

DIGITAL INNOVATION AND TRANSFORMATION | COURSE BROCHURE

# Data Engineering Fundamentals: Pipelines and Data Platforms

5 days | Classroom training | English

**SMART HORIZON**

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Amsterdam
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# Course content

## Why attend

Data engineering builds the pipelines and platforms that make data available for analytics and AI. This course explains data architecture, ingestion, ETL and ELT, data warehouses and lakehouses, data quality, orchestration, cloud data platforms and governance, with practical exercises.

Analytics and AI initiatives depend on reliable data pipelines. This course gives analysts and IT professionals a practical understanding of how modern data platforms work.

## Professional Problems This Course Is Designed to Solve

- Difficulty translating subject knowledge into practical workplace decisions.
- Inconsistent approaches to the activities covered in the course outline.
- Lack of a structured plan for applying and reviewing new skills.

## Course methodology

The course combines concept sessions with guided labs, architecture design exercises and case studies.

## Course objectives

By the end of this course, participants will be able to:
- Explain modern data architecture concepts
- Design data ingestion and integration pipelines
- Understand ETL, ELT and data transformation
- Compare data warehouses, data lakes and lakehouses
- Implement data quality checks and orchestration
- Apply governance and security to data platforms

## Target audience

This course is suitable for:
- Data analysts moving into engineering
- IT and database professionals
- BI developers
- Data project managers
- Solution architects



# Course content

## Target competencies

Participants will develop competencies in:

- Data architecture
- Data pipelines
- Data transformation
- Data platforms
- Data quality
- Data governance

## Course outline

### Day 1: Data Engineering Foundations

| | |
|---|---|
| 09:00–09:54 | Role of data engineering |
| 09:54–10:48 | Data sources and types |
| 10:48–11:00 | Batch and streaming |
| 11:00–11:30 | **Coffee break** |
| 11:30–12:12 | Batch and streaming (continued) |
| 12:12–13:06 | Modern data stack |
| 13:06–14:00 | Exercise: Data flow mapping |

### Day 2: Ingestion and Integration

| | |
|---|---|
| 09:00–09:54 | APIs and connectors |
| 09:54–10:48 | Change data capture |
| 10:48–11:00 | File and database ingestion |
| 11:00–11:30 | **Coffee break** |
| 11:30–12:12 | File and database ingestion (continued) |
| 12:12–13:06 | Integration patterns |
| 13:06–14:00 | Lab: Building an ingestion pipeline |



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## Day 3: Transformation and Storage

| | |
|---|---|
| 09:00–09:54 | ETL versus ELT |
| 09:54–10:48 | Data modelling for analytics |
| 10:48–11:00 | Warehouses, lakes and lakehouses |
| 11:00–11:30 | **Coffee break** |
| 11:30–12:12 | Warehouses, lakes and lakehouses (continued) |
| 12:12–13:06 | SQL transformations |
| 13:06–14:00 | Lab: Transforming data |

## Day 4: Quality and Orchestration

| | |
|---|---|
| 09:00–09:54 | Data quality testing |
| 09:54–10:48 | Orchestration tools |
| 10:48–11:00 | Monitoring and alerts |
| 11:00–11:30 | **Coffee break** |
| 11:30–12:12 | Monitoring and alerts (continued) |
| 12:12–13:06 | Documentation |
| 13:06–14:00 | Lab: Data quality checks |

## Day 5: Platforms and Governance

| | |
|---|---|
| 09:00–09:54 | Cloud data platforms |
| 09:54–10:48 | Security and access |
| 10:48–11:00 | Cost management |
| 11:00–11:30 | **Coffee break** |
| 11:30–12:12 | Cost management (continued) |
| 12:12–13:06 | Data governance |
| 13:06–14:00 | Capstone: Data platform design |

The timings provided are estimates and may vary depending on the number of participants and the discussions taking place during the



# Course content

sessions. They are indicative only and do not constitute a binding commitment.

