

**CAREER PATH -SAP
CONSULTANT –
(TECHNO - FUNCTIONAL)**

**CAREER PATH -SAP CONSULTANT – (TECHNO
FUNCTIONAL) – COURSE SYLLABUS**

SAP MATERIALS MANAGEMENT

SAP MM (Material Management) is a module of the SAP Enterprise Resource Planning (ERP) package that is used for Procurement Handling and Management. SAP MM is a material management tool that can help automate and streamline corporate Procurement Handling and Inventory Management (in other words it is about managing resources). Materials management is integrated with other modules such as SD, PP and QM.

1. INTRODUCTION TO ERP

a. ERP Definition

- b. Characteristics of ERP
- c. Products of ERP
- d. Benefits of using ERP

2. INTRODUCTION TO SAP

- a. SAP History
- b. SAP Product line
- c. New Products of SAP
- d. Relation of New SAP Products with the core product
- e. Industry specific Products
- f. Type of SAP Projects
- g. Type of SAP Roles
- h. Architecture of SAP
- i. System Landscape
- j. Types of data used in the SAP system

3. INITIAL SCREENS

- a. How to login to the SAP system
- b. SAP Client / GUI
- c. SAP Session - What it is
- d. How to open a new Session
- e. Create new Sessions
- f. Navigation between Sessions
- g. Transactions and Activities
- h. Shortcuts or Transaction Codes
- i. SAP Easy Access screen
- j. SAP IMG screen
- k. Difference between Easy Access and IMG screens

4. ENTERPRISE STRUCTURE

- i. What is Enterprise Structure

- ii. The different types of Enterprise Structure
- iii. Company structure in real time
- iv. Company structure for each process
- v. MM Structure against other process structure
- vi. Enterprise Structure terms in real time against those used in the SAP system
- vii. Definitions of the elements of enterprise structure
- viii. Creation of Enterprise Structure elements in the SAP system
 - a. Group
 - b. Company
 - c. Plant
 - d. Store
 - e. Purchasing Department
 - f. Valuation Area
 - g. Controlling Area
- ix. Assignment of the Enterprise Structure elements in the SAP system
 - a. Assign Company to Group
 - b. Assign Plant to Company
 - c. Assign Store to Plant
 - d. Assign Purchasing Departments
 - e. Assign Controlling Area

5. MASTER DATA

- a. Basics of Master Data
- b. Significance of Master Data
- c. Usage of Master Data

I. Material Master

- i. What is Material Master

- ii. Views
- iii. Subscreens
- iv. Fields
 - v. Maintenance of material data in the SAP system
 - vi. Prerequisites for creation of Material Master Record
 - vii. Creation of Material Master Record
 - viii. Changes to Material Master Record
 - ix. Other end user activities in Material Master
 - x. Configuration of Material Master
 - a. Screen Sequence
 - What is Screen Sequence
 - Significance and usage of Screen Sequence
 - b. Screen Reference
 - What is Screen Reference
 - Creating and using Screen Reference
 - c. Field Selection
 - What is Field Selection
 - Criteria for defining field selection
 - d. Field Reference
 - What is Field reference
 - Creating and using field references
 - e. Material Type
 - What is Material Type
 - Usage of Material Type in the SAP system
 - Defining and using Material Types
 - f. Assign Number Range to Material Type
 - g. Material Number formatting
 - h. Material Groups
 - i. Purchasing Group
 - j. Purchase Value Key

k. Shipping Instruction

II. Vendor Master

- i. Who is a Vendor
- ii. What is Vendor Master Record
- iii. Division of Vendor Master data
 - General Data
 - Company Code Data
 - Purchasing Data
- iv. Vendor Classification
- v. Types of Vendor
 - Regular Vendor
 - One-time Vendor
 - Accounting Vendor
 - Purchasing Vendor
 - Central Vendor
- vi. Prerequisites for creating Vendor Master Record
- vii. Vendor Account Group and its significance
- viii. Creation of Vendor Master Record
- ix. Changing the Vendor Master Record
- x. Other End user activities of Vendor Master
- xi. Configuration of Vendor Master
 - a. Vendor Field Selection
 - What is Vendor field selection
 - Significance of vendor field selection
 - Criteria for maintaining vendor field selection
 - b. Assignment of Number Ranges
 - c. Screen selection for Vendor Master records
 - d. Vendor Industries
 - e. Terms of Payment

III. Purchasing Info Record

- i. Basics of Purchasing Info Record
 - What is Purchasing Info Record
 - Significance of Purchasing Info Record
- ii. Types of Purchasing Info Record
- iii. Prerequisites for Purchasing Info Record
- iv. Creation of Purchasing Info Record
- v. Changing the Purchasing Info Record
- vi. Other End User activities for Purchasing Info Record
- vii. Configuration
 - Defining Number Ranges for Purchasing Info Record
 - Screen Selection for Purchasing Info Record

IV. Source Determination

- i. Basics of Source Determination
 - What is Source Determination
 - Source Determination options in the SAP system
- ii. Source List
 - 1. Basics of Source List
 - What is Source List
 - Significance and usage of Source List
 - 2. Creation of Source List
 - 3. Changing the Source List
 - 4. Other End User activities for Source List
 - 5. Configuration
- iii. Quota Arrangement
 - 1. Basics of Quota Arrangement
 - What is Quota Arrangement

Significance and usage of Quota Arrangement

2. Prerequisites for creating Quota Arrangement
3. Creation of Quota Arrangement
4. Changing the Quota Arrangement
5. Other End User activities of Quota Arrangement
6. Configuration

6. Purchasing

I. Basics of Purchasing

What is Purchasing

Difference Between Purchasing and Procurement

II. Purchasing Cycle

III. Purchasing Documents

Different types of Purchasing documents used

Division of Purchasing Document in the SAP system

Type of data maintained in each division of the purchase document

IV. Purchase Requisition

i. Basics of Purchase Requisition

ii. Creation of Purchase Requisition

iii. Other End User activities of Purchase Requisition

V. Request for Quotation (RFQ)

i. Basics of RFQ

ii. Creation of RFQ

iii. Other End User activities of RFQ

VI. Quotation

i. Basics of Quotation

ii. Creation of Quotation

iii. Other End User activities of Quotation

VII. Comparison

- i. What is comparison
- ii. Criteria for comparison in the real time and in the SAP system
- iii. The comparison process

