CERTIFICATE IN ARTIFICIAL INTELLIGENCE

DURATION: 120 Hours

TOTAL CREDITS: 4

COURSE SYLLABUS

Objective

Artificial Intelligence provides a comprehensive introduction to AI concepts, including machine learning, deep learning, and natural language processing, with hands-on experience using industry-standard tools. By the end of the course, participants will be equipped to develop and implement AI solutions across various domains.

Exit Profile

- Knowledge in Machine Learning
- Knowledge in Deep Learning
- Knowledge in NLP
- Knowledge in Python Programming with AI

Career Path

- AI Engineer
- Machine Learning Engineer
- Data Scientist
- Computer Vision Engineer
- NLP Scientist

Course Outline

Course Name:	Certificate in Artificial Intelligence	Duration:	120 H
Module	Topic	Duration	Total Duration
Module 1	Introduction to AI and Python Programming	10 H	59 H
	Machine Learning and its Applications	20 H	
	Deep Learning and Neural Networks	29 H	
Module 2	Advanced Deep Learning Applications	10 H	59 H
	Computer Vision with OpenCV	25 H	
	Natural Language Processing	24 H	
Module 3	AI Ethics and Responsible AI	2 H	2 H

Course In Detail

Module 1:

INTRODUCTION TO AI AND PYTHON PROGRAMMING
- Overview of AI
- Creating a basic AI application (Chatbot using DialogFlow)
- Installing Python & libraries
- Basics of Python programming for AI.
- Project Work: Chatbot using DialogFlow

MACHINE LEARNING AND ITS APPLICATIONS
- Introduction to Machine Learning
- Installing ML libraries
- Evaluating and deploying various ML models
- Fake news detection
- AIsnake game design
- Project Work: Fake News Detection using ML

DEEP LEARNING AND NEURAL NETWORKS
- Introduction to Deep Learning
- Installing DL libraries
- Designing your first Neural Network
- Object recognition from pre-trained model
- Image and character recognition using Convolutional Neural Network, hand gesture
- Project Work: Leaf Disease Detection using CNN

Module 2:

ADVANCED DEEP LEARNING APPLICATIONS
- Labelreading using Optical Character Recognition
- Smart attendance system
- Vehicle detection
- License plate recognition
- Drowsiness detection
- Road sign recognition
- Project Work: Smart Attendance System using DL

COMPUTER VISION WITH OPENCV
- Introduction to Computer Vision
- Installing computer vision libraries,
- Object detection and tracking
- Face detection, tracking, and recognition
- Emotion recognition using 68-Landmark Predictor
- Project Work: Real-time Face Emotion Recognition

NATURAL LANGUAGE PROCESSING
- Introduction to NLP & its terminology
- Installing NLP Libraries NLTK
- Title formation from the paragraph design
- Speech emotion analysis
- Project Work: Speech Emotion Analysis using NLP

Module 3:

AI ETHICS AND RESPONSIBLE AI
- Introduction to AI Ethics
- Understanding the impact of AI
- Principles of responsible AI
- Case studies
- Project Work: Case