Introduction to Data Engineering on Google Cloud

Category: AI, Data & Analytics | **Vendor:** Google Cloud

Duration: 8.00 hours (1 days) **6.5 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format: Instructor Led - Online

Course Overview

In this course, you learn about data engineering on Google Cloud, the roles and responsibilities of data engineers, and how those map to offerings provided by Google Cloud. You also learn about ways to address data engineering challenges.

About This Course

In this course, you learn about data engineering on Google Cloud, the roles and responsibilities of data engineers, and how those map to offerings provided by Google Cloud. You also learn about ways to address data engineering challenges.

Who Should Attend

- Data engineers
- Database administrators
- System administrators

Prerequisites & Entry Requirements

General Prerequisites:

- Prior Google Cloud experience at the fundamental level using Cloud Shell and accessing products from the Google Cloud console.
- Basic proficiency with a common query language such as SQL.
- Experience with data modeling and ETL (extract, transform, load) activities.
- Experience developing applications using a common programming language such as Python.

Learning Outcomes

Upon successful completion of this course, participants will be able to:

- Understand the role of a data engineer.
- Identify data engineering tasks and core components used on Google Cloud.
- Understand how to create and deploy data pipelines of varying patterns on Google Cloud.
- Identify and utilize various automation techniques on Google Cloud.

Detailed Course Outline

Module 1 - Data Engineering Tasks and Components

Topics:

- The role of a data engineer
- Data sources versus data sinks
- Data formats
- Storage solution options on Google Cloud
- Metadata management options on Google Cloud
- Sharing datasets using Analytics Hub

Objectives:

- Explain the role of a data engineer.
- Understand the differences between a data source and a data sink.
- Explain the different types of data formats.
- Explain the storage solution options on Google Cloud.

- Learn about the metadata management options on Google Cloud.

- Understand how to share datasets with ease using Analytics Hub.

- Understand how to load data into BigQuery using the Google Cloud console or the gcloud CLI.

Activities:

- Lab: Loading Data into BigQuery

- Quiz

Module 2 - Data Replication and Migration

Topics:

- Replication and migration architecture

- The gcloud command-line tool

- Moving datasets

- Datastream

Objectives:

- Explain the baseline Google Cloud data replication and migration architecture.

- Understand the options and use cases for the gcloud command-line tool.

- Explain the functionality and use cases for Storage Transfer Service.

- Explain the functionality and use cases for Transfer Appliance.

- Understand the features and deployment of Datastream.

Activities:

- Lab: Datastream: PostgreSQL Replication to BigQuery (optional for ILT)

- Quiz

Module 3 - The Extract and Load Data Pipeline Pattern

Topics:

- Extract and load architecture

- The bq command-line tool

- BigQuery Data Transfer Service

- BigLake

Objectives:

- Explain the baseline extract and load architecture diagram.

- Understand the options of the bq command-line tool.

- Explain the functionality and use cases for BigQuery Data Transfer Service.

- Explain the functionality and use cases for BigLake as a non-extract-load pattern.

Activities:

- Lab: BigLake: Qwik Start

- Quiz

Module 4 - The Extract, Load, and Transform Data Pipeline Pattern

Topics:

- Extract, and transform (ELT) architecture

- SQL scripting and scheduling with BigQuery

- Dataform

Objectives:

- Explain the baseline extract, and transform architecture diagram.

- Understand a common ELT pipeline on Google Cloud.

- Learn about BigQuery’s SQL scripting and scheduling capabilities.

- Explain the functionality and use cases for Dataform.

Activities:

- Lab: Create and Execute a SQL Workflow in Dataform

- Quiz

Module 5 - The Extract, Transform, and Load Data Pipeline Pattern

Topics:

- Extract, and load (ETL) architecture

- Google Cloud GUI tools for ETL data pipelines

- Batch data processing using Dataproc

- Streaming data processing options

- Bigtable and data pipelines

Objectives:

- Explain the baseline extract, and load architecture diagram.

- Learn about the GUI tools on Google Cloud used for ETL data pipelines.

- Explain batch data processing using Dataproc.

- Learn how to use Dataproc Serverless for Spark for ETL.

- Explain streaming data processing options.

- Explain the role Bigtable plays in data pipelines.

Activities:

- Lab: Use Dataproc Serverless for Spark to Load BigQuery (optional for ILT)

- Lab: Creating a Streaming Data Pipeline for a Real-Time Dashboard with Dataflow

- Quiz

Module 6 - Automation Techniques

Topics:

- Automation patterns and options for pipelines

- Cloud Scheduler and Workflows

- Cloud Composer

- Cloud Run Functions

- Eventarc

Objectives:

- Explain the automation patterns and options available for pipelines.

- Learn about Cloud Scheduler and Workflows.

- Learn about Cloud Composer.

- Learn about Cloud Run functions.

- Explain the functionality and automation use cases for Eventarc.

Activities:

- Lab: Use Cloud Run Functions to Load BigQuery (optional for ILT)

- Quiz, Data Engineering Tasks and Components, Data Replication and Migration, The Extract and Load Data Pipeline Pattern, The Extract, and Transform Data Pipeline Pattern, and Load Data Pipeline Pattern, Automation Techniques

Skills You Will Learn:

- Understand the role of a data engineer.
- Identify data engineering tasks and core components used on Google Cloud.
- Understand how to create and deploy data pipelines of varying patterns on Google Cloud.
- Identify and utilize various automation techniques on Google Cloud.

Frequently Asked Questions

Q: What delivery options are available for Introduction to Data Engineering on Google Cloud?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: How many CPD hours does this course provide?

The 1-day Introduction to Data Engineering on Google Cloud course provides up to 6.5 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the Introduction to Data Engineering on Google Cloud training?

The training takes place over 1 day(s), with each day lasting approximately 8.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for Introduction to Data Engineering on Google Cloud?

Yes, we provide corporate training, dedicated training, and closed classes for Introduction to Data Engineering on Google Cloud. Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: Introduction to Data Engineering on Google Cloud, Data Engineering, IDEG, Google Cloud, vILT

Q: Why choose Nexus Human for Introduction to Data Engineering on Google Cloud?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your Introduction to Data Engineering on Google Cloud training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

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