Courses Listed

Beginner
- HA100 - SAP HANA Introduction

Intermediate
- SAPTEC - Technology Fundamentals for SAP S/4HANA and SAP Business Suite
- BC100 - Introduction to Programming with ABAP
- BC100E - Introduction to Programming with ABAP

Advanced
- BC400 - ABAP Workbench Foundations
- BC400E - ABAP Workbench Foundations
- BC401 - ABAP Objects
- BC401E - ABAP Objects
- BC404 - ABAP Programming in Eclipse
- HA300 - SAP HANA 2.0 SPS03 Modeling
- HA400 - ABAP Programming for SAP HANA

Certification Exam
- E_HANAAW_14 - SAP Certified Development Specialist - ABAP for SAP HANA 2.0
All available schedules in your selection

**BC404  ABAP Programming in Eclipse**

There are currently no events available for this course. Please feel free to register interest for this course on SAP Training. We will then notify you when a course has been scheduled.

**BC401E  ABAP Objects**

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**BC100E  Introduction to Programming with ABAP**

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**BC400E  ABAP Workbench Foundations**

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BC401  ABAP Objects (continued)

There are currently no events available for this course. Please feel free to register interest for this course on SAP Training. We will then notify you when a course has been scheduled.

BC100  Introduction to Programming with ABAP

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### HA400  ABAP Programming for SAP HANA

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### BC400  ABAP Workbench Foundations

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### SAPTEC  Technology Fundamentals for SAP S/4HANA and SAP Business Suite

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### HA300  SAP HANA 2.0 SPS03 Modeling (continued)

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### HA100  SAP HANA Introduction

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## HA100  SAP HANA Introduction (continued)

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<td>7 Dec - 8 Dec 2020</td>
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COURSE LISTING

BC404 - ABAP Programming in Eclipse

Duration
3 days

Course announcements
- Gain detailed knowledge about the ABAP Development Cycle using the Eclipse-based tools at SAP and learn how to develop custom ABAP applications using this Integrated Development Environment.

Goals
- This course will prepare you to:
  - Learn how to develop custom ABAP applications using the ABAP Development Tools for Eclipse (ADT)

Audience
- Developer
- Developer Consultant

Essential
- Basic ABAP Programming Knowledge (BC400 or equivalent)

Course based on software release
- ECC6.0 EHP8 SP00 / NW 7.5 SP01, Eclipse 4.6 with ABAP Development Tools 2.64

Content
- Introduction to Eclipse
- Understanding How SAP Uses Eclipse
- Installing Eclipse
- Defining an ABAP Project
- Working With the Eclipse Workbench
- The ABAP Development Cycle in Eclipse
- Creating Repository Objects
- Editing a Repository Object
- Debugging ABAP in Eclipse
- Function Groups and Function Modules
- Creating a Function Group and a Function Module
- ABAP Dictionary Objects in Eclipse
- Working With Data Elements
- Working With Structures
- Modelling Views with ABAP Core Data Services
- ABAP Objects and Eclipse
- Creating a Global Class
- Refactoring
- Web Dynpro Development
- Creating Web Dynpro Components
- Utilities in Eclipse
- Navigating in Eclipse
- Searching in Eclipse
- Managing Version Control
- Identifying Sources of Help and Information
• Testing and Analysis
• Performing Static Testing with the Syntax Check
• Performing Static Testing with the ABAP Test Cockpit
• Performing ABAP Unit Tests
• Analyzing Performance with the ABAP Profiler
• Eclipse: An Extensible Toolkit
• Extending Eclipse Functionality with Other SAP Tools

Notes
• Courseware available as flipbook in Learning Hub
Course announcements
- Strengthen your ABAP skills by gaining a full understanding of the use of object-oriented programming techniques, and how to apply them practically in your ABAP applications.

