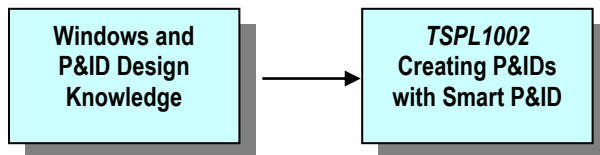


Smart P&ID Curriculum Path & Training Guidelines

Hexagon PPM recommends that new Smart P&ID users select one of the following training tracks described below.

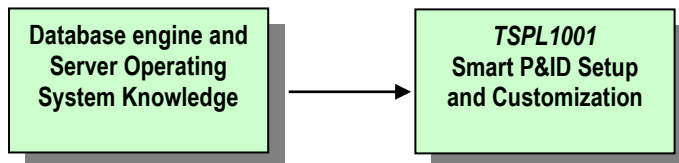
1. New User Track

For engineers and designers interested Smart P&ID software usage to generate intelligent P&IDs.



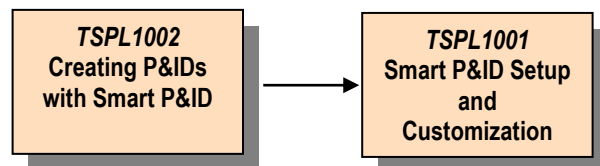
2. IT/IS and Systems Administration Support Track

For people interested in setting up Smart P&ID databases and managing the application more from systems perspective.



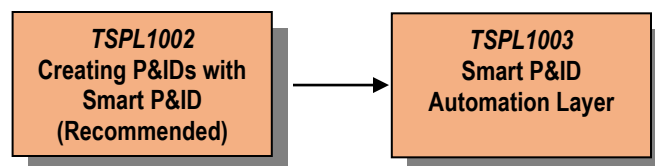
3. Super User / Project Administration Track

For those interested in SPID plant setup and customization and those supplying plant management and delivery.



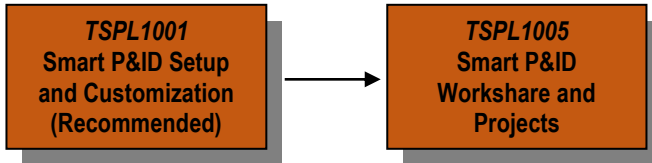
4. Advance User Track

For those interested in programmatic access to the data and drawings using the Automation layer of Smart P&ID.



5. Workshare and Projects Administration Track

For those interested in supplying workshare / projects setup, management and delivery.



Course Descriptions

Smart P&ID Setup and Customization TSPL1001

Length: 4.5 days

This course is the foundation for those who will administer and customize the Smart P&ID application to meet specific work processes and standards. You will learn how to set up a Site and Plant Structure with Smart Engineering Manager and the details of Smart P&ID reference data management and customization.

Topics Covered:

- Smart Engineering Manager and Smart P&ID Overview
- Creating a Plant Breakdown Structure (PBS) hierarchy
- Creating a Smart P&ID Plant
- User Access
- Catalog Manager
- Creating symbols and labels
- Data Dictionary Manager
- Options Manager
- Rule Manager
- Filter Manager
- Format Manager
- Line Style Editor
- Importing external data
- Creating reports
- Backup and Copy Plant

Prerequisites:

- An Intermediate knowledge of P&ID Design
- An Intermediate knowledge of relational database
- Familiarity with Windows-based applications

Creating P&IDs with Smart P&ID TSPL1002

Length: 4 days

This course is designed for designers who will use the Smart P&ID software to generate intelligent P&IDs and D&IDs. Learn how to use the Smart P&ID application to optimize the creation and delivery of P&IDs and D&IDs.

