - 02:30	Session 3 (data collection)
02:30 - 02:45	Break II
02:45 - 04:15	Session 4 (repository and security)
04:15 - 04:30	Class summary

Training on Data Acquisition (Wavewin 103)

(One Day Class)

The main objective of the training class is to provide an understanding of the basic Wavewin data acquisition features and how to use them.

Summary:

Students will learn how to use Wavewin with off the shelf, portable or permanent, high speed data acquisition sensors (called Sniffers) to non-intrusively capture transient currents, voltages and other system parameters during switching, testing and maintenance operations. A number of real life applications of the use of the Sniffer technology (case studies) will also be presented including, but not limited to, dynamic relay testing, breaker trip checks, cap bank operations, CT saturation, transformer monitoring, and automated target indication.

The highlighted features will cover operational and maintenance issues including, but not limited to, installing hardware and software components, configuring and calibrating sensors, setting instantaneous triggers, recording in continuous and/or periodic mode, managing and analyzing massive amount of captured data, and interfacing with corporate databases. The data acquisition class is composed of the following 4 sessions:

Session 1: Installing and configuring the Sniffer components (setup)

Session 2: Scaling and offsetting the sensor outputs (calibration)

Session 3: Setting the instantaneous triggers (capture)

Session 4: Target indication with the Sniffer (automation)

Class Agenda:

08:30 - 09:00	Introduction
09:00 - 10:30	Session 1 (Sniffer setup)
10:30 - 10:45	Break I
10:45 - 12:00	Session 2 (sensor calibration)
12:00 - 01:00	Lunch
01:00 - 02:30	Session 3 (data capture)
02:30 - 02:45	Break II
02:45 - 04:15	Session 4 (automation)
04:15 - 04:30	Class summary