Goals
- This course will prepare you to:
  - Understand the concepts of object-oriented programming
  - Develop business applications with ABAP Objects

Audience
- Developer
- Developer Consultant
- Help Desk / COE Support
- Program / Project Manager

Essential
- BC400

Course based on software release
- ECC6.0 EHP8 SP00 / NW 7.5 SP01

Content
- Introduction to Object-Oriented Programming
- Explaining the Object-Oriented Programming Model
- Analyzing and Designing with Unified Modeling Language (UML)
- Fundamental Object-Oriented Syntax
- Creating Local Classes
- Creating Objects
- Accessing Methods and Attributes
- Implementing Constructors in Local Classes
- Implementing Class Constructors in Local Classes
- Inheritance and Casting
- Implementing Inheritance
- Implementing Upcasts Using Inheritance
- Implementing Polymorphism Using Inheritance
- Implementing Downcasts Using Inheritance
- Interfaces and Casting
- Defining and Implementing Local Interfaces
- Implementing Polymorphism Using Interfaces
- Integrating Class Models Using Interfaces
- Object-Oriented Events
- Implementing Events in Local Classes
- Implementing Events in Local Interfaces
- Object-Oriented Repository Objects
- Creating Global Classes
- Defining and Implementing Global Interfaces
- Implementing Inheritance in Global Classes
• ABAP Object-Oriented Examples
• Using the ABAP List Viewer (ALV)
• Describing Business Add-Ins (BAdIs)
• Global Classes in ABAP Development Tools
• Developing Eclipse-Based ABAP Programs
• Class-Based Exceptions
• Explaining Class-Based Exceptions
• Defining and Raising Exceptions
• Implementing Advanced Exception Handling Techniques
• Unit Testing
• Unit Testing with ABAP Unit
• Object-Oriented Design Patterns
• Implementing Advanced Object-Oriented Techniques
• Implementing the Singleton Pattern
• Implementing Factory Classes Using Friendship
• Implementing Persistent Objects
• Runtime Type Services
• Using Runtime Type Identification (RTTI)
• Creation of a Comprehensive Object-Oriented Application
• Developing a Comprehensive Object-Oriented Application

Notes
• Courseware available as flipbook in the Learning Hub
The course is also suitable for participants who are using a release older than the one specified (at least SAP R/3 4.6).

The BC400 (ABAP Workbench Foundations) programming courses require that you understand the content of this basic course.

**Goals**
- Introduction in Programming with ABAP.
- Necessary Requisition for course BC400 for participants without any programming knowledge

**Goals**
- Introduction in Programming with ABAP.
- Necessary Requisition for course BC400 for participants without any programming knowledge

**Audience**
- Project leads
- Team leads
- Developers
- Consultants

**Essential**
- none

**Content**
- Introduction to structured programming
- Develop ABAP programs using the ABAP Editor (SE38)
- Process source text using the ABAP Editor
- Test programs using the debugger
- Work with elementary data objects (simple variables)
- Value assignments, calculations, and arithmetic expressions
- Conditional branches, logical expressions, and logical conditions
- String operations
- Loops
- Implement simple screens with input and output fields
- Define and use subroutines (why does it make sense to store parts of programs in subroutines?)
BC400E - ABAP Workbench Foundations

Course announcements

- Gain a detailed knowledge of the fundamental concepts of ABAP and learn how to comfortably and efficiently work with the ABAP Workbench tools in order to undertake custom developments with confidence

Goals

- This course will prepare you to:
- Learn the fundamental concepts of the ABAP programming language
- Efficiently use the ABAP Workbench Tools
- Create simple application programs with user dialogs (list, selection screen, screens, Web Dynpro) and database dialogs (reading from the database)

Audience

- Developer
- Developer Consultant
- Help Desk / COE Support
- Program / Project Manager

Essential

- BC100 or previous programming language experience

Course based on software release

- ECC6.0 EHP8 SP00 / NW 7.5 SP01

Content

- Flow of an ABAP Program
- Describing the Processing of ABAP Programs
- ABAP Workbench
- Introducing the ABAP Workbench
- Organizing ABAP Development Projects
- Developing ABAP Programs
- Finalizing ABAP Development Projects
- Basic ABAP Language Elements
- Defining Elementary Data Objects
- Using Basic ABAP Statements
- Analyzing Programs with the ABAP Debugger
- Modularization Techniques in ABAP
- Explaining Modularization
- Defining and Calling Subroutines
- Calling Function Modules
- Creating Function Modules
- Describing Business Application Programming Interfaces (BAPIs)
- Calling Methods of Global Classes
- Creating Global Classes and Static Methods
- Using Local Classes
- Complex Data Objects
- Using Structured Data Objects
- Using Internal Tables
• Data Modeling and Data Retrieval
• Explaining Data Models
• Retrieving Single Database Records
• Retrieving Multiple Database Records
• Describing Other Aspects of Database Access
• Implementing Authorization Checks
• Classic ABAP Reports
• Implementing ABAP Lists
• Implementing Selection Screens
• Implementing Events of ABAP Reports
• Screens
• Creating Screens
• Creating Input and Output Fields
• Implementing Data Transport
• SAP List Viewer
• Using the SAP List Viewer
• Web Dynpro ABAP
• Describing Web Dynpro ABAP
• Implementing Navigation in Web Dynpro
• Implementing Data Transport in Web Dynpro
• Program Analysis Tools
• Improving the Quality of ABAP Code with the Code Inspector
COURSE LISTING