VIII. Purchase Order

- i. What is a Purchase Order
- ii. Creation of Purchase Order with reference
- iii. Creation of Purchase Order without reference

IX. Release Procedure

- i. Basics of Release Procedure
- ii. Release Procedure and Approval process
- iii. Release Characteristics
- iv. Release Classes
- v. Release Groups
- vi. Release Codes
- vii. Release Indicators
- viii. Release Strategies
- ix. Releasing the Purchase Order through Release Procedure

X. Optimization of Purchasing

- i. Concepts of Purchase Optimization
- ii. Prerequisites for creating a Purchase Order automatically
- iii. Creation of Purchase Order automatically

XI. Outline Agreements

- i. Basics
- ii. Contracts
 1. Concepts
 2. Quantity Contract
 3. Value Contract
 4. Creation of a Contract
 5. Other End User activities of Contract

iii. Scheduling Agreements

1. Concepts
2. Creation of Scheduling Agreement
3. Other End User activities of Scheduling Agreement
4. Creation of Delivery Schedule

XII. Configuration of Purchasing

- i. Document Types configuration
- ii. Assigning Number Ranges to Document Types
- iii. Screen Selection for the Document Types
- iv. Text Types and Copying Rules
- v. Tolerances for Archiving documents

7. Inventory Management

- I. Basics of Inventory Management
- II. Stock Types
- III. Movement Types
- IV. Process of Goods Receipt
- V. Process of Goods Issue

VI. Stock Transfers

- i. What is Stock Transfer
- ii. Types of Stock Transfer
- iii. Transfer between Plants
- iv. Transfer between Storage Locations
- v. Transfer between Stock types
- vi. Transfer using Stock Transport Order

VII. Return to vendor

- i. Conditions under material returned to vendor
- ii. Prerequisites for return to vendor

VIII. Cancellation

- IX. Initial Stock
- X. Reservations
- XI. Physical Inventory
- XII. Configuration
 - i. Plant Parameters
 - ii. Number Range assignment
 - iii. Screen Selection
 - iv. End User Restrictions for Inventory Management activities
 - v. Movement Types and its attributes
 - vi. Individual transaction configuration

8. Special Procurement Process / Special Stocks

- I. Basics of Special Procurement Process / Special Stocks
- II. Subcontracting
 - i. What is the Subcontracting process
 - ii. Where used
 - iii. Steps defining the subcontracting process
 - iv. Configuration for subcontract process
- III. Consignment
 - i. What is the Consignment process
 - ii. Where used
 - iii. Steps defining the Consignment process
 - iv. Configuration for Consignment process
- IV. Pipeline
 - i. What is the Pipeline process
 - ii. Where used
 - iii. Steps defining the Pipeline process
 - iv. Configuration for Consignment process

9. External Services Management

- I. Basics of External Services Management
- II. Service Master
- III. Service Conditions
- IV. Service Purchase Order
- V. Service Entry Sheet
- VI. Configuration of External Services Management

10. Valuation and Account Determination

- I. Valuation Types
- II. Split Valuation
 - i. What is Split Valuation
 - ii. Usage and Significance of Split Valuation
 - iii. Global Types
 - iv. Global Categories
 - v. Assignment

11. Logistics Invoice Verification

- I. Concepts
- II. Planned Costs
- III. Unplanned Costs
- IV. Entry of Invoice
- V. Blocking of Invoice
- VI. Releasing the blocked invoice
- VII. Holding / Parking the invoice
- VIII. Releasing the parked invoice

12. Pricing Procedure

- I. Condition Table
- II. Access Sequence

- III. Condition Types
- IV. Calculation Schema
- V. Schema Group
- VI. Schema Determination
- VII. Condition Records
- VIII. Execution of Pricing Procedure

13. Batch Management

- I. Basics of Batch Management
- II. Configuration of Batch Management process in the SAP system
- III. Creation of Batch Master Record
- IV. End User activities of Batch Management
- V. Batch Management with Classification

14. Output Determination

- I. Access Sequences
- II. Message Types
- III. Message Determination Schema
- IV. Partner Roles per Message Type
- V. Assign Output Devices to Purchasing Groups

15. Integration with FI/CO

- I. Concepts
- II. Valuation Grouping Code
- III. Valuation Class
- IV. Account Category Reference
- V. Automatic Postings
- VI. Modifiers

16. Integration with PP (Materials Requirement Planning)

- I. Concepts
- II. MRP Methods / Types
- III. MRP Group
- IV. MRP Controller
- V. MRP Area
- VI. MRP Configuration

17. ASAP Methodology

- I. What is ASAP Methodology
- II. Steps of ASAP Methodology
 - Project Preparation
 - Blueprint
 - Realization
 - Final Preparation
 - Go-Live / Initial Support
- III. Time duration for each step
- IV. Post implementation process

18. Support Project Process

19. Real-time Project scenarios

SAP PP

Production Planning is the process of aligning demand with manufacturing capacity to create production and procurement schedules for finished products and component materials.

It tracks and makes a record of the manufacturing process flows, for example, the planned and actual costs, and also, goods movement from the conversion of raw material to semi-finished goods.

SAP PP is fully integrated with the other SAP modules: SD, MM, QM, FICO & PM.

Course Syllabus:

1. SAP Overview

- my SAP Business Suite
- PP Overview

2. Master Data

- Organizational Overview
- Material Master
- Bills of Material
- Work center
- Routings

3. Sales and Operations Planning

- Sales Operations Planning
- Basics
- Standard SOP
- Flexible Planning

4. Demand Management

- Overview of Demand
- Management
- Make to Stock versus Make to Order
- Make to Stock Planning Strategies
- Make to Order Planning Strategies
- Settings and Customizing

5. Material Requirement Planning (MRP)

- Concept of Material

6. Requirements Planning

- Technical process of the MRP run
- Prerequisites for Running MRP
- Methods for Executing planning run
- Factors influencing the MRP run
- Stock requirements list and MRP list
- Analyzing MRP results

7. Production Orders Execution

- Production Order Creation
- Availability Check
- Production Order Release
- Capacity Planning
- Scheduling
- Production Order Printing
- Goods Issue of components
- Confirmations
- Goods Receipt
- Product Costing & Settlement

8. Repetitive Manufacturing

- Master Data
- Planning (line loading)
- Material Staging
- Back flush and Receipts
- Evaluations

