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D4.2 Specific Curriculum

DATA ANALYST EQF 6

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Project information

The Artificial Intelligence Skills Alliance (ARISA) fast-tracks the upskilling and reskilling of employees, job seekers, business leaders, and policymakers into AI-related professions to open Europe to new business opportunities. It is a four-year transnational project funded under the EU's Erasmus+ programme. For more information, contact info@aiskills.eu | aiskills.eu

Project Partners

List of abbreviations

AI	Artificial Intelligence
ARISA	Artificial Intelligence Skills Alliance
EQF	European Qualification Framework
EU	European Union

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1. General information

Name	Data Analyst
EQF level	EQF 6
Goals	The purpose of the Data Analyst EQF 6 curriculum is to provide participants with basic knowledge on how to find, use, analyze and use data in assessing, measuring and arguing a business decision with the introduction of relevant methodologies. In addition, participants will gain practical basic skills in managing the life cycle of data, i.e. valorizing data. To do this, participants perform practical tasks for data processing and analysis with the appropriate software.
Scope	This retraining course is designed for individuals looking to change their career and become data analysts, as well as for professionals who want to supplement their data analytics skills in their current profession.
Entry requirements	Entry Requirements: • Proficiency in computer skills at the user level • Proficiency in MS Excel at the user level • Basic problem-solving skills • A minimum of 2 years of prior work experience • Successful completion of a general aptitude test
Programme learning outcomes (PLOs)	6 - Big Data & Data Analytics (EQF 6) 8 - AI Ethics (EQF 6) 9 - AI Futures and Innovation (EQF 6) 10 - Business Intelligence (EQF 6) 12 - Cyber and Data Security (EQF 6)

2. Description of the structure

The Data Analyst course consists of ten learning modules, totalling 184 academic hours.

It begins with 16 hours on the Foundations of Data Analytics and another 16 hours focused on Making Data-Driven Decisions. Students then delve into Data Processing and Analysis (SQL) over 48 hours, followed by 36 hours of Data Analysis with R Programming. The course includes 12 hours of Data Visualization with Tableau and 24 hours of Data Visualization using Power BI. Additionally, there are 4-hour modules on Basics of Cyber Security, Data Analytics and AI Trends, and GDPR. The course concludes with a 20-hour final project to apply the learned skills.

3. Overview of Learning Units

Learning unit title	Academic hours	EQF level	Assessment(s)
Foundations of Data Analytics	16	EQF 6	Practical Excercises
Making data-driven decisions	16	EQF 6	Practical Exercises
Data Processing and analysis (SQL)	48	EQF 6	Practical Exercises
Data Analysis with R	36	EQF 6	Practical Exercises
Data visualization with Tableau	12	EQF 6	Practical Exercises
Data visualization using Power BI	24	EQF 6	Practical Exercises
Basics of Cyber Security	4	EQF 6	Practical Exercises
Data analytics and AI trends	4	EQF 6	Practical Exercises
GDPR	4	EQF 6	Practical Exercises
Case study (final project)	20	EQF 6	Successful completion of the Case Study

4. Details of Learning Units

4.1. Foundations of Data Analytics

Description of [learning unit title]
This unit provides an introduction to the fundamental concepts of data analytics, including an exploration of data, data analysis, and the broader data ecosystem. Students will perform a self-assessment of their analytical thinking skills, offering specific examples of how they have applied these skills in various contexts. The unit also covers the importance of tools such as spreadsheets, query languages, and data visualization in the field of data analytics. Additionally, it delves into the role of a data analyst, highlighting specific job functions and responsibilities within the industry.
Related Programme Learning Outcome(s)
6 - Big Data & Data Analytics (EQF 6) 9 - AI Futures and Innovation (EQF 6)
Unit learning outcomes
• Collaborates with multidisciplinary teams on big data and data analytics projects • Engages in continuous learning and professional development related to big data • Analyses current AI developments and trends
Delivery method(s)
• Lectures • Practical Exercises
Materials
Slide materials (acquired through request)

4.2. Making data-driven decisions

Description of [learning unit title]
This learning unit explores the application of a problem-solving road map in various analysis scenarios. It emphasizes the critical role of structured thinking in decision-making processes involving data. Participants will gain hands-on experience using spreadsheets to perform fundamental data analyst tasks such as data entry and organization. Key concepts include factors influencing data collection decisions and distinguishing between biased and unbiased data. Additionally, the unit covers databases, detailing their functions and components, and outlines best practices for effectively organizing data.
Related Programme Learning Outcome(s)
6 - Big Data & Data Analytics (EQF 6) 10 - Business Intelligence (EQF 6)
Unit learning outcomes
• Implements data analytics methodologies to derive actionable insights from complex and unstructured datasets • Develops data science solutions to tackle specific analytical challenges • Describes the results and implications of data analysis projects to stakeholders • Interprets complex data sets to identify trends, patterns, and insights that inform business strategies • Evaluates the effectiveness of business intelligence strategies and tools • Explains findings and strategic recommendations based on business intelligence analysis to stakeholders
Delivery method(s)
• Lectures • Practical Exercises
Materials
Slide materials (acquired through request)

4.3. Data Processing and analysis (SQL)

Description of [learning unit title]
This learning unit begins with an exploration of various types of data integrity and examines the potential risks that threaten data integrity. Participants will learn to apply basic SQL functions to cleanse string variables within a database and develop foundational SQL queries for database operations. The unit also covers the process of verifying the effectiveness of data cleaning procedures. Furthermore, participants will gain proficiency in using SQL functions and syntax to merge data from multiple database tables. Lastly, the unit introduces the use of spreadsheet functions for conducting calculations on data.
Related Programme Learning Outcome(s)
6 - Big Data & Data Analytics (EQF 6)
Unit learning outcomes
• Utilizes big data technologies to efficiently process and analyse large volumes of data • Implements data analytics methodologies to derive actionable insights from complex and unstructured datasets
Delivery method(s)
• Lectures • Practical Exercises
Materials
Slide materials (acquired through request)