- ABAP Development Tools for SAP NetWeaver
- Describing ABAP Development Tools for SAP NetWeaver
- Creating an ABAP Project in Eclipse
- SAP Standard Software Adjustments
- Adjusting the SAP Standard Software

Notes
- Coursware available as flipbook in Learning Hub
BC401 - ABAP Objects

Duration
5 days

Course announcements
- Strengthen your ABAP skills by gaining a full understanding of the use of object-oriented programming techniques, and how to apply them practically in your ABAP applications.

Goals
- This course will prepare you to:
- Understand the concepts of object-oriented programming
- Develop business applications with ABAP Objects

Audience
- Developer
- Developer Consultant
- Help Desk / COE Support
- Program / Project Manager

Essential
- BC400

Course based on software release
- SAP NETWEAVER 7.50 ECC608

Content
- Introduction to Object-Oriented Programming
- Explaining the Object-Oriented Programming Model
- Analyzing and Designing with Unified Modeling Language (UML)
- Fundamental Object-Oriented Syntax
- Creating Local Classes
- Creating Objects
- Accessing Methods and Attributes
- Implementing Constructors in Local Classes
- Implementing Class Constructors in Local Classes
- Inheritance and Casting
- Implementing Inheritance
- Implementing Upcasts Using Inheritance
- Implementing Polymorphism Using Inheritance
- Implementing Downcasts Using Inheritance
- Interfaces and Casting
- Defining and Implementing Local Interfaces
- Implementing Polymorphism Using Interfaces
- Integrating Class Models Using Interfaces
- Object-Oriented Events
- Implementing Events in Local Classes
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- Object-Oriented Repository Objects
- Creating Global Classes
- Defining and Implementing Global Interfaces
- Implementing Inheritance in Global Classes
• ABAP Object-Oriented Examples
• Using the ABAP List Viewer (ALV)
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• Global Classes in ABAP Development Tools
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• Implementing the Singleton Pattern
• Implementing Factory Classes Using Friendship
• Implementing Persistent Objects
• Runtime Type Services
• Using Runtime Type Identification (RTTI)
• Creation of a Comprehensive Object-Oriented Application
• Developing a Comprehensive Object-Oriented Application

Notes
• Courseware available as flipbook in the Learning Hub
BC100 - Introduction to Programming with ABAP

Duration
2 days

Goals
- Learn simple ABAP code
- Trace the flow of a program and troubleshoot simple problems

Audience
- Developer
- Developer Consultant
- Help Desk / COE Support

Essential
- None

Course based on software release
- SAP NETWEAVER 7.50 ECC608

Content
- Basics of ABAP Programming
- Developing a Simple ABAP Program
- Introducing ABAP Syntax
- Implementing a Simple Dialog
- Customizing the ABAP Editor
- Coding and Debugging in ABAP
- Defining Simple Variables
- Defining Text Symbols Performing Arithmetic Operations Using Simple Variables
- Using System Variables
- Debugging a Program
- Creating an ABAP List
- Processing Character Strings
- Control Flow Structures in ABAP
- Implementing Conditional Logic
- Implementing Loops
- Runtime Errors and Error Handling
- Analyzing Runtime Errors
- Implementing Error Handling
- Additional ABAP Programming Techniques
- Retrieving Data From the Database
- Describing Modularization in ABAP
- Using Function Modules

Notes
- The BC400 (ABAP Workbench Foundations) programming courses require that you understand the content of this basic course.
Introduction

Understanding SAP HANA and how it impacts the ABAP development paradigm

Introduction to ABAP Development Tools (also known as ABAP in Eclipse)

