Certificate Program in Artificial Intelligence and Machine Learning (AIML)
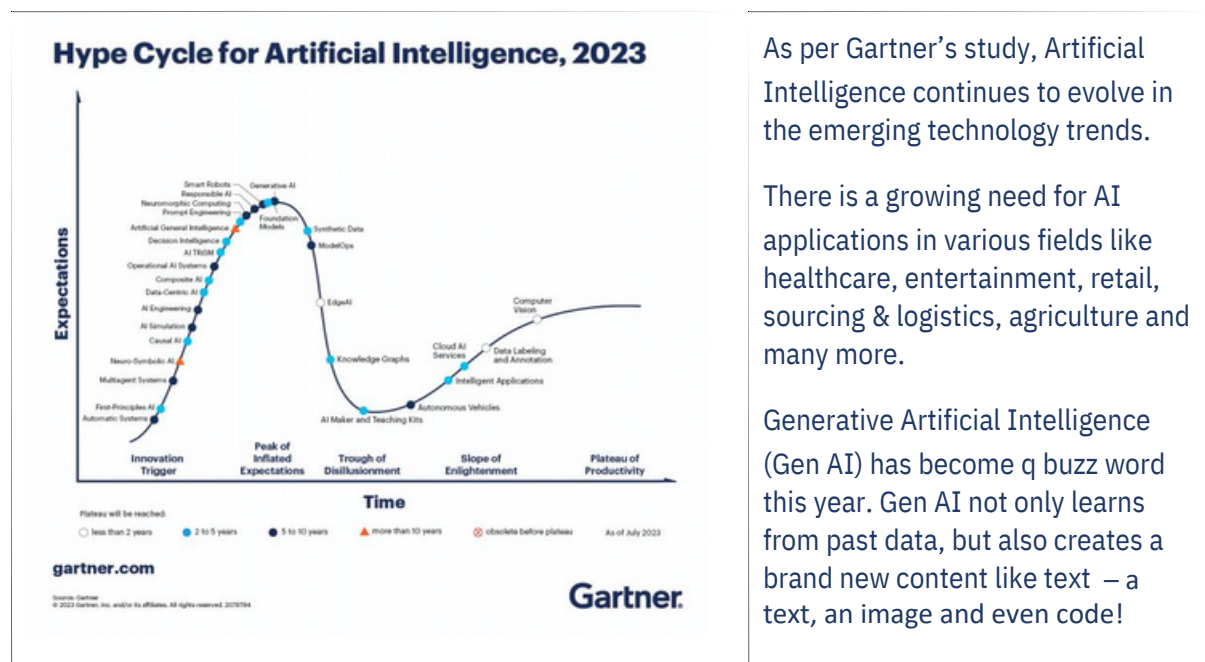
Course Code: CP-AIML-I24

Duration: 16 weekends

Mode: In-Class and Virtual (Weekends)

Why Artificial Intelligence and Machine Learning?

According to Forbes, it is predicted that 97 million jobs involving AI will be created between 2022 and 2025. However, there is a shortage of employees with the required skills in this area.

As per Gartner's study, Artificial Intelligence continues to evolve in the emerging technology trends.

There is a growing need for AI applications in various fields like healthcare, entertainment, retail, sourcing & logistics, agriculture and many more.

Generative Artificial Intelligence (Gen AI) has become q buzz word this year. Gen AI not only learns from past data, but also creates a brand new content like text — a text, an image and even code!

Who can join this course?

- Students pursuing their engineering degree with some skills in any one of the programming languages.

- Working professionals who want to upskill themselves in the emerging technologies to be future ready.

What does this course cover?

The course has seven modules, including a curated list of capstone projects. The details:

Module 1: Foundation (2 weekends - 12 hrs)

1.1 Introduction to Data Science

1.2 Fundamentals of statistics

1.3 Python Programming

- Installation
- Input and Output
- Variables
- Type Conversions
- Basic Math Operations
- Basic Boolean Operations
- String Operations
- Control Flows
- Iterables (List, Tuple, Dictionary, Set)
- Numpy
- Matplotlib
- Pandas
- Dataframes

1.4 Exploratory Data Analysis

- Outlier Detection
- Label encoding
- Standardization
- Normalization

Module 2: Machine Learning (3 weekends – 18 hrs)

2.1 Supervised Learning

•Linear Regression
•Logistic Regression
•Naïve Based Algorithm
•Ensembled Techniques and Decision Trees
•Support Vector Machines

2.2 Un-Supervised Learning

•Clustering Techniques
•Principal Component Analysis (PCA)
        •Model Performance and Hyper Parameter Tuning

Hackathon 1 (1 weekend – 6 hrs)

Module 3: Workshop on Data Visualization (16 hours)

- Microsoft   Power
- BI Tableau

Module 4: Deep Learning (6 hrs)

- Introduction to Convolution Neural Networks
- Pre-Trained Models
- Transfer Learning

Module 5: Computer Vision (2 weekends – 12 hrs)

- Semantic Segmentation
- Image Classification
- Object Detection
- Face Detection and Face Recognition

Hackathon 2 (1 weekend – 6 hrs)

Module 6: Natural Language Processing (NLP) (2 weekends – 12 hrs)

- Text Extraction
- Convert unstructured text into structured text
- Text Classification
- Topic Modelling
- Entity Resolution

Module 7: Generative AI Foundation(1 weekend – 6 hrs)

- Transformers Architecture
- Introduction Language Models
- Introduction to Large Language Models

Hackathon 3 (1 weekend – 6 hrs)

Capstone Project

- Curated List of projects will be provided