Luthando Skills & Training

P. O. Box 4941
Randburg 2125
Tel: + 27 87 808 2509
Cell:+ 27 73 882 2609
Email: info@luthandoskills.co.za

An Intensive 3-day Training Course

Artificial Intelligence and Machine Learning

Unlocking the Potential: Artificial Intelligence and Machine Learning Essentials

Classroom sessions

Date	Venue	Fees
25-27 June 2025	Sandton	R 8,999

INTRODUCTION

Artificial intelligence (AI) and machine learning (ML) have become pivotal in today's rapidly evolving digital landscape, reshaping industries, businesses, and daily routines. This training course aims to provide a comprehensive understanding of the core concepts, principles, and applications of AI and ML. Whether you're an experienced professional looking to deepen your expertise or a novice eager to explore these technologies, this training offers the foundational knowledge and practical skills necessary to navigate the dynamic realm of AI and ML. Prepare to embark on a journey of discovery and innovation as we delve into the intricacies of these technologies and uncover their potential to drive innovation, boost productivity, and shape the future. Let's dive in together and unleash the power of AI and ML!

This Artificial Intelligence and Machine Learning training course will highlight:

- Essential Concepts of AI and ML
- Core Principles and Algorithms
- Data Preprocessing and Feature Engineering
- Model Evaluation and Validation
- Real-world Applications of AI and ML
- Ethical Considerations in AI
- Future Trends and Innovations
- Challenges and Opportunities

TRAINING OBJECTIVES

The objectives of the "Artificial Intelligence and Machine Learning" training course are designed to provide participants with a comprehensive understanding of AI and ML concepts, techniques, and applications.

 At the end of this training course, you will learn to:

- Understanding the Fundamentals of AI and ML
- Exploring Core Concepts and Algorithms
- Mastering Data Preprocessing and Feature Engineering Techniques
- Evaluating and Optimizing Models
- Applying AI and ML in Real-World Scenarios
- Addressing Ethical Concerns in AI
- Exploring Future Trends and Innovations
- Identifying Challenges and Opportunities

TRAINING METHODOLOGY

The training methodology integrates various approaches to facilitate deep understanding and practical proficiency in AI and ML. Through interactive lectures, hands-on coding labs, real-world case studies, and group discussions, participants will immerse themselves in a dynamic learning environment. Hands-on coding labs enable the application of theoretical concepts using popular programming languages and tools, while real-world case studies provide insights into AI and ML applications across diverse industries. Group discussions and brainstorming sessions encourage collaboration and knowledge sharing, fostering innovative solutions to AI and ML challenges. Interactive demos and simulations enhance learning by visualizing complex concepts in an engaging manner. Throughout the training course, practical projects and assessments allow participants to demonstrate their skills and receive personalized feedback, empowering them to confidently apply AI and ML fundamentals in real-world scenarios.

Organisational Impact

The Artificial Intelligence and Machine Learning training course is designed to have a significant organizational impact by equipping participants with the knowledge, skills, and mindset necessary to drive successful digital transformation initiatives. The organization stands to benefit from enhanced digital literacy, alignment with business objectives, improved innovation and agility, optimized operations and processes, enhanced customer experiences, an empowered workforce, strategic decision-making, and a competitive advantage.

 The Organisation will have the following benefits;

- Enhanced Digital Literacy
- Alignment with Business Objectives
- Improved Innovation and Agility
- Optimized Operations and Processes
- Enhanced Customer Experiences
- Empowered Workforce
- Strategic Decision-Making
- Competitive Advantage

Personal Impact

On a personal level, participants will gain enhanced innovation and competitiveness by leveraging AI and ML expertise, improved decision-making through data-driven insights, optimized operations and processes through automation, enhanced customer experiences through personalization, accelerated innovation cycles through democratizing AI and ML knowledge, talent development and retention through upskilling, risk

mitigation and compliance through ethical considerations, strategic growth and adaptability by harnessing the power of AI and ML, and a sense of fulfillment through contributing to digital transformation efforts

At the end of this training course, the participants will gain the following;

- Enhanced Innovation and Competitiveness: By empowering employees with AI and ML expertise, organizations can foster a culture of innovation and drive competitive advantage.
- Improved Decision-Making: AI and ML enable data-driven decision-making by analyzing large volumes of data and extracting valuable insights.
- Optimized Operations and Processes: AI and ML technologies can automate repetitive tasks, optimize processes, and streamline operations.
- Enhanced Customer Experiences: AI and ML enable organizations to personalize customer interactions, anticipate needs, and deliver tailored experiences.
- Accelerated Innovation Cycles: By democratizing AI and ML knowledge within the organization, training participants can accelerate the pace of innovation.
- Talent Development and Retention: Investing in AI and ML training demonstrates a commitment to employee development and upskilling.
- Risk Mitigation and Compliance: Participants learn about ethical considerations and responsible AI practices, mitigating the risks associated with AI and ML implementation.
- Strategic Growth and Adaptability: By harnessing the power of AI and ML, organizations can adapt to changing market dynamics, identify new revenue streams, and capitalize on emerging opportunities. Sense of Fulfillment: As participants contribute to digital transformation efforts within their organizations and witness the positive impact of their contributions, they experience a sense of fulfillment and satisfaction in making a meaningful difference.

WHO SHOULD ATTEND?

The "Artificial Intelligence and Machine Learning" training course is designed for professionals across various roles and industries who are eager to deepen their understanding of AI and ML and harness their transformative potential.

This Artificial Intelligence and Machine Learning training course is suitable to a wide range of professionals but will greatly benefit:

- Data Scientists and Analysts
- Software Developers and Engineers
- Business Analysts and Consultants
- Product Managers and Innovators
- Executives and Decision-Makers
- Entrepreneurs and Start-up Founders.
- Academic Researchers and Students
- Professionals Seeking Career Advancement

SEMINAR OUTLINE

Day 1

AI and ML Introduction:

- Defining AI and Its Scope
- Historical Background and Key Achievements
- Foundational Concepts and Terminologies
- Varieties of Machine Learning: Supervised, Unsupervised, Reinforcement
- Fundamentals of Python Programming
- Getting Started with NumPy and Pandas Libraries
- Preparing and Refining Data
- Conducting Exploratory Data Analysis (EDA)

Supervised Learning:

- Comprehending Linear Regression
- Training and Assessing Models
- Introduction to Classification Techniques
- Exploring the Logistic Regression Algorithm
- Understanding Decision Trees
- Delving into Random Forest and Gradient Boosting Algorithms

Day 2

Unsupervised Learning:

- Exploring K-Means Clustering
- Understanding Hierarchical Clustering
- Techniques for Dimensionality Reduction
- Introduction to Principal Component Analysis (PCA)
- Exploring t-Distributed Stochastic Neighbor Embedding (t-SNE)

Advanced Topics in Machine Learning:

- Fundamentals of Artificial Neural Networks (ANN)
- Activation Functions and Backpropagation Techniques
- Introduction to Convolutional Neural Networks (CNN)
- Understanding Recurrent Neural Networks (RNN)
- Preprocessing of Text Data
- Performing Sentiment Analysis and Text Classification

Day 3

Practical Applications and Future Trends:

- Getting Started with Reinforcement Learning
- Exploring Q-Learning and Deep Q-Networks (DQN)
- Applications in Healthcare, Finance, Marketing, Autonomous Vehicles, etc.
- Analyzing Case Studies and Success Stories
- Addressing Ethical Concerns in AI and ML
- Exploring Emerging Trends and Future Directions