Taking ABAP to SAP HANA

Accessing SAP HANA as a Secondary Database

Tools to detect potential functional and performance issues when migrating to SAP HANA: Code Inspector and ABAP Test Cockpit, ABAP Trace and ABAP Profiler, SQL Trace

Tools to prioritize performance issues: SQL Monitor, SQL Performance Tuning Worklist

Performance Rules and Guidelines for ABAP in the context of SAP HANA

Database Independent Code-to-Data

Enhanced Open SQL

Defining advanced views using Core Data Services (CDS) and CDS Associations in ABAP

Incorporating Authorization Checks with CDS in ABAP

SAP HANA specific Code-to-Data

Using native SQL and ABAP Data Base Connectivity (ADBC)

Creating, using and debugging ABAP Managed Database Procedures

Consuming SAP HANA Objects in ABAP

Consuming SAP HANA objects in ABAP using native SQL and ADBC

Creating and using External Views

Database Procedure Proxies

Duration

3 days

Course announcements

In this course, you learn how you can use SAP HANA and new features in the ABAP programming language to optimize existing ABAP code and to develop innovative ABAP applications to enhance your business.

Goals

This course will prepare you to:

- develop more concise and well-performing ABAP programs using new features of the ABAP programming language
- develop and optimize ABAP applications that access data stored in the SAP HANA Database

Audience

- Application Consultant
- Developer
- Developer Consultant

Essential

- Basic Knowledge of SAP HANA
- BC400
- BC401
- Experience in ABAP Programming, esp. Open SQL (joins, views, aggregations)

Course based on software release

- SAP HANA 2.0 SPS04

In this course, you learn how you can use SAP HANA and new features in the ABAP programming language to optimize existing ABAP code and to develop innovative ABAP applications to enhance your business.

This course will prepare you to:

- develop more concise and well-performing ABAP programs using new features of the ABAP programming language
- develop and optimize ABAP applications that access data stored in the SAP HANA Database

Audience

- Application Consultant
- Developer
- Developer Consultant

Essential

- Basic Knowledge of SAP HANA
- BC400
- BC401
- Experience in ABAP Programming, esp. Open SQL (joins, views, aggregations)

Course based on software release

- SAP HANA 2.0 SPS04
• Advanced Topics
• ABAP Transport of SAP HANA Objects (HTC and HTA)
• Using SAP HANA Full Text Search in ABAP
• Enabling input fields for type-ahead search
• SAP List Viewer (ALV) optimized for SAP HANA

Notes
• This course is for developers and consultants who are familiar with programming database access using ABAP and ABAP Objects programming and want to learn how to use SAP HANA to speed up such access.
• The course covers many new ABAP features for database access that are not limited to SAP HANA as underlying database.
BC400 - ABAP Workbench Foundations

Duration
5 days

Course announcements
- Gain a detailed knowledge of the fundamental concepts of ABAP and learn how to comfortably and efficiently work with the ABAP Workbench tools in order to undertake custom developments with confidence

Goals
- This course will prepare you to:
  - Learn the fundamental concepts of the ABAP programming language
  - Efficiently use the ABAP Workbench Tools
  - Create simple application programs with user dialogs (list, selection screen, screens, Web Dynpro) and database dialogs (reading from the database)

Audience
- Developer
- Developer Consultant
- Help Desk / COE Support
- Program / Project Manager

Essential
- BC100 or previous programming language experience

Course based on software release
- SAP NETWEAVER 7.50 ECC608

Content
- Flow of an ABAP Program
- Describing the Processing of ABAP Programs
• Data Modeling and Data Retrieval
• Explaining Data Models
• Retrieving Single Database Records
• Retrieving Multiple Database Records
• Describing Other Aspects of Database Access
• Implementing Authorization Checks
• Classic ABAP Reports
• Implementing ABAP Lists
• Implementing Selection Screens
• Implementing Events of ABAP Reports
• Screens
• Creating Screens
• Creating Input and Output Fields
• Implementing Data Transport
• SAP List Viewer
• Using the SAP List Viewer
• Web Dynpro ABAP
• Describing Web Dynpro ABAP
• Implementing Navigation in Web Dynpro
• Implementing Data Transport in Web Dynpro
• Program Analysis Tools
• Improving the Quality of ABAP Code with the Code Inspector
• ABAP Development Tools for SAP NetWeaver
• Describing ABAP Development Tools for SAP NetWeaver
• Creating an ABAP Project in Eclipse
• SAP Standard Software Adjustments
• Adjusting the SAP Standard Software