## Dates, venues and fees

Current published course plans. Fees are per participant in EUR, excluding unconfirmed taxes.

| Venue | Start date | End date | Fee (EUR) |
|---|---|---|---|
| Istanbul<br>Confirmed dates | 9 Nov 2026 | 13 Nov 2026 | **€2,650.-** |
| Online<br>Confirmed dates | 9 Nov 2026 | 13 Nov 2026 | **€1,250.-** |
| Amsterdam<br>Confirmed dates | 23 Nov 2026 | 27 Nov 2026 | **€2,540.-** |
| Online<br>Confirmed dates | 23 Nov 2026 | 27 Nov 2026 | **€1,250.-** |
| Vienna<br>Confirmed dates | 30 Nov 2026 | 4 Dec 2026 | **€2,940.-** |
| Online<br>Confirmed dates | 30 Nov 2026 | 4 Dec 2026 | **€1,250.-** |
| Singapore<br>Confirmed dates | 7 Dec 2026 | 11 Dec 2026 | **€2,820.-** |
| Online<br>Confirmed dates | 7 Dec 2026 | 11 Dec 2026 | **€1,250.-** |



# Course content

## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (EUR) |
|---|---|---|---|
| London<br>Confirmed dates | 14 Dec 2026 | 18 Dec 2026 | **€2,450.–** |
| Online<br>Confirmed dates | 14 Dec 2026 | 18 Dec 2026 | **€1,250.–** |
| Dubai<br>Confirmed dates | 11 Jan 2027 | 15 Jan 2027 | **€3,150.–** |
| Online<br>Confirmed dates | 11 Jan 2027 | 15 Jan 2027 | **€1,250.–** |
| Frankfurt<br>Confirmed dates | 25 Jan 2027 | 29 Jan 2027 | **€2,650.–** |
| Online<br>Confirmed dates | 25 Jan 2027 | 29 Jan 2027 | **€1,250.–** |
| Kuala Lumpur<br>Confirmed dates | 8 Feb 2027 | 12 Feb 2027 | **€1,450.–** |
| Online<br>Confirmed dates | 8 Feb 2027 | 12 Feb 2027 | **€1,250.–** |
| Paris<br>Confirmed dates | 22 Feb 2027 | 26 Feb 2027 | **€2,860.–** |



# Course content

## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (EUR) |
|---|---|---|---|
| Online<br>Confirmed dates | 22 Feb 2027 | 26 Feb 2027 | **€1,250.-** |
| Cape Town<br>Confirmed dates | 1 Mar 2027 | 5 Mar 2027 | **€1,890.-** |
| Online<br>Confirmed dates | 1 Mar 2027 | 5 Mar 2027 | **€1,250.-** |
| Istanbul<br>Confirmed dates | 8 Mar 2027 | 12 Mar 2027 | **€2,650.-** |
| Online<br>Confirmed dates | 8 Mar 2027 | 12 Mar 2027 | **€1,250.-** |
| Amsterdam<br>Confirmed dates | 22 Mar 2027 | 26 Mar 2027 | **€2,540.-** |
| Online<br>Confirmed dates | 22 Mar 2027 | 26 Mar 2027 | **€1,250.-** |
| Singapore<br>Confirmed dates | 12 Apr 2027 | 16 Apr 2027 | **€2,820.-** |
| Online<br>Confirmed dates | 12 Apr 2027 | 16 Apr 2027 | **€1,250.-** |



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## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (EUR) |
|---|---|---|---|
| London<br>Confirmed dates | 26 Apr 2027 | 30 Apr 2027 | **€2,450.-** |
| Online<br>Confirmed dates | 26 Apr 2027 | 30 Apr 2027 | **€1,250.-** |
| Rome<br>Confirmed dates | 3 May 2027 | 7 May 2027 | **€2,450.-** |
| Online<br>Confirmed dates | 3 May 2027 | 7 May 2027 | **€1,250.-** |
| Dubai<br>Confirmed dates | 10 May 2027 | 14 May 2027 | **€3,150.-** |
| Online<br>Confirmed dates | 10 May 2027 | 14 May 2027 | **€1,250.-** |
| Frankfurt<br>Confirmed dates | 24 May 2027 | 28 May 2027 | **€2,650.-** |
| Online<br>Confirmed dates | 24 May 2027 | 28 May 2027 | **€1,250.-** |
| Kuala Lumpur<br>Confirmed dates | 14 Jun 2027 | 18 Jun 2027 | **€1,450.-** |



