COURSE AGENDA

Machine Learning

A professional training programme focused on data-driven decision-making, artificial intelligence and emerging technologies

15 Hours	eLearning	English
Duration	Primary format	Language

Primary format	eLearning course delivered through the digital learning platform
Available on request	Live trainer-led online delivery or in-house classroom training
Contact us	Request a tailored quote for your organisation

About Us

This course is delivered by a team with strong expertise in cybersecurity, digital resilience, emerging technologies and secure digital transformation. Our work is grounded in internationally recognised standards, European regulatory requirements and practical experience supporting organisations operating in complex, regulated and technology-driven environments.

INFOSEC CENTER holds ISO/IEC 27001 certification for information security management and, reflecting a structured and responsible approach to cybersecurity, data protection, governance and AI-enabled technologies. The organisation is also recognised as an **EASA-approved** training provider for specialised aviation cybersecurity training, aligned with European aviation safety and information security requirements.

Our innovation capacity has been recognised through the **Impact Stars distinction** at the **Deloitte Technology Fast 50**, awarded for the innovation delivered by our Machine Learning platform. This reflects our commitment to practical, high-impact technology solutions that combine advanced digital capabilities with real business and societal value.

We are actively connected to European digital innovation networks, including the **European DIGITAL SME Alliance** and the **BSC AI Factory Incubation Program**, contributing to secure, competitive and responsible digital transformation across Europe.

Our broader innovation platform, **FACTORY X.0**, supports the secure transformation of industrial and digital ecosystems by integrating cybersecurity, automation, artificial intelligence, industrial digitalisation and advanced technology adoption, with a focus on resilience, compliance and sustainable innovation.

We support organisations in understanding cyber risk, strengthening digital infrastructure, improving governance, preparing for regulatory compliance and building a stronger security culture across aviation, industry, education, public services and digital business.

Why This Course Matters

Machine Learning has become one of the most influential technologies shaping modern organisations. From predictive analytics and intelligent automation to recommendation systems and advanced decision support, machine learning enables organisations to extract value from data and transform how they operate.

As businesses generate increasing volumes of information, the ability to identify patterns, predict outcomes and support strategic decisions through data has become a critical capability. Organisations across industries are using machine learning to improve operational efficiency, optimise resources, reduce risk, personalise customer experiences and create innovative products and services.

However, successful adoption of machine learning requires more than technical implementation. Professionals must understand how machine learning models are developed, evaluated, governed and deployed responsibly. They must also be aware of the challenges associated with data quality, model bias, explainability, cybersecurity and regulatory compliance.

This course addresses these needs by providing learners with a structured understanding of machine learning concepts, algorithms, practical applications and governance considerations. It combines technical foundations with real-world business contexts, enabling participants to understand both the opportunities and responsibilities associated with machine learning adoption.

Participants will leave this course equipped to:

- Understand the core concepts, terminology and methodologies of machine learning
- Distinguish between supervised, unsupervised and reinforcement learning approaches
- Understand how machine learning models are trained, validated and improved
- Recognise the importance of data quality, model governance and responsible AI practices
- Identify practical machine learning opportunities across organisational environments

Course Overview

Course Title	Machine Learning
Total Duration	15 Hours
Primary Delivery Format	eLearning course delivered through the digital learning platform
Optional Delivery Formats	Available on request as live trainer-led online delivery or in-house classroom training
Target Audience	Professionals, managers, analysts, technical specialists, innovation teams and decision-makers seeking to understand and apply machine learning within organisational environments
Prerequisites	No advanced programming knowledge required; basic digital literacy and a general understanding of data-driven decision-making are recommended
Language	English

Planning & Delivery Options

The standard version of this programme is structured as an eLearning course, allowing participants to progress through the agenda in a flexible and accessible format. This option is suitable for organisations that need scalable delivery, consistent learning materials and clear assessment through the digital platform.

At the client's request, the same course agenda can also be delivered with a live trainer, either online or in an in-house classroom format. These options are recommended when the organisation wants direct interaction with the trainer, applied discussions based on internal workflows or a more guided learning experience.

For organisational enrolment, adapted delivery or group implementation, please request a tailored quote.

Learning Approach

The learning approach is built on four pillars:

01 Conceptual Clarity

Each module introduces the fundamental concepts, terminology and methodologies required to understand machine learning before progressing to practical applications and real-world scenarios.

02 Applied Learning

Case studies, business examples and practical demonstrations help learners connect machine learning theory with organisational challenges and decision-making processes.

03 Security & Governance Integration

Data protection, cybersecurity, explainability, bias mitigation and responsible AI principles are integrated throughout the programme to support trustworthy machine learning adoption.

04 Progressive Assessment

Each module includes a knowledge check through the eLearning platform. A final comprehensive assessment consolidates learning across all modules and validates understanding of key concepts and applications.

Detailed Course Agenda

Module 01 Introduction & Foundations of Machine Learning

Learning Objectives

- Develop a clear understanding of machine learning and its relationship to artificial intelligence and data science.
- Explore the historical evolution and current role of machine learning in digital transformation.
- Understand the major categories of machine learning, including supervised, unsupervised, semi-supervised and reinforcement learning.
- Examine fundamental concepts such as training data, features, labels, model performance, bias, variance, optimisation and regularisation.
- Identify common machine learning applications across business, industry, healthcare, finance and public services.
- Understand the benefits, limitations and organisational challenges associated with machine learning adoption.

