# SAP ABAP S/4HANA Backend Developer

(*Prepares for SAP Certification: C_ABAPD – SAP Certified Associate - Back-End Developer – ABAP Cloud*)

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**Course Description**

The *SAP ABAP S/4HANA Backend Developer* course is a comprehensive hands-on training program designed to build expertise in ABAP development for SAP S/4HANA, including foundational programming, advanced coding practices, data modeling with CDS views, extensibility techniques, and RAP-based application development. This course is aligned with the official **SAP Certified Associate - Back-End Developer – ABAP Cloud (C_ABAPD)** exam, enabling participants to become certified SAP backend developers capable of delivering enterprise-grade solutions in cloud and on-premises environments.

The course is structured into five primary modules:

1. Basic ABAP Programming (S4D400)
2. Intermediate ABAP Programming (S4D401)
3. Extensibility for SAP S/4HANA (S4D425)
4. Data Modeling in ABAP Dictionary and Core Data Services (S4D430)
5. Transactional Apps with ABAP RESTful Programming Model (S4D437)

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**Audience Profile**

This course is ideal for:

- ABAP Developers aiming for SAP S/4HANA and ABAP Cloud readiness
- Technical Consultants and Programmers working in SAP environments
- SAP Developers pursuing the **C_ABAPD certification**
- Backend Developers building RAP-based transactional apps
- SAP Architects and Developers involved in S/4HANA implementation or extension

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**Prerequisites**

Participants should have:

- Basic programming experience (any language)
- Familiarity with relational databases and application design
- Foundational understanding of SAP system architecture (recommended)

**Course Objectives**

By the end of this course, participants will be able to:

- Build ABAP programs using modern design and syntax
- Use object-oriented ABAP and performance optimization tools
- Create and extend SAP S/4HANA applications using CDS and RAP
- Apply in-app and side-by-side extensibility strategies
- Develop transactional applications with the ABAP RESTful Programming Model (RAP)
- Prepare for the **SAP Certified Associate - Back-End Developer – ABAP Cloud (C_ABAPD)** exam

**Table of Contents (TOC)**

- Investigate table definitions and basic SQL
- Work with Core Data Services (CDS) views

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**Module 2: Intermediate ABAP Programming (S4D401)**

**Unit 1: Analyzing and Testing Code**

- ABAP Test Cockpit (ATC)
- ABAP Unit Tests
- ABAP Profiling
- SQL Trace

**Unit 2: Using Data Types and Type Conversions Correctly**

- Classification and usage of data types
- Timestamps and type conversion practices

**Unit 3: Processing Character Fields**

- Translatable text and regular expressions

**Unit 4: Using Code Pushdown in ABAP SQL**

- Joins, expressions, and calculations

**Unit 5: Improving Internal Table Performance**

- Sorted and hashed tables, secondary keys

**Unit 6: Implementing Authorization Checks**

- CDS access control and AUTHORITY-CHECK

**Unit 7: Designing Effective Object-Oriented Code**

- Inheritance, interfaces, and factory methods

**Unit 8: Defining and Working with Exception Classes**

- Custom exception handling

**Unit 9: Adding Documentation to ABAP Code**

- Writing effective technical documentation

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**Module 3: Extensibility for SAP S/4HANA (S4D425)**

**Unit 1: SAP S/4HANA Extensibility Overview**

- In-app and side-by-side extensibility

**Unit 2: SAP Fiori Launchpad Adaptation**

- Personalization and content management
- Launchpad plugins

**Unit 3: Key User Extensibility**

- Custom fields, logic, and business objects
- Fiori UI adaptation and transport

**Unit 4: Side-by-Side Extensibility**

- ABAP development in SAP BTP

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**Module 4: Data Modeling in ABAP Dictionary and CDS (S4D430)**

**Unit 1: Exploring Data Modeling in ABAP**

- ABAP Dictionary and CDS basics

**Unit 2: Creating Database Tables**

- Domains, data elements, table creation

**Unit 3: Defining Global Data Types**

- Structures, table types, and dictionary objects

**Unit 4: Defining Basic CDS Views**

- CDS view creation and annotations

**Unit 5: Defining Relationships and Associations**

- CDS associations and joins

**Unit 6: Using Code Pushdown in CDS Views**

- SQL expressions, functions, input parameters

**Unit 7: Defining Metadata Extensions**

- Metadata extension techniques

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**Module 5: Transactional Apps with ABAP RESTful Programming Model (S4D437)**

**Unit 1: The ABAP RESTful Programming Model (RAP)**

- RAP architecture and OData services

**Unit 2: RAP Business Objects (RAP BOs)**

- RAP BO definition and behavior
- Entity Manipulation Language (EML)

**Unit 3: Update and Create in Managed Transactional Apps**

- Input checks, validations, dynamic behavior

**Unit 4: Draft-Enabled Transactional Apps**

- Stateless transactional app development

**Unit 5: Transactional Apps with Composite Business Objects**

- Composite BO definition and usage

**Unit 6: Transactional Apps with Unmanaged Business Objects**

- Unmanaged BO implementation