Topics Covered:

- Organizing your working environment
- Placing equipment, piping, and instruments
- Placing labels
- Using the Properties Grid
- Manipulating graphics
- Placing assemblies
- Using Filters to optimize your work
- Working with the Engineering Data Editor
- Using the Stockpile
- Checking design and data consistency
- Printing drawings
- Generating reports
- Using piping specifications

Prerequisites:

- Familiarity with P&ID design

Smart P&ID Automation Layer

TSPL1003

Length: 4 days

This course lays the foundation for those who will use the Automation layer of Smart P&ID. The Automation layer provides programmatic access to the data and drawings of Smart P&ID. You can manipulate P&IDs, modify the data in the database, and extract information for further analysis using the Automation layer. There are two typical implementations of Automation layer, namely programs running external to the modeler and programs integrated into the modeler environment. Using the latter implementation, you can extend the capabilities of the modeler in ways to fit your specific needs and workflows. The Automation layer can be implemented using standard dot Net development platforms. You can easily integrate other data sources with Smart P&ID by using the database access capabilities of the development platform. In this course, you will learn the general concepts necessary to implement the Automation layer using Visual Studio. You will also learn how to customize some of the delivered functionalities.

Topics Covered:

- Overview of Automation
- UML and Data Model
- Logical Model Automation
- Placement Automation
- P&ID Automation
- Calculation/Validation Interface
- Import Interface
- Customization of Delivered Functionalities

Prerequisites:

- An Intermediate knowledge of Smart P&ID, MS Excel, and relational database concepts.
- Intermediate level of Visual Studio experience is required, which includes object-oriented programming concepts, class creation, and interface implementation

Smart P&ID Workshare and Projects TSPL1005

Length: 3 days

This course focuses on how to set up and configure Smart P&ID workshare and projects. You will learn how to set up, configure, and administer workshare and projects with Smart Engineering Manager. You will also learn the best practices for working in a workshare and /or projects environment.

Topics Covered:

- Workshare Setup and Configuration
- Workshare Best Practices
- Projects Overview
- Projects Setup and Configuration
- Projects Best Practices

Prerequisites:

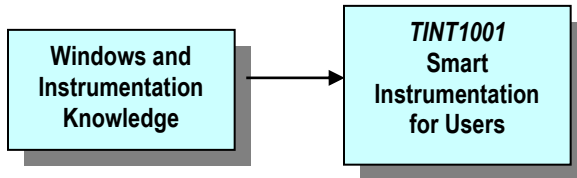
- An Intermediate knowledge of P&ID Design and Customization (TSPL1001 and TSPL1002)
- An Intermediate knowledge of relational database

Smart Instrumentation Curriculum Path & Training Guidelines

Hexagon PPM recommends that Smart Instrumentation (SI) users select one of the following training tracks described below.

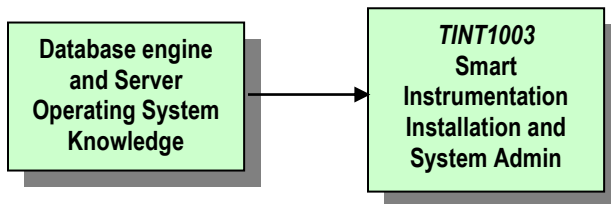
1. New User Track

For people interested in basic Smart Instrumentation software usage ranging from data entry to reviewing options. Useful information for everyone whether they work in the Instrumentation shop or Engineering office.



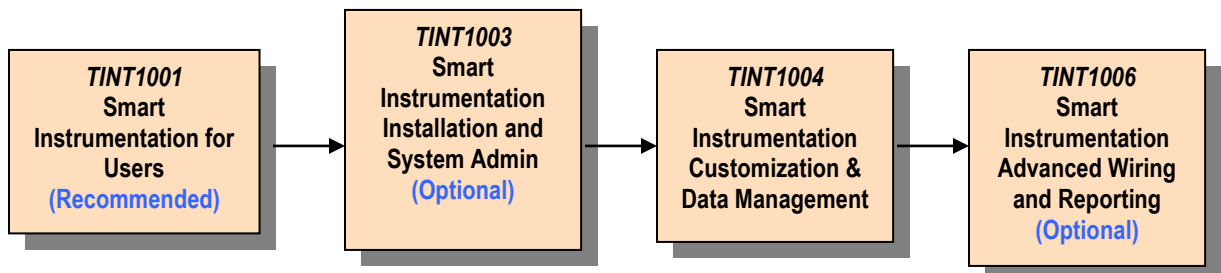
2. IT/IS and Systems Administration Support Track

For people interested in setting up Smart Instrumentation databases and managing the application more from systems perspective.