4.4. Data Analysis using R

Description of [learning unit title]
This module introduces the R programming language and its environment, covering fundamental programming concepts such as functions, variables, data types, pipes, and vectors. Participants will explore various options for creating visualizations in R and learn basic formatting techniques in R Markdown to organize content effectively.
Related Programme Learning Outcome(s)
6 - Big Data & Data Analytics (EQF 6)
Unit learning outcomes
• Utilizes big data technologies to efficiently process and analyse large volumes of data • Creates effective data visualizations that clearly communicate analytical findings
Delivery method(s)
• Lectures • Practical Exercises
Materials
Slide materials (acquired through request)

4.5. Data Visualization with Tableau

Description of [learning unit title]
This module focuses on using data visualizations effectively to communicate insights from data analysis. Participants will learn about Tableau as a versatile tool for creating visual representations and its applications in data visualization. The module emphasizes the importance of data-driven storytelling, highlighting how structured narratives can enhance understanding and engagement with analytical findings. Participants will also explore principles for delivering impactful presentations, ensuring clear communication of data insights to stakeholders.
Related Programme Learning Outcome(s)
6 - Big Data & Data Analytics (EQF 6)
Unit learning outcomes
• Creates effective data visualizations that clearly communicate analytical findings • Describes the results and implications of data analysis projects to stakeholders
Delivery method(s)
• Lectures • Practical Exercises
Materials
Slide materials (acquired through request)

4.6. Data vizualisation using Power BI

Description of [learning unit title]
This unit provides a comprehensive introduction to a BI tool designed to facilitate informed decision-making. Participants will gain hands-on experience in importing data from various sources using Power Query and organizing this data into effective data models. The course covers techniques for cleaning, transforming, and combining data to create a cohesive data model. Additionally, participants will learn to visualize data using Power BI Desktop, enabling them to create insightful and interactive reports and dashboards. By the end of the training, attendees will be equipped with the skills to collect, manage, and present data in a way that supports strategic decision-making.
Related Programme Learning Outcome(s)
6 - Big Data & Data Analytics (EQF 6) 10 - Business Intelligence (EQF 6)
Unit learning outcomes
• Creates effective data visualizations that clearly communicate analytical findings • Utilizes business intelligence tools and software to collect, process, and analyse large datasets • Designs and implements data visualization techniques to effectively communicate • Collaborates with team members and departments
Delivery method(s)
• Lecture • Practical Exercises
Materials
Presentation Microsoft Learn Power BI documentation: https://learn.microsoft.com/en-us/power-bi/

4.7. Basics of Cyber Security

Description of [learning unit title]
This cybersecurity module covers fundamental principles of cybersecurity, provides an overview of internet threats, and explores various types of viruses and cyber attacks. Participants will learn strategies for threat prevention, the importance of strong passwords and backups, and where to seek help in case of security incidents.
Related Programme Learning Outcome(s)
12 - Cyber and Data Security (EQF 6)
Unit learning outcomes
• Identifies a variety of cybersecurity threats and vulnerabilities • Implements key cybersecurity measures
Delivery method(s)
• Lecture • Practical Exercises
Materials
Presentation

4.8. Data analytics and AI trends

Description of [learning unit title]
This module explores the latest trends in data analytics and AI. The module provides insights into how AI is transforming data analytics and offers a glimpse into the future advancements in the field.
Related Programme Learning Outcome(s)
6 - Big Data & Data Analytics (EQF 6) 9 - AI Futures and Innovation (EQF 6)
Unit learning outcomes
• Engages in continuous learning and professional development related to big data • Analyses current AI developments and trends
Delivery method(s)
Presentation
Materials
Presentation (acquired through request)

4.9. GDPR

Description of [learning unit title]
This module covers the essentials of GDPR, including key principles, compliance requirements, and best practices for data management. Participants will also learn about individuals' rights under GDPR and its impact on businesses in the EU.
Related Programme Learning Outcome(s)
8 - AI Ethics (EQF 6)
Unit learning outcomes
• Knowledge of industry-specific laws (national and international)
Delivery method(s)
Presentation
Materials
Presentation

4.10. Case study (final project)

Description of [learning unit title]
The final project allows participants to apply the practices and procedures learned during the course to a given dataset, demonstrating their proficiency in the data analysis process. This hands-on project integrates data collection, cleaning, analysis, and visualization techniques to solve real-world problems.
Related Programme Learning Outcome(s)
6 - Big Data & Data Analytics (EQF 6) 10 - Business Intelligence (EQF 6)
Unit learning outcomes
• Utilizes big data technologies to efficiently process and analyse large volumes of data • Implements data analytics methodologies to derive actionable insights from complex and unstructured datasets • Creates effective data visualizations that clearly communicate analytical findings • Describes the results and implications of data analysis projects to stakeholders • Collaborates with multidisciplinary teams on big data and data analytics projects • Engages in continuous learning and professional development related to big data • Utilizes business intelligence tools and software to collect, process, and analyse large datasets • Interprets complex data sets to identify trends, patterns, and insights that inform business strategies • Designs and implements data visualization techniques to effectively communicate • Evaluates the effectiveness of business intelligence strategies and tools • Explains findings and strategic recommendations based on business intelligence analysis to stakeholders • Collaborates with team members and departments
Delivery method(s)
Individual learning
Materials
Case Study description (acquired through request)

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