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## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (EUR) |
|---|---|---|---|
| Online<br>Confirmed dates | 14 Jun 2027 | 18 Jun 2027 | **€1,250.–** |
| Paris<br>Confirmed dates | 21 Jun 2027 | 25 Jun 2027 | **€2,860.–** |
| Online<br>Confirmed dates | 21 Jun 2027 | 25 Jun 2027 | **€1,250.–** |
| Rome<br>Confirmed dates | 28 Jun 2027 | 2 Jul 2027 | **€2,450.–** |
| Online<br>Confirmed dates | 28 Jun 2027 | 2 Jul 2027 | **€1,250.–** |
| Istanbul<br>Confirmed dates | 12 Jul 2027 | 16 Jul 2027 | **€2,650.–** |
| Online<br>Confirmed dates | 12 Jul 2027 | 16 Jul 2027 | **€1,250.–** |
| Amsterdam<br>Confirmed dates | 26 Jul 2027 | 30 Jul 2027 | **€2,540.–** |
| Online<br>Confirmed dates | 26 Jul 2027 | 30 Jul 2027 | **€1,250.–** |



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## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (EUR) |
|---|---|---|---|
| Singapore<br>Confirmed dates | 9 Aug 2027 | 13 Aug 2027 | **€2,820.-** |
| Online<br>Confirmed dates | 9 Aug 2027 | 13 Aug 2027 | **€1,250.-** |
| London<br>Confirmed dates | 23 Aug 2027 | 27 Aug 2027 | **€2,450.-** |
| Online<br>Confirmed dates | 23 Aug 2027 | 27 Aug 2027 | **€1,250.-** |
| Cape Town<br>Confirmed dates | 30 Aug 2027 | 3 Sept 2027 | **€1,890.-** |
| Online<br>Confirmed dates | 30 Aug 2027 | 3 Sept 2027 | **€1,250.-** |
| Dubai<br>Confirmed dates | 13 Sept 2027 | 17 Sept 2027 | **€3,150.-** |
| Online<br>Confirmed dates | 13 Sept 2027 | 17 Sept 2027 | **€1,250.-** |
| Frankfurt<br>Confirmed dates | 20 Sept 2027 | 24 Sept 2027 | **€2,650.-** |



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## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (EUR) |
|---|---|---|---|
| Online<br>Confirmed dates | 20 Sept 2027 | 24 Sept 2027 | **€1,250.–** |
| Kuala Lumpur<br>Confirmed dates | 11 Oct 2027 | 15 Oct 2027 | **€1,450.–** |
| Online<br>Confirmed dates | 11 Oct 2027 | 15 Oct 2027 | **€1,250.–** |
| Paris<br>Confirmed dates | 25 Oct 2027 | 29 Oct 2027 | **€2,860.–** |
| Online<br>Confirmed dates | 25 Oct 2027 | 29 Oct 2027 | **€1,250.–** |
| Barcelona<br>Confirmed dates | 1 Nov 2027 | 5 Nov 2027 | **€2,840.–** |
| Online<br>Confirmed dates | 1 Nov 2027 | 5 Nov 2027 | **€1,250.–** |
| Istanbul<br>Confirmed dates | 8 Nov 2027 | 12 Nov 2027 | **€2,650.–** |
| Online<br>Confirmed dates | 8 Nov 2027 | 12 Nov 2027 | **€1,250.–** |



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## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (EUR) |
|---|---|---|---|
| Amsterdam<br>Confirmed dates | 22 Nov 2027 | 26 Nov 2027 | **€2,540.–** |
| Online<br>Confirmed dates | 22 Nov 2027 | 26 Nov 2027 | **€1,250.–** |
| Singapore<br>Confirmed dates | 6 Dec 2027 | 10 Dec 2027 | **€2,820.–** |
| Online<br>Confirmed dates | 6 Dec 2027 | 10 Dec 2027 | **€1,250.–** |
| London<br>Confirmed dates | 13 Dec 2027 | 17 Dec 2027 | **€2,450.–** |
| Online<br>Confirmed dates | 13 Dec 2027 | 17 Dec 2027 | **€1,250.–** |



# Course content

## Plan your next step

Dates, availability, exact venue, taxes, inclusions and payment terms require written confirmation. This brochure is not a quotation, registration, booking confirmation or visa invitation. Participants receive a Smart Horizon certificate of attendance; programmes are not externally accredited and do not award a professional qualification or designation. Confirm arrangements before booking travel.

For group or in-house training, contact our learning team to discuss your objectives and delivery arrangements.

## Contact Smart Horizon

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The Netherlands

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