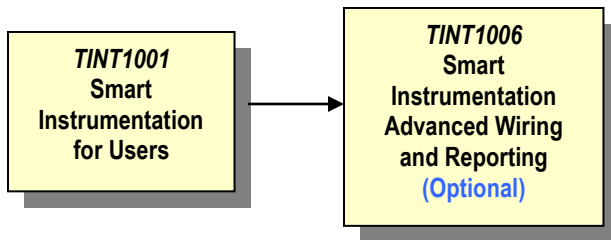
3. Super User / Domain Administration Track

For those interested in SI domain setup and configuration. Also, those supplying first line support and report customization.



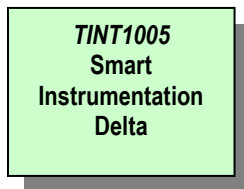
4. Detail Design Engineer Track

For those performing Detailed Design work and wiring within the SI environment.



5. Upgrade Track

For people with pre-existing experience who are upgrading to a more recent Instrumentation release.



Course Descriptions

Smart Instrumentation for Users TINT1001

Length: 4.5 days

This course is designed for instrumentation specialists involved in the definition and specification of instrumentation and control systems using the Smart Instrumentation software. In this course, students learn how to define instruments, their purchasing requirements (Specifications), control system wiring and installation details, along with their associated project deliverables.

Topics Covered:

- System and Project Administration Overview
- Instrument Index
- Query Builder and Engineering Data Editor
- Process Data
- Calculations
- Specifications
- Wiring
- Loop Diagrams
- Hookups (Installation Details)

Prerequisites:

- Basic Industry knowledge in Instrumentation
- Familiarity with Windows applications

Smart Instrumentation Installation and System Admin TINT1003

Length: 2 days

This course is designed for IT specialists and support personnel who are responsible for installation and administration of Smart Instrumentation server systems. In this course, students will learn software and hardware requirements, supporting RDBMS installation, as well as overviews of the database structure, maintenance requirements and system customization / configuration.

Topics Covered:

- Smart Instrumentation installation
- DBProfileManager and DBSetup utilities
- Project initialization
- Software Licensing
- Upgrades and Hot Fixes
- Administration options and user management
- Internal Setup utility
- ERD and database project data relationships
- Database structure for As Built domains
- Overview of deployment options - traditional client-server and thin-client architectures

Prerequisites:

- Familiarity with Windows environment and applications
- Familiarity with relational database concepts

Smart Instrumentation Customization & Data Management

TINT1004

Length: 2.5 days

This course is designed for current users of Smart Instrumentation, IT and support specialists who are responsible for its administration, customization of the software for company / project specific needs, as well as plant and project lead specialists in charge of instrument data management.

Topics Covered:

- Calibration Module setup, configuration and use
- Working with the Import Utility
- Working with the Merger Utility
- Working with Intrinsic Safety Loop Calculations
- Working with AsBuilt and Project Information

Prerequisites:

- Completion of Smart Instrumentation for Users class (TINT1001), or extensive practical experience with Smart Instrumentation
- Basic industry knowledge of Instrumentation
- Familiarity with Windows applications

Smart Instrumentation Delta TINT1005

Length: 3 days

This course is designed for current users of Smart Instrumentation who are upgrading from previous versions of the software to the current release. This course will review new functions and workflows through lecture and practical exercises.

Topics Covered:

- Overview of changes in the Administration module
- Query Builder
- Engineering Data Editor (replaces browsers)
- Project Management (AsBuilt – Operating Owner)

Prerequisites:

- Practical experience with Smart Instrumentation
- Basic Industry knowledge in Instrumentation
- Familiarity with Windows applications

Smart Instrumentation Advanced Wiring and Reporting TINT1006

Length: 2.5 days

This course is designed for experienced designers, project specialists and support personnel who are responsible for use and customization of Smart Instrumentation specifically in the area of wiring detailed design. In this course, students will learn use of new features as well as ways to customize the Smart Report Generator (formerly Enhanced Smartloop, or ESL) output.