Notes
• Coursware available as flipbook in Learning Hub
COURSE LISTING

SAPTEC - Technology Fundamentals for SAP S/4HANA and SAP Business Suite

Duration

4 days

Course announcements

• Would you like to understand how SAP systems function?
• During this course you will not only get acquainted with the technology fundamentals of most SAP applications (incl. SAP Business Suite and SAP S/4HANA), and how SAP systems function but also learn about different user interfaces, such as SAP Fiori or SAP GUI. The training contains hands on exercises, you will work with – among others - an SAP S/4HANA system and other SAP applications. With the newly acquired knowledge in technology you have now a stable base to further develop into a versatile range of business roles from SAP System administrator through developer to user interface expert to project - or program - manager.

Goals

• This course will prepare you to:
• Present in detail the architecture of SAP NetWeaver Application Server (SAP NetWeaver AS). The SAP NetWeaver AS is the central component of SAP S/4HANA, the SAP Business Suite and the SAP NetWeaver application platform
• Learn effective techniques for navigating
• Receive an overview of the development process in an SAP system landscape

Audience

• System Administrator
• Technology Consultant
• System Architect
• Database Administrator
• Help Desk / COE Support

• Program / Project Manager

Essential

• Knowledge of Information Technology

Course based on software release

• SAP NetWeaver AS ABAP 7.52
• SAP S/4HANA Foundation 1809

Content

• SAP Systems
• Explaining the Architecture of an SAP System, Application Server (AS) ABAP and Application Server (AS) Java
• Navigation
• Navigation using SAP Graphical User Interface (SAP GUI)
• Navigation using a Browser
• Navigation using the SAP Business Client
• Navigation using SAP Fiori
• System Core
• Explaining the Processes of an AS ABAP and AS Java based SAP System
• Processing User Requests in AS ABAP
• Software Development in SAP Systems
• Explaining the Data Structure of an AS ABAP System
• Developing and Transporting Applications
• Communication and Integration Technologies
• Describing Communication with Remote Function Call-Based (RFC) Technology
• Describing Communication with OData via SAP Gateway
• Application Lifecycle Management (ALM)
• Explaining Application Lifecycle Management (ALM)
• Describing the Installation of an SAP System
• Describing the Maintenance of an SAP System
• SAP Portfolio Overview

Notes
• SAPTEC examines SAP NetWeaver Application Server and imparts the knowledge that is required for subsequent courses related to the technology of SAP NetWeaver.
HA300 - SAP HANA 2.0 SPS03 Modeling

Duration
5 days

Course announcements
- This course teaches the core capabilities of SAP HANA for modeling, and covers mainly Graphical modeling, which is illustrated by the SAP HANA Live virtual data model, as well as SQL-based modeling, mainly table functions and procedures, with a focus on performance. It also introduces Core Data Services as a flexible method to model a persistence layer.
- The participants will gain knowledge about the management of modeling content in the SAP Web IDE for SAP HANA, and the key principles of object and data access security in a modeling context.
- We also provide a quick overview of advanced data processing in the areas of text, spatial, predictive and graph modeling.

Goals
- This course will prepare you to:
  - Develop information models following SAP best practices for maximum performance and flexibility
  - Get started with SQL and SQLScript based modeling
  - Manage projects and modeling content in the Web IDE
  - Implement security and data access controls around SAP HANA data models
  - Get a quick overview of advanced data processing such as text, spatial, predictive and graph

Audience
- Business application consultant
- Data Consultant / Manager

- Database Administrator
- Application developer
- BI specialist

Essential
- HA100 – SAP HANA Introduction

Course based on software release
- SAP HANA 2.0 SPS03

Content
- Information Views
- Introducing Information Views
- Understanding the Different Types of Views
- Working with Common View Design Features
- Using Nodes in Calculation Views
- Using Projection Nodes
- Using Join Nodes
- Working with Data Sets
- Aggregating Data
- Creating Cubes with Star Join Calculation Views
- Extracting Top Values with Rank Nodes
• Modeling Functions
• Create Restricted and Calculated Columns
• Filter Data
• Use Variables and Input Parameters
• Create Hierarchies
• Implement Currency Conversion
• SAP HANA Studio Modeling
• Using SQL in Models
• Introducing SAP HANA SQL
• Working with SQLScript
• Query a Modeled Hierarchy Using SQLScript
• Creating and Using Functions
• Creating and Using Procedures
• CDS in SAP HANA Modeling
• Defining the Persistence Layer Using CDS
• Creating Views with CDS
• SAP Supplied Virtual Data Models
• SAP HANA Live
• Embedded Analytics and CDS
• Optimization of Models
• Using Tools to Check Model Performance
• Implementing Good Modeling Practices
• Management and administration of Models
• Working with Modeling Content in a Project
• Creating and Manage Projects
• Enabling Access to External Data
• Working with GIT Within the SAP Web IDE
• Using SAP Enterprise Architecture Designer
• Migrating Modeling Content
• Security in SAP HANA Modeling
• Understanding Roles and Privileges
• Defining Analytic Privileges
• Defining Roles
• Masking Sensitive Data
• Anonymizing Data
• Introduction to Advanced Modeling

Notes
• Most of the activities of this course rely on the SAP Web IDE for SAP HANA, but graphical modeling in SAP HANA Studio is also covered with a dedicated unit.
HA100 - SAP HANA Introduction

Duration
2 days

Course announcements
- This course introduces SAP HANA. Through lectures and exercises you will quickly develop a broad understanding of all key areas of SAP HANA including technology, architecture, data modeling, data management and application development. This course is an important prerequisite for many detailed follow-on SAP HANA courses.

Goals
- This course will enable you to:
  - Understand the key concepts of SAP HANA
  - Work with the various SAP HANA interfaces used by developers and administrators
  - Create a data model using SAP HANA modeling tools
  - Acquire and enrich data and load to SAP HANA
  - Build a report that runs on an SAP HANA data model
  - Get started with the application development environment

Audience
- Application Consultant
- Change Manager
- Business Analyst
- Application Developer
- BI / BW consultant
- Data Scientist
- Database Administrator
- SAP HANA Project Manager
- SAP HANA Support Staff

Essential
- None

Course based on software release
- SAP HANA 2.0 SPS04

Content
- Describing SAP HANA
- Understanding the Need for a Modern Digital Platform
- Describing how SAP HANA Powers a Digital Platform
- Architecture of SAP HANA
- Outlining Components of SAP HANA
- Working with SAP HANA interfaces
- Understanding Key Features of the SAP HANA Database
- Describing High Availability
- Analytical Processing with SAP HANA
- Understanding Core Modeling with SAP HANA
- Advanced Analytics with SAP HANA
- Data Management with SAP HANA
- Data Tiering
- Describing Data Acquisition Tools
- Developing and Running Applications on SAP HANA
- Running SAP Enterprise Suites on SAP HANA
- Connecting SAP Business Intelligence Tools to SAP HANA
- Outlining SAP Business Warehouse on SAP HANA
- Developing SQL Data Warehouses with SAP HANA
- Building Native HANA Applications
Notes

- This course covers SAP HANA (the platform) and not SAP S/4HANA (the application suite). But a basic understanding of the platform is essential for anyone who works with SAP S/4HANA and so this course is highly recommended for SAP S/4HANA consultants.
Description
The "SAP Certified Development Specialist - ABAP for SAP HANA 2.0" certification exam verifies that the candidate has the knowledge of programming ABAP for SAP HANA required by the profile of an SAP ABAP development consultant. This certificate builds on both the basic knowledge gained in related ABAP-for-HANA training and documentation, as well as on practical experience gained as a member of a SAP HANA team, where the candidate would apply this knowledge practically in projects. It is highly recommended that you have passed one of these certification exams for the "SAP Certified Development Associate - ABAP with SAP NetWeaver" (C_TAW12_70, C_TAW12_71, C_TAW12_731, C_TAW12_74, C_TAW12_750).

Notes
- To ensure success, SAP recommends combining education courses and hands-on experience to prepare for your certification exam as questions will test your ability to apply the knowledge you have gained in training.
- You are not allowed to use any reference materials during the certification test (no access to online documentation or to any SAP system).
COURSE LISTING

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