Tools & Methodology

eLearning modules, optional live trainer-led sessions.

Assessment: Knowledge test via the eLearning platform.

Module 02 Supervised Learning Algorithms & Predictive Modelling

Learning Objectives

- Understand the principles and objectives of supervised learning.
- Explore classification and regression approaches and their practical applications.
- Examine widely used algorithms including Linear Regression, Logistic Regression, Decision Trees, Random Forests, Support Vector Machines and K-Nearest Neighbours.
- Understand how datasets are prepared, structured and used for model training.

- Understand hyperparameter tuning, model optimisation and validation techniques.
- Assess the strengths and limitations of different supervised learning approaches.

Tools & Methodology

eLearning modules, optional live trainer-led sessions, case studies.

Assessment: Knowledge test via the eLearning platform.

Module 03 Unsupervised Learning & Pattern Discovery

Learning Objectives

- Understand the purpose and value of unsupervised learning.
- Explore clustering techniques and their use in identifying patterns and structures within datasets.
- Examine K-Means clustering, DBSCAN and other common clustering methodologies.
- Explore anomaly detection and outlier identification methods.
- Evaluate business applications of unsupervised learning, including customer segmentation, behavioural analysis and operational optimisation.
- Understand the challenges of interpreting and validating unsupervised learning results.

Tools & Methodology

eLearning modules, optional live trainer-led sessions, case studies.

Assessment: Knowledge test via the eLearning platform.

Module 04 Neural Networks, Deep Learning & Reinforcement Learning

Learning Objectives

- Understand the structure and operation of artificial neural networks.
- Explore core concepts including neurons, layers, activation functions and backpropagation.
- Examine common neural network architectures, including Deep Neural Networks (DNNs), Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs).
- Understand the principles of deep learning and its role in advanced machine learning applications.
- Explore the foundations of reinforcement learning and decision-making systems.
- Review practical applications such as computer vision, natural language processing, recommendation systems and autonomous systems.
- Understand the computational, operational and governance challenges associated with advanced machine learning models.

Tools & Methodology

eLearning modules, optional live trainer-led sessions, case studies.

Assessment: Knowledge test via the eLearning platform.

Module 05 Governance, Security & Responsible Adoption

Learning Objectives

- Explore how machine learning can support organisational performance, innovation and strategic decision-making.
- Understand the importance of data quality, data governance and lifecycle management.
- Examine cybersecurity considerations relevant to machine learning systems and data pipelines.

- Understand the risks associated with biased datasets, unfair outcomes and model misuse.
- Explore explainability, transparency and accountability requirements for machine learning systems.
- Review ethical, legal and regulatory considerations affecting machine learning deployment within European and international contexts.
- Develop a framework for evaluating machine learning opportunities responsibly within organisational environments.

Tools & Methodology

eLearning modules, optional live trainer-led sessions, case studies.

Assessment: Knowledge test via the eLearning platform.

Module 06 Course Closing & Consolidation

Learning Objectives

- Consolidate understanding across all five modules through a structured review of machine learning concepts, methodologies and applications.
- Revisit key algorithm families, governance principles and implementation considerations.
- Prepare for the final assessment through integrated review activities.
- Reflect on the opportunities, limitations and future evolution of machine learning technologies.

Tools & Methodology

Final online assessment, optional trainer review session, individual feedback where applicable.

Assessment & Certification

Assessment in this course is continuous, formative and cumulative. Rather than relying on a single high-stakes examination, the programme uses a layered approach that supports learning throughout and ensures that the final certification reflects a genuine command of the material.

Assessment Type	Description
Module Knowledge Checks	Each module is followed by a knowledge test delivered through the eLearning platform. These tests reinforce learning at the point of completion and allow learners to identify any gaps before progressing.
Final Assessment	A comprehensive online test covering all modules is completed at the end of the course. This assessment evaluates the learner's overall understanding and ability to apply key concepts across the programme.
Trainer Feedback	When trainer-led delivery is requested, live session interactions and final assessment performance can be reviewed by the course trainer, who provides structured feedback to support ongoing professional development.
Certificate of Completion	Participants who successfully complete the course and final assessment may receive a certificate of completion issued by INFOSEC CENTER, confirming participation and successful completion of the training programme.

Closing Note

Machine Learning is no longer a specialised capability reserved for research environments. It has become a strategic enabler of innovation, efficiency and data-driven decision-making across virtually every sector.

The organisations that derive the greatest value from machine learning are those that combine technical capability with strong governance, quality data and responsible implementation practices. Understanding how models are developed is important, but understanding their limitations, risks and organisational impact is equally critical.

This course has been designed with that perspective at its core. It aims to prepare learners not only to understand machine learning technologies, but also to evaluate, govern and apply them responsibly within modern digital environments.

We hope this programme supports your development as a confident, capable and responsible professional in an increasingly data-driven world. The knowledge and perspective developed throughout this course will remain valuable as machine learning continues to evolve and shape the future of work, business and innovation.

We wish you a productive and insightful learning experience.

Primary format: eLearning course

Live trainer-led and in-house delivery available on request

Request a quote: contact@edkore.com