Topics Covered:

- Using new wiring equipment entities to create "real world" panel layouts
- Panel location and hierarchy setup
- Working with Explorers - Domain, Reference, Wiring and Loop
- Advanced wiring design concepts, such as Multiplexing
- Networked wiring design - Foundation Fieldbus, Profibus and HART devices wiring (optional)
- Room, Panel, and Rack Layout drawing creation
- Generation of Cable Block Diagrams
- Customization of Smart Report Generator Symbols

Prerequisites:

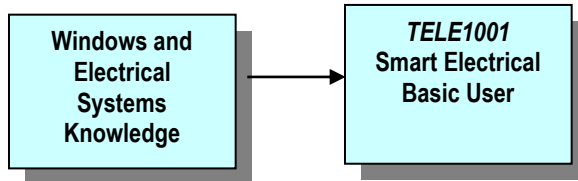
- Completion of Smart Instrumentation for Users class (TINT1001)
- Substantial experience with Smart Instrumentation

Smart Electrical Curriculum Path & Training Guidelines

Hexagon PP&M recommends that new Smart Electrical (SEL) users select one of the following training tracks described below.

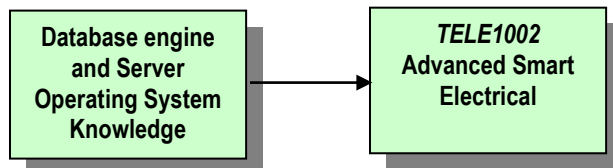
6. New User Track

For people interested basic Smart Electrical software usage ranging from data entry to reviewing options.



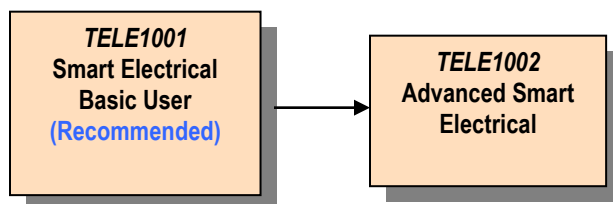
7. IT/IS and Systems Administration Support Track

For people interested in setting up Smart Electrical databases and managing the application more from systems perspective.



8. Super User / Project Administration Track

For those interested in SEL project setup and configuration. Also, those supplying first line support and report customization.



Course Descriptions

Smart Electrical Basic User TELE1001

Length: 4 days

This course is designed to train new users of Smart Electrical. This is an instructional course with an emphasis on giving the user a full overview of features and functionalities of this new software for Electrical Engineers and Designers. Upon completion, the user will be able to apply these features and functions to his daily Electrical Design needs.

Topics Covered:

- Overview
- Creating Reference Data & Equipment
- Creating Project Data & Equipment
- Data Objects (Creation & Manipulation)
- Associations
- Schematics & Single Line Diagrams
- Reports

Prerequisites:

- An Intermediate knowledge of Electrical Design
- Familiarity with Windows-based applications

Advanced Smart Electrical TELE1002

Length: 4 days

This course is designed to train advanced users of Smart Electrical (SEL). This is an instructional course with an emphasis on giving the user a full overview of advanced features and functionalities of Smart Electrical. Upon completion, the students will be able to apply these features and functions to their daily Electrical Design needs.

Topics Covered:

- Smart Engineering Manager (SEM)
- SEM Data Dictionary Manager
- SEM Format Manager
- SEM Filter Manager
- SEM Catalog Manager
- SEL Rule Manager
- SEL Option Manager
- Single Line Diagram (SLD) and Schematic templates customization
- Excel reports customization, registration and revision management
- Copy existing data from other plants using Ref Electrical Engineer option
- SLD and schematics revision management and comparison
- Integration with INtools
- Interfacing with ETAP/EDSA (overview)
- Import Manager

Prerequisites:

- Successful completion of Smart Electrical Basic User (TELE1001)