

# **Emerging Technologies**

## **Machine Learning & AI Engineer**

### **Curriculum**

#### **Program Outline :**

##### **Module 1: Fundamentals of Machine Learning & AI**

- 1. Introduction to Machine Learning & AI**
  - Core principles, tools, and industry applications.
- 2. Basics of Machine Learning Algorithms**
  - Supervised and unsupervised learning fundamentals.
- 3. Introduction to AI Concepts**
  - Overview of intelligent agents, NLP, computer vision.
- 4. Python Programming for ML & AI**
  - Python syntax, data handling, and essential libraries.

##### **Module 2: Advanced Analytical Tools**

- 5. Advanced Machine Learning Techniques**
  - Deep learning, reinforcement learning, AI analytics.
- 6. Data Visualization for AI**
  - Creating interactive visualizations and dashboards.
- 7. AI Ethics and Privacy**
  - Ethical considerations, privacy laws, compliance strategies.
- 8. Intermediate Python for AI**

- Using advanced libraries for AI development.

### **Module 3: Practical Applications**

#### **9. Data Cleaning and Preprocessing**

- Techniques for ensuring data quality and reliability.

#### **10. Exploratory Data Analysis (EDA) for AI**

- Analyzing data distributions, identifying patterns.

#### **11. Advanced Data Integration Techniques**

- Integrating data from multiple sources.

#### **12. Building AI Models**

- Implementing and optimizing AI models.

### **Module 4: Capstone Project**

#### **13. Integration of Learned Skills**

- Apply tools and techniques to real-world AI problems.

#### **14. Advanced Natural Language Processing (NLP)**

- Text analysis, sentiment analysis, topic modeling.

#### **15. Computer Vision Techniques**

- Object detection, image classification, deep learning for CV.

#### **16. AI for Robotics**

- Building and programming intelligent robotic systems.

### **Elective Modules**

#### **17. Predictive Analytics with AI**

- Building and validating predictive AI models.

#### **18. AI in Healthcare**

- Applying AI techniques to healthcare data and problems.

#### **19. AI for Finance**

- Implementing AI solutions in financial services.

#### **20. Big Data Technologies for AI**

- Using Hadoop and Spark for large-scale AI applications.

#### **21. AI-Driven Decision Making**

- Using AI to inform and drive business strategies.

#### **22. Cloud AI Solutions**

- Deploying AI models and services on cloud platforms.

#### **23. AI Project Management**

- Leading AI projects, ensuring successful delivery.

#### **24. Reinforcement Learning Applications**

- Advanced techniques and applications of reinforcement learning.

#### **25. AI for Natural Language Processing (NLP)**

- Advanced text analytics and processing techniques.

#### **Websites:**

- <https://chools.in/>
- <https://ramaqchools.com/>
- <https://www.choolsgroup.com/>