SAP Warehouse Management (WM)

1. Introduction to Warehouse Management

- Warehouse management overview in SAP R/3
- Organization Data
- Warehouse Structure
- Warehouse Master Data
- WM Material master view

2. Organization Data

a. Define Warehouse structure

- Warehouse number
- Storage type
- Storage section
- Storage Bin
- Picking Area
- Storage unit
- Quant etc.

b. Master Data

- Material Master

- Storage bin

c. Transfer Requirement

- Create Transfer requirement automatically
- Create Transfer requirement manually
- Create Transfer requirement for storage type
- Create Transfer requirement for material

3. Transfer Order

- Number Range for TO
- Create TO w.r.t Transfer Requirement
- Create TO w.r.t Posting change notice no
- Create TO w.r.t Storage unit
- Create TO w.r.t Material document
- Create TO w.r.t Inbound delivery
- T.O. Creation In Background
- Confirm the Transfer Order
- Cancel the Transfer Order
- Print Transfer Order

4. Put away Strategies

- Next to empty bin
- Fixed Bin
- Open Storage
- Addition to existing bin
- Pallets
- Fixed bin strategy

5. Picking Strategies

- Shelf life expired
- FIFO
- Stringent FIFO
- LIFO

6. Warehouse Management Business Scenario's (MM)

- Goods Receipt processing with inbound delivery (with ASN)
- Goods receipt processing without inbound delivery
- Goods issue for internal consumption
- Replenishment Control for Storage Type

7. Warehouse movement types

- Define reference movement types for WM
- Assign reference movement types to WM movement types

8. Search Strategies

- Storage type search strategies
- Storage section search strategies
- Storage bin type search strategies

9. Batch Management in WM

- Condition Tables
- Access Sequence
- Strategy Types
- WM Batch Search Procedure
- Batch Status in WM
- Characteristics and class
- SLED in Batch in WM
- Manual and Automatic Batch Display in WM

SAP PM (basic to advanced)

Description

SAP PM (Plant Maintenance) application component from SAP provides a tool for all maintenance activities to be performed in an organization. All the activities that are performed under maintenance are interconnected and hence this module is closely integrated with other modules - Production Planning, Materials Management, Quality Management, and Sales and Distribution.

Using SAP PM, you can perform automatic repairs and facilitate maintenance requests in an organization. PM module allows you to record problems in SAP system, plan labor and material activities, and to record, manage, and settle the cost. In a company department, as a plant manager/supervisor you have to identify, document, manage problems and perform enterprise asset management for the required assets, and to perform these activities SAP PM is one of the best ERP tools for this purpose.

SAP Plant Maintenance contains the following sub-modules -

- Management of technical objects and equipment master record
- Planning of maintenance task
- Manage workflow notifications and work orders under maintenance order management

Key Functions of Plant Maintenance

Following activities are performed under SAP PM -

- *Inspection* - Inspection is done to check the actual condition of a technical system.
- *Preventive Maintenance* - Preventive maintenance is used to maintain high availability of the technical system. It includes maintenance planning and work scheduling activities for technical objects.
- *Repair* - Repair involves all measures that can be performed to restore the ideal condition. Repair process can be performed at many planning stages - like work scheduling, resource planning and initial costing, etc.

You can integrate SAP PM with other modules such as Material Management, Production Planning, Personnel Management, and Sales and Distribution. These modules are used to keep the current data as per the requirement in Plant Maintenance and are initiated automatically to maintain the current data in the system.

Following are the key modules which integrate with SAP Plant Maintenance –

- Material Management
- Sales and Distribution
- Personnel Management
- Controlling
- Production Planning

Uplatz provides in-depth extensive training on SAP PM covering all topics in great detail and with practical demonstration of the concepts on an SAP PM server instance. This SAP PM training is one of the best training courses available on SAP PM and will take you from the beginner to the most advanced level in a step-by-step manner with live examples and mini-projects.

COURSE Syllabus

1. Overview: SAP

- SAP Business Suite
- Navigation (system handling)
- Plant Maintenance Overview

2. PM Organizational Structure

- Maintenance Plant
- Planning Plant
- Planner Groups

3. Master Data

- Material Master
- Equipment BOM
- Equipment Task list
- Functional Location
- Equipment
- Work Center
- Class
- Characteristics
- Codes and Catalogs
- Tasks and Activities
- Standard Text Keys
- Measuring Point and Measuring counter

4. Maintenance Processing - Planning

- Breakdown and Corrective Maintenance
- Creation of Maintenance Notification
- Employee Planning in operation and Split
- Material Requirement Planning
- Release of Maintenance Notification
- Maintenance Order creation from Notification
- Purchase Order creation of Maintenance Materials

5. Execution of Maintenance Processing

- Maintenance Order Release
- Closing of Maintenance Order
- Confirmation of Maintenance Order
- Closing of Maintenance Order
- Goods issue for Maintenance Order
- Creation of Measuring Document

6. Execution of MM Integration Processes

- Creation of Purchase Requisition
- Creation of Purchase Order
- Posting Goods Receipt Via MIGO
- Creation of Material Master

- Concept of Split valuation in Material Master

7. Preventive Maintenance

- Time based strategy Plan
- Performance based strategy Plan
- Maintenance Strategy
- Condition based Maintenance
- Creation of Maintenance Plan □ Preventive Maintenance Order execution
- Concept of Route Based Maintenance Plan
- Scheduling of Maintenance Plan
- Deadline Monitoring

8. Refurbishment of Spare Parts

- Spare Parts
- Serialisation Procedure
- Internal Refurbishment of spare parts Processing
- External Refurbishment via Sub-Contracting Process

9. Inspection of Measuring equipment

- Integration with Quality Management
- MIC Creation
- Sampling Procedure /Sampling Methods
- Calibration inspection plan creation
- Calibration inspection order creation

10. Various Reports in PM module

- Equipment Reports
- Maintenance Order Reports
- Functional Location Reports
- Creation of Global Variants in Reports
- Creation of User Specific Variants in Reports
- Other Reports

11. Basic Concept of Work Clearance Management

- Work Clearance Approval
- Work Clearance Application
- Work Clearance Documents

12. Pool Asset Management Process

- Demand Planning
- Demand Planning with Graphical Planning Board
- Issue of Pool asset
- Return of Pool asset

13. Basic Concept of Investment Management via Maintenance Order

- Creation of Investment Profile
- Assignment of Investment Profile in Maintenance order

14. Important Configuration and Integration with other modules

- Configuration steps involved in PM
PM integration with MM, PP, QM and

SAP QM

Introduction to ERP

- ERP Packages
- Introduction to SAP
- Functions and Objectives of QM
- QM Overview

SAP Navigation

Organizational structure of an Enterprise in the SAP R/3 System

- Company, Company code, Controlling Area, Plant, Storage Location, Purchase Organization, Purchasing group
- Controlling Settings (Cost Center and Cost Element etc.)

