# Exploring AI & Machine Learning for the Enterprise (TTML5502) Training

Duration: **2 Day**

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## Overview

**Explore AI & Machine Learning Basics, How they Apply in Today's Business Enterprise, New Tools, Trends & More**

**Exploring AI & Machine Learning for the Enterprise** (with Light Hands-on) is a basic, primer-level course designed to provide you with a solid 'first-look' at essential AI and machine learning technologies, related cutting-edge skills, and the innovative tools that support them, with a focus on how they are applied in business in a practical way. These transformative technologies offer paths to enhance decision-making, quickly modernize and improve operational efficiency, and drive innovation within your organization.

Our engaging AI practitioner will guide you through useful lectures, valuable demonstrations and group discussions, along with light-hands-on activities working with some of the core skills and tools. Throughout the course, you'll learn what AI is and isn't, differentiating between AI, Machine Learning and Deep Learning, and what's happening with trending Large Language Model use. You'll also examine processing language, images, and audio with AI. No deep math skills required. We'll also touch on hot topics and trends in AI, NLP, Neural Networks, Generative AI, GPT, and a preview of what's next for AI in the business context.

You'll exit the class with a high-level understanding of these technologies to a conversant level, able to move forward to engage in related discussions and participate in strategic decisions around AI and Machine Learning implementations, as well as ready to springboard into next-level learning programs in these areas.

**Who Should Attend?**

This course is ideally suited for a wide variety of technical learners just getting started with AI or machine Learning, seeking a primer-level overview of these technologies, skills and related tools. Attendees might include:

- Developers aspiring to be a 'Data Scientist' or Machine Learning engineers
- Analytics Managers who are leading a team of analysts
- Business Analysts who want to understand data science techniques
- Information Architects who want to gain expertise in Machine Learning algorithms
- Analytics professionals who want to work in machine learning or artificial intelligence
- Graduates looking to build a career in Data Science and machine learning
- Experienced professionals who would like to harness machine learning in their fields to get more insight about customers

## Prerequisites

Students attending this class should have a grounding in Enterprise computing. While there's no particular class to offer as a prerequisite, students attending this course should be from a somewhat

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technical background, and familiar with Enterprise IT, have a general (high-level) understanding of systems architecture, as well as some knowledge of the business drivers that might be able to take advantage of applying AI.

Basic knowledge of Python scripting is also helpful but not required. The hands-on labs in this course may leverage some basic Python scripts as needed, but the labs can be completed in a 'follow-along' format, under the guidance of the instructor. Prior experience with Python can be helpful but is not necessary.

## What You Will Learn

Throughout the course you'll:

- Gain a clear introduction to the exciting world of AI and Machine Learning, along with current trends and tools, enabling you to participate confidently in strategic discussions and help to make informed decisions.
- Get a hands-on introduction to a few user-friendly tools and skills offering you a taste of the practical side of AI and Machine Learning.
- Explore the practical business applications of AI and Machine Learning in an everyday context, and the potential influence of these technologies on your organization.
- Learn the basics about algorithms, NLP, Neural Networks, GPT, Generative AI and other innovative tools, and how
- Explore how AI plays a pivotal role in processing language, images, and audio
- Learn how organizations maximize use of these technologies to their benefit to improve processes and maximize efficiencies

If your team requires different topics, additional skills or a custom approach, our team will collaborate with you to adjust the course to focus on your specific learning objectives and goals.

## Outline

1. **Introduction to AI & Machine Learning**
   - Understand what AI and Machine Learning are and why they're critical for modern business
   - Exploring definitions and types of AI
   - Discussing AI in the Modern Age and its role in business
   - Embrace Change: Learn and Build Confidence using the Tools - Don't be Replaced By Them
2. **Deeper Dive into Machine Learning**
   - Basics of how mathematics are used in or apply to AI
   - Algorithms: What are they and how are they used in AI and ML
   - Supervised vs Unsupervised
   - Classification, Regression, Clustering, Dimensionality Reduction, and Ensemble Methods
   - The role of Machine Learning in AI and business decision-making
   - Review a real business scenario where Machine Learning was used to increase efficiency.
3. **Leveraging AI in Business & Decision Making**
   - Discussing key business areas where AI adds value: Operations, Marketing, Sales, HR, content development, coding and software development

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- Explore how AI is used in business decision-making
- Introduction to predictive analytics
- Using AI for strategic decision-making

4. **Hot Trends for AI in Business: Large Language Models (LLM), Generative AI and GPT**
   - Understand the basics of Generative AI and how it differs from other AI techniques
   - Introduction to GPT and its applications in various sectors
   - Explore how GPT uses machine learning to generate human-like text based on the input it receives.
   - Understand the concept of language models and how they are trained using large amounts of text data
5. **Basics of Neural Networks**
   - What are they and how are they used?
   - Basic parts: Neurons, activation functions, interactions.
   - Types: Feedforward, recurrent, convolutional neural networks overview.
   - How they learn: Forward propagation, backpropagation explained.
   - Training Neural Networks: Importance of data preprocessing in training.
   - Deep Neural Networks: Advantages and practical applications overview.
   - In Action: Image recognition, language processing, etc. use cases.
   - Ethical Considerations: Addressing biases and ethical concerns in neural networks.
6. **Natural Language Processing (NLP) & Sentiment Analysis**
   - What is NLP and how is it used?
   - NLP Language and Semantic Meaning, Bigrams, Trigrams, n-Grams, Root Stemming and Branching
   - Introduction to Sentiment Analysis: Sentiment indicators, Sentiment Sampling, Predicting Elections based on Sentiment Analysis
7. **Using AI for Image, Video, and Audio Processing**
   - Learn about Image processing and Identification, Facial Analysis, Audio Processing
   - Discuss the role of AI in analyzing streaming video and real-world AV processing
8. **AI for Business Technical Tools: Data Science, Deep Learning & The Cloud**
   - Applying AI in Data Science overview
   - Tools: Python, NumPy, Pandas, SciKitLearn, Hadoop, Spark
   - NoSQL Databases
   - Deep Learning overview
   - AI for Business in the Cloud overview
9. **Practical Applications and the Future of AI in Business**
   - What's next in applied AI for businesses
   - New AI trends shaping the future of business
   - Ethical considerations when implementing AI
10. **Next-Steps**
    - Hands-on Practice
    - Resources
    - AI & ML Communities