Master Data

- Material Master – Activation of QM view
- Master Inspection characteristics – Qualitative & Quantitative
- Sampling Procedure, Sampling Scheme
- Codes and Code Groups
- Catalog, Selected set, Catalog Profile
- Inspection Method

Planning & Execution

- Inspection plan
- Creation of inspection lot (Automatic and Manual)
- Results Recording
- Usage Decision and Stock Posting
- Inspection type
- Material Specification

Quality Management in Procurement

- Goods receipt inspection against Purchase Order
- Goods receipt inspection without Purchase Order
- Stock Transfer Inspection
- Controls in procurement
- QM info Record

Quality Management in Production

- In process inspection for Production Order
- In process inspection for Production Order with Inspection Points
- Goods Receipt Inspection after Production

Quality Management in Sales and Distribution

- Inspection during delivery
- Inspection during customer returns

Inspection with Physical Samples

- Types of physical samples
- Sample Drawing Procedure
- Inspection lot processing for physical samples

Calibration Inspection

- Test equipment Management
- Process flow of calibration inspection

Quality Management with Batches

- Automatic Batch Valuation with QM
- Recurring inspection

Quality Certificates

- Certificate Profile creation
- Certificate Printing

Quality Control

- Statistical Process Control
- Control charts

Quality Notifications

- Quality Notifications in the Logistics Supply Chain
- Record and process notifications in the system
- Defect notification processing

Stability Studies

- Objects in the Stability Study
- Stability Study Process Flow

Important Configuration and Integration with other modules

- Configuration steps involved in QM
- QM integration with MM, PP, PM and SD modules

SAP ABAP

1. Introduction to ABAP/4

- Introduction to ERP
- Introduction to SAP/3, ABAP/4
- ABAP Editor
- System Landscapes
 - ✓ 3 – Landscapes
 - ✓ 4 – Landscapes
 - ✓ 2 – Landscapes
- Data Types & Keywords
- Output Statements
- Arithmetic Operations
- Relational Operations
- Writing Small Programs
- String Operations
 - ✓ Translate
 - ✓ Condense
 - ✓ Concatenate
- Control Statements
- Selection Screens
 - ✓ Parameters
 - ✓ Select-Options
- Open SQL Statements (Insert, Modify, Delete, Update)
- Simple Reporting

2. Transport Organizer & Package Builder

- Why to Transport?
- Creation of a Task
- What is a Transport Request?
- Releasing of Request
- Package Creation

3. Data Dictionary

- Creation of Database Tables

- Data Element & Data Domain
- Structures & Table Types
- Search Helps
 - ✓ Elementary Search Help
 - ✓ Collective Search Help
- Creation of Views
 - ✓ Database View
 - ✓ Projection View
 - ✓ Maintenance View
 - ✓ Help View
- Type Groups
- Creation of Foreign Keys
- Check & Value Tables

4. Reporting

- Debugging Techniques
- Pillars of ABAP
 - ✓ Work Area
 - ✓ Internal Table
- Modularization Techniques
 - ✓ Sub-Routines
 - ✓ Includes
 - ✓ Function Modules
- For All Entries & Joins
- Events for Classical Reports
- Events for Interactive Reports
- Types of Messages & Message Class Creation

5. ABAP List Viewer

Introduction to ABAP List Viewer

Types of ABAP List Viewer

- Function Module for List Display
- Function Module for Grid Display
- Interactive ALV (SLIS)

6. Interfaces

- Introduction to Cross Applications
- Working with RFC Function Modules
- Overview of Business Objects

- Creation of Business Objects
- Creation of BAPI

7. Conversion

Why Data Transfer?

- Introduction to BDC
- Recording a Transaction
- Methods in BDC
 - ✓ Call Transaction
 - ✓ Session Method
- Flat File Creation
- Uploading Data
- LSMW (Legacy System Migration Workbench)

8. Enhancements

- Introduction to Enhancements
- User Exits
- Customer Exits
- Introduction to BAdIs (Business Add Ins)
- Implementation of a BAdI
- Overview of Enhancement Spots, Enhancement Sections, Enhancement Implementations, Class Enhancements

9. Forms (Scripts & SMARTFORMS)

- Introduction to Scripts
- Layout Sets
- SAP Scripts Elements
- Logo Inclusions
- Working with SMARTFORMS
- Standard Text
- Graphics Managements
- Writing Print Programs & Designing Layouts
- Output Type Configuration to Standard Orders

10. Object Oriented ABAP

- Fundamentals of Object Orientation
- Introduction to Local Classes & Methods
- Importance of Access Specifiers
- Simple Reporting using Local Classes & Methods

- Introduction to Global Classes & Interfaces
- Uses of Global Classes in Reports

11. Module Pool Programming

- Introduction to Module Pool
- Flow Logic
 - ✓ PAI (Process After Input)
 - ✓ PBO (Process Before Output)
- Screen Designing
- Programming in Object Browser
- Creation of Table Controls
- Dynamic Screens
 - ✓ Call Screen
 - ✓ Set Screen
 - ✓ Leave to Screen
 - ✓ Leave Screen

12. Sales & Distribution Flow

- Sales Cycles
 - ✓ Inquiry
 - ✓ Quotation
 - ✓ Purchase Order (MM)
 - ✓ Sales Order
 - ✓ Delivery
 - ✓ Billing
 - ✓ Returning Customer

SAP ABAP on HANA

Course Syllabus

Unit 1: Introduction

1. SAP HANA Basics and Technical Concepts
2. Introducing the SAP HANA Studio
3. ABAP and SAP HANA

4. Introducing the ABAP Development Tools (ADT)

Unit 2: Database Independent Code-to-Data

1. Classical Open SQL and Its Limitations
2. New Open SQL
3. Core Data Services in ABAP
4. Associations in Core Data Services
5. Core Data Services with Input Parameters
6. Incorporating Authorization Checks with CDS

Unit 3: SQL and SQL Script Basics for SAP HANA

1. Reading data from a table or view
2. Calculated Columns and Functions
3. Duplicate Elimination
4. Sorting and limiting result sets
5. The WHERE clause
6. Aggregating and grouping data
7. SQL Script basics

Unit 4: SAP HANA specific Code-to-Data

1. ABAP Database Connectivity (ADBC)
2. Native SQL Syntax
3. ABAP-Managed Database Procedures
4. Debugging ABAP-Managed Database Procedures
5. Core Data Services with Table Function

Unit 5: SAP HANA Proxy Objects

1. Creating and using External Views

2. Database Procedure Proxies
3. HANA Transport Container

Unit 6: Advanced Topics

1. Using SAP HANA Full-Text Search in ABAP
2. Enabling input fields for type-ahead search
3. SAP List Viewer (ALV) for SAP HANA

SAP BW/4HANA

- **Getting started**
 - SAP HANA
 - SAP BW/4HANA
 - SAP BW/4HANA Modeling Tools in Eclipse and SAP BW/4HANA Cockpit
- **Paths to SAP BW/4HANA**
 - Overview with additional details for In-Place Conversion as well as Remote Conversion.
- **SAP HANA Modeling**
 - SAP HANA native Modeling of Calculation Views
- **Modeling and Running the SAP BW/4HANA Data Warehouse**
 - InfoObject Enhancements
 - Advanced DataStore-Objects
 - Composite Providers
 - BAdI-Providers
 - HANA-optimized Transformations
 - Process Chain Enhancements
 - HANA-optimized Analytic Manager
 - HANA Analysis Processes
 - Changes regarding Authorizations
 - SAP BW/4HANA Statistical Analysis based on ABAP CDS Views
 - SAP BW/4HANA Tool Collection
- **Modeling with SAP's Reference Architecture LSA++**
 - Review of Layered Scalable Architecture (LSA)
 - From LSA to LSA++: Streamline Core Layers

- LSA++: Open Operational Data Store Layer based on Open ODS Views
- LSA++: BW/4HANA Workspaces
- **Hybrid Modeling in Mixed Scenarios**
 - Generation of external HANA-Views for BW/4HANA Objects
 - Modeling Mixed Scenarios
 - SAP BW/4HANA Content Add-On
 - Use case for Mixed Scenarios: SAP Predictive Analytics (optional)
- **SAP BW/4HANA Data Lifecycle Management**
 - Multi-Temperature Data Management
 - SAP BW/4HANA Data Tiering Optimization
 - Additional Tiering Concepts
- **Data Provisioning into SAP HANA and SAP BW/4HANA**
 - Overview of Data Provisioning Methods into SAP HANA
 - SAP LT Replication into SAP HANA
 - SAP HANA Smart Data Access
 - SAP HANA Smart Data Integration incl. real-time Streaming
 - Operational Data Provisioning into SAP BW/4HANA based on SAP Extractors, ABAP CDS Views, HANA Information Views and BW InfoProviders
 - Integration of Big Data

SAP BUSINESSOBJECTS BUSINESS INTELLIGENCE

SAP BusinessObjects (BO) Business Intelligence is a reporting tool offered by SAP. SAP BO offers intelligent solutions that can be made use of by people ranging from analysts and other people who work with information to CEO's.

1. Introduction:

- Understanding BusinessObjects Enterprise
- What is BusinessObjects Enterprise?
- Working with SAP BO Launchpad (Infoview)

2. SAP Business Objects Web Intelligence and BI Launch Pad 4.1

- SAP Business Objects Dashboards 4.1
- BI launch pad: What's new in 4.1
- Restricting data returned by a query
- Enhancing the presentation of data in reports
- Formatting reports
- Calculating data with formulas and variables
- Using multiple data sources

- Analyzing data
- Managing and sharing Interactive Analysis documents
- Reporting from Other Data Sources
- Introducing Web Intelligence
- Accessing corporate information with Web Intelligence
- Understanding how universes allow you to query databases using everyday business terms.
- Managing documents in InfoView
- Viewing a Web Intelligence document in InfoView
- Setting Info View Preferences
- Creating Web Intelligence Documents with Queries
- Getting new data with Web Intelligence
- Creating a new Web Intelligence document
- Modifying a document's query
- Working with query properties
- Restricting Data Returned by a Query
- Modifying a query with a predefined query filter
- Applying a single-value query filter
- Using prompts to restrict data
- Using complex filters
- Displaying data in tables and charts
- Presenting data in free-standing cells
- Enhancing the Presentation of Reports
- Using breaks, calculations, sorts and report filters
- Ranking data to see top or bottom values
- Using alerter to highlight information
- Organizing a report into sections
- Copying data to other applications
- Alternative Query Techniques Using Combined Queries Using Sub-Queries
- Creating a Query based on another Query
- Character and Date String Functions Using the character string functions
- Concatenating different data types Using date functions
- Using If Logic
- Grouping data using If() logic
- Using If() to modify calculation behaviour
- Advanced Reporting Features Formatting breaks
- Creating custom sorts
- Displaying document data in free-standing cells
- Alternative Query Techniques Defining Combined Query Types Using Combined Queries
- Using Sub-Queries
- Creating a Query on a Query
- Character and Date String Functions Understanding Character Strings

- Using Date Functions User-Defined Objects Creating User Objects
- Using a User Object in a Query
- Editing a User Object Deleting a User Object Storing a User Object Grouping Data

3. Information Design Tool 4.0

- What is the Information Design Tool (IDT)
- Create a project
- Create a connection to a relational database (Single and Multiple databases)
- Create the data foundation with Single & Multiple databases
- Define the different types joins in a data foundation
- Create a business layer
- Create folders and objects
- Resolve Loops and Use alias
- Resolve Loops Use contexts
- Resolving the fan traps and Chasm traps problem
- Define data restrictions
- Work with LOVs
- Use Parameters restrict data
- Use @functions also Aggregate Awareness
- Create Derived Tables and Index Awareness
- Maintain universes
- Deploy and manage and maintain universes

4. Universe Designer Tool 4.0

- Understanding Business-Objects Universes.
- Understanding how universes allow users to query databases using their everyday business terms.
- Creating Universe Connections.
- The course database and universe.
- Creating the universe.
- Building and populating the Universe Structure.
- Defining joins in a universe.
- Creating Dimension Objects.
- Understanding classes and objects.
- Creating Measure Objects.
- Understanding measure objects.
- Using List of Values.
- Resolving Loops.
- Resolving loops using aliases.
- Resolving loops using contexts.
- Chasm traps and Fan traps.

- Restricting the data returned by objects.
- Using Functions with Objects.
- Using @ Functions.
- Using Hierarchies.
- Working with hierarchies.
- Aggregate Awareness.
- Derived Tables
- Securing Universes.
- Managing Universes

5. SAP Business Objects Dashboards 4.0 (Crystal Xcelsius 2011)

- Crystal Xcelsius Overview
- Creating Dashboards using Query As A Web Service (QAAWS) and Live Office
- Create Drill Down dashboard reports
- What's new in SAP Business Objects Dashboards 4.0
- Creating a Visualization
- Producing interactive visualizations
- Getting around in Xcelsius
- Working with your Excel workbook
- Visualizing data with charts
- Using Xcelsius Components
- Formatting a Visualization
- Applying formatting options
- Using themes and templates to apply formatting
- Adding Interactivity to a Visualization
- Using selectors
- Adding dynamic visibility
- Using live data sources
- Connecting to BO Universes using Query as a Web Service
- Using Live Office data
- Creating Complex dashboards
-

6. SAP Crystal Reports 2011

- Creating reports
- Selecting records
- Organizing data on reports
- Formatting & section formatting
- Creating basic and complex formulas
- Using variables
- Using report templates

- Applying conditional reporting
- Building parameterized and specialized reports
- Summarizing data with cross tabs
- Using report sections
- Representing data visually
- Managing reports
- Distributing reports
- Using repository and repository data sources
- Report processing
- Linking Crystal Reports to Webi reports
- Drill down reports

SAP Data Services (BODS) - Course Syllabus

1) BODS overview

1. Over view of the Data services
2. Data services benefits, associated products, interfaces
3. Data services Architecture on single and distributed environment

2) BODS Designer concepts

1. Creating the repository (Local, Central repository)
2. Exploring the menu options in the designer
3. Creating the project, Job flow, Data flow, Work flows etc., defining different types of Data stores (Source and destination data stores)
4. Use data store and system configurations
5. Defining file formats for flat, Excel, XML files

3) Batch Jobs

1. Creating Batch Jobs
2. Work with objects
3. Create a data flow
4. Adding the Query transform to the data flow
5. Use target tables
6. Execute the job

4) Defining Data Integrator Transforms

1. Date Generation Transform
2. Pivot Transform

3. Reverse Pivot Transform
4. XML_Pipeline Transform

5) Defining Data Platform Transforms

1. Query Transform
2. Case Transform
3. Merge Transform
4. Validation Transform
5. Row Generation Transform
6. SQL Transform

6) Defining Data Quality Transform

1. Address Cleanse
2. Geocoder

7) Implementation of SCD

1. SCD Type0
 - Query Transform
2. SCD Type1
 - Table Comparison Transform
 - Map_Operation Transform
3. SCD Type2
 - Table Comparison Transform
 - History Preserving Transform
 - Key Generation Transform

8) Using Functions, Scripts, and Variables

1. Define built-in functions
2. Use functions in expressions
3. Use variables and parameters
4. Create Custom functions
5. Use Data Services scripting language

9) Data Assessment

1. Using the data profiler
2. Using the validation transform

10) Setting up Error Handling

1. Set up recoverable work flows

11) Setting up Exception Handling

1. Try/Catch Techniques

12) IF Conditional

13) While-Loop Implementation

14) Capturing Changes in Data

15) Data Assessment

1. Update data over time
2. Use source-based CDC
3. Use target-based CDC
 - o SCD Type 2

16) Multi-User Environment(Local Repo Vs Central Repo)

17) SAP Integration

1. Data extraction from ECC system to File, Table and SAP BI
2. Data extraction from ECC Extractors
3. Data Extraction from SAP BW
4. ABAP Workflows

18) SAP HANA and SAP BODS Integration

1. Introduction to SAP HANA
2. Introduction to SAP HANA Studio
3. Create Data Store for SAP HANA
4. Perform the load into SAP HANA
5. Store the data in Column Store
6. Preview the data in SQL console of SAP HANA Studio

19) Information Steward

1. Data Insight
2. Metadata management
3. Metapedia

SAP HANA 2.0

COURSE DETAILS & CURRICULUM

Lesson 1: SAP HANA Foundation

Lesson 2: Deployment Strategies

- On-Premise
- On-Cloud
- Side-Car

Lesson 3: Architecture of SAP HANA

Lesson 4: Replicating Data to SAP HANA

- Business Objects Data Services (BODS)
- SAP Landscape Transformation (SLT)

Lesson 5: SAP HANA Studio Interface

- Attribute View
- Analytic View
- Calculation View
- Catalog - Schemas, HANA Live Package
- SAP HANA - SQL Overview
- SAP HANA Transports Options
- SAP ABAP - HANASAP HANA CDS Views

Lesson 6: SAP HANA Reporting Overview (BOBJ)

- BO WEBi
- BO Crystal Reports Enterprise
- BO IDT (BO UNX)
- BO CMC (Admin-SSO)
- BO AO (Analysis Office)
- BO Design Studio
- SAP Lumira & Smart Business Client
- SAP Fiori & SAP NetWeaver Business Client7

Lesson 7: SAP HANA System Monitoring & Administration

- DBA Cockpit
- Database Migration Option (DMO)

Lesson 8: SAP HANA Security & Authorization

- User Management
- Role Management

Lesson 9: Advanced Features Overview

- SAP HANA Web IDE
- SAP Predictive Analytics on HANA
- SAP BW-BPC embedded on HANA
- SAP S/4HANA
- Rapid Deployment Solutions (RDS) for HANA
- SAP Activate Solution Manager

SAP HANA ADMIN

Lesson 00 - SAP HANA ARCHITECTURE

Lesson 01 - SAP HANA Architecture

- In-Memory Computing
- Hardware-Innovations
- Software –Innovations
- SAP HANA simplified Architecture
- SAP HANA Extended Architecture
- Business Intelligence Clients with HANA
- HANA Columnar Store
- SAP HANA row store VS Columnar store
- Understanding Columnar Storage

Lesson 02 - SAP HANA Edition

- SAP HANA Enterprise Edition
- SAP HANA Enterprise Extended Edition (As of SPS03)
- SAP HANA Platform Edition

Lesson 03 - SAP HANA Sizing

- SAP HANA In-Memory Database Sizing elements
- RAM, Disk, CPU
- Memory Sizing
- Disk Sizing
- CPU sizing

Lesson 04 - SAP HANA Versions

- HANA 1.0 SPS03
- HANA 1.0 SPS04—New Features
- HANA 1.0 SPS05—New Features
- HANA 1.0 SPS06—New Features

Lesson 05 - SAP HANA INSTALLATION OVERVIEW

Lesson 06 - SAP HANA Hardware and Software Requirements

- Certified Hardware
- SLES 11 Sp1
- Preparing file system & directories
- Prepare Installation parameters
- Users created during Installation
- Required Installation media
- Prepare Installer configuration file

Lesson 07 - Installing SAP HANA

- SAP HANA unified Installer Tool
- Running Unified Installer to install the SAP HANA SERVER
- Components installed by Installer

Lesson 08 - Install HANA Client

- Available Clients on Linux
- Available Clients on windows
- Install SAP HANA Client on LINUX Host
- Install SAP HANA Client on Windows Host

Lesson 09 - Install HANA Studio

- System Requirements
- Supported Platforms
- Install SAP HANA Studio on LINUX Host
- Install SAP HANA Studio on Windows Host

Lesson 10 - Post – Installation Steps

- Starting and Stopping SAP HANA System
- Displaying Process List
- Logging on to HANA system using HANA studio
- User Security
- Configuring SUM for HANA

- Automatic Start of HANA
- Applying Support packages and Updates
- Monitoring HANA Landscape

Lesson 11 - Enabling High availability of SAP HANA

- Concept of HANA high- availability
- Disaster Tolerance
- Redundant Hardware
- Distributed System
- Standby Host
- Installation Planning for Distributed System
- Install HANA distributed system
- Monitoring and Configuring Standby Hosts

Lesson 12 - SAP HANA DATA PROVISIONING

Lesson 13 - Configuring Data Replication with SLT

Positioning and benefits of SLT for SAP HANA

Key benefits of Trigger-Based Approach

Architecture and building Blocks

Architecture for SAP Source Replication

Architecture for Non-SAP source Replication

Set-up of SAP LT replication server

Installation Aspects

Configuration Steps for SLT replication server

Setup Data Replication

Database-Supportability

Landscape strategy of SLT replication server

SLT replication server Installation Options

Technical Requirements and system setup Information

DMIS2010 and relevant Support packs

SAP Kernel and DBSL Installation

Creating RFC Connections

Creating DB Connections

Configuring and Monitoring Dashboard

Creating New Configuration for SAP source

- Creating New Configuration for NON-SAP source
- Monitoring of Replication
- Mass Transfer IDS
- IUUC Synchronisation Cockpit
- Data Transfer Monitor
- Backup and Recovery Strategy
- Data Volume Management

Lesson 14 - SAP HANA Direct Extractor Configuration Overview

- Introduction to SAP HANA Direct Extractor Connection (DXC)
- Limitations of DXC
- Setup and Configurations
- Enabling Services
- HTTP connection
- Test Connection

Lesson 15 - Configuring Data Replication with SAP BODS

- SAP BODS 4.0 and SAP HANA
- SAP BODS 4.0 Architecture
- Configuring BO Data services
- Installing HANA ODBC Driver
- Creating SAP HANA Data store in Data Services
- Creating SAP ERP Data store in Data Services
- Configuring HANA Studio for Importing Metadata
- Import Metadata
- Mass Import
- Selective Import
- Load Data via Data services into SAP HANA

Lesson 16 - SAP HANA TECHNICAL OPERATIONS

Lesson 17 - Operate SAP HANA

- Starting & Stopping SAP HANA
- Starting SAP HANA Database
- Stopping SAP HANA Database
- Displaying Process List
- Monitoring HANA landscape

Lesson 18 - Configuring SAP HANA DB

- System Configuration Parameters
- Monitoring and system state Parameters

Lesson 19 - Backup & Recovery SAP HANA

- Need of Backup
- Backup Types
- Data Backup
- Log Backup
- Recovery Options
- Recovery in Replication Scenarios

- Backup to External Backup Destinations
- Recovery scenarios
- Power Failure
- Disk Failure
- High Availability for SAP HANA

Lesson 20 - SAP HANA Security

- Create Users
- User and Role Concept
- Creating Roles
- Assigning Privileges to Roles
- Privileges
- SQL privileges
- System Privileges
- Analytic Privileges
- Reporting and Privileges
- Modeling required privileges

Lesson 21 - SAP HANA Monitoring & Troubleshooting

- Configuring Remote Support
- Solution Manage Integration
- Remote Service Connection
- EWA for HANA
- Availability Monitoring
- Setting up Monitoring
- System Monitoring Setup
- Status Overview
- Services Overview
- System Load History
- Disk usage Details
- Checking System Configuration Alerts

Lesson 22 - Analyzing logs & traces

- Regular administration tasks
- Troubleshooting
- Analyzing performance

Lesson 23 - Software Life cycle Management

- Transporting Changes
- CTS/CTS+
- SAP HANA with CTS+

- Exporting and Importing
- Developer Mode
- Delivery Unit
- SAP support Mode
- Exporting Tables
- Updating SAP HANA
- SAP HANA Update and Patching
- SP stack Update

Lesson 24 - SAP HANA PLATFORM

- SAP HANA Native Applications
- Non-Native SAP HANA Applications

Lesson 25 - SAP HANA in Cloud overview

- Access to HANA systems in cloud
- SAP HANA Developer Edition Environment

Lesson 26 - MIGRATION TO SAP HANA

Lesson 27 - SAP BW Powered by HANA

Lesson 28 - SAP ERP on HANA

Lesson 29 - SAP CRM on HANA

Lesson 30 - SAP HANA Rapid Deployment Solutions (RDS)

SAP Cloud Platform Integration

Course Syllabus

1. Introduction to SAP Cloud Platform Integration

o Explore the SAP Cloud strategy

o Explain the positioning of SAP Cloud Platform Integration in the SAP

Cloud strategy

o Explain the positioning within the Application Integration and Infrastructure

o Perform a classification according to ISA-M

- o Explore use cases

2. Product Overview

- o Explain the integration Platform-As-A-Service
- o Explain the architecture
- o Get an overview about integration capabilities
- o Explain connectivity and converter options
- o Use development tools

3. Basic Building Blocks of an Integration Scenario

- o Explain the main phases of an integration project
- o Explore the elements of an integration flow
- o Use SAP Cloud Platform Integration, integration patterns

4. Twitter Basic Scenario, Foundation

- o Explore the complete sample process
- o Configure inbound communication
- o Configure outbound communication
- o Use events
- o Use persistence

5. Twitter Basic Scenario, Advanced

- o Use calls in an advanced integration scenario
- o Explain the camel message model
- o Manipulate the message with message transformers

- o Explain message converters

- o Use mappings

- o Use XST mappings

6. Twitter Scenario, Extended

- o Define message routers

- o Explain scripting in message processing

- o Define additional components

- o Specify the runtime configuration

7. Concepts of Secure Communication

- o Explain secure communication

- o Explore concepts of secure communication

- o Explain security elements related to the mail adapter

- o Explain the relation of security artifacts to integration flow configuration

8. Other Security Aspects

- o Explain the technical landscape

- o Explain data storage security

- o Perform user management for cloud integration

- o Add members to an account

9. Operations and Monitoring

- o Explain the operating model

- o Explain web-based monitoring

o Explain APIs for monitoring

10. Additional Topics

o Perform the complete never bounce process

o Explain content transport

o Explain B2B support

o Design cloud integration content for SAP Process Orchestration 7.5 SP10

SAP HCI - Course Syllabus

1. Introduction to SAP HANA Cloud Integration

- SAP HANA Cloud Integration Capabilities
- Architecture Overview
- Technical System architecture
- Network Infrastructure
- SAP Data Centers
- Secure Communication

2. Integration Scenario

- Integration Content Catalog
- Consuming Pre-packaged Content
- Configure Integration package
- Modify pre-packaged content
- Pre-packaged Content provided by SAP
- Creating your own content package

3. SAP Cloud Tools

- Web UI
- Eclipse platform
- SAP Cloud platform
- SAP Cloud Connector

4. Design (Developing Integration Flow)

- Camel's Message model

- Content enrichment
- Data transformation and mappings
- Content based routing
- Working with lists
- Asynchronous Message Handling

5. Message Converter and Decoder

- MIME multipart messages
- Timer-Based Message Transfer
- Structuring of Large Integration flows
- Message persistence
- Working with Value mappings

6. Build Groovy Scripting and Exception Handling

- SAP Cloud Adapters
- SOAP Adapter
- SuccessFactors Adapter
- Mail Adapter
- Twitter Adapter
- OData Adapter
- IDOC Adapter

7. Sap Cloud Integration Operations

- Monitor Message processing
- Manage Integration Content
- Manage Security Material
- Managing Certificate to user mappings
- HTTP Adapter
- SFTP Adapter
- Ariba Adapter
- Developing Custom Adapter

8. SAP Cloud Integration Security

- Transport-level Security Options (TLS)
- Message-level Security Options (MLS)
- Data Protection and Data flow Security
- Certificate based Communication
- Private Key and Public Key certificate
- Basic Cryptography
- Authentication and OAuth scenario
- User administration and Authorization

9. SAP Cloud Integration Enhancements

- Transport Management
- Payload monitoring
- Trace Function

- Hybrid Deployments

10. Real Time Business Scenarios

- Build new interface for SFSF to SAP ERP HCM
- Configuration in ERP HCM
- Create new interface for SFSF to SFTP
- Setting up Cloud integration with Cloud Connectors

SAP MDG - Course Syllabus

1. Master Data Introduction

- Explore SAP ERP Basics Master Data

2. MDG Overview, Roadmap and Product Portfolio

- Explore MDG Introduction Central Governance and Mass Processing
- Describe the general concepts and capabilities of SAP MDG, central governance
- Illustrate the scope of SAP MDG, central governance in the current version
- Understand EIM Product Portfolio

3. MDG Domain Material, Overview

- Get an Introduction to Domain Material
- Process Simple Material Objects

4. MDG Domain Business Partner, Supplier, Customer

- Explain business partner, customer, vendor, and CVI
- Describe simple business partner processing
- Introduce the current reality and the needs for the future
- Understand functions in detail, integration scenarios, and the benefits from the solution

5. MDG Domain Finance, Overview

- Explain Domain Finance Change Request and Hierarchy Management

- Process simple Financial objects

6. MDG Multiple-Records Processing and Mass Processing Including Hierarchy Management

- Explore Multiple-Records Processing and Mass Processing
- Explore Hierarchy Processing

7. SAP User Experience with MDG (Fiori)

- Get an introduction to SAP Fiori for SAP MDG
- Perform Fiori Apps for request and approve master data processes

8. MDG Analytics, Monitoring, Smart Business

- Explore Analytics in MDG
- Describe Contextualized HANA Based Analytics

9. MDG Consolidation and Mass Processing

- Explain Consolidation
- Explain Mass Processing
- Explore Consolidation and mass processes

10. MDG Data Quality and Search Overview

- Get an Overview of Data Quality and Search

11. MDG Data Quality and Search Implementation

- Configure Search and Duplicate Checks
- Define Derivations, Validations, Checks, and Deviations
- Understand Concepts of BRFplus

12. MDG Processing with Business Workflow

- Learn Workflow Basics
- Explore concepts of process modeling with rule based workflow

13. MDG Data Transfer and Exchange

- Explain Concepts of Key and Value Mapping
- Perform Data Replication

- Consider Data Export and Data Import via Transfer

14. MDG Customizing, Setup and Project Strategies

- Activate and configure the default processes for MDG
- Understand and use advanced customizing e.g. in the area of workflow
- Understand the new and updated functionality that is offered with MDG
- Start first MDG projects that use the standard data models

15. MDG Custom Objects and MDG Enhancements

- Explore Data Modeling Concepts
- Explain the Process of Reference Data Governance with MDG CO
- Explain the Configuration of Reference Data Governance with MDG CO
- Configure User Interfaces
- Process Custom Objects: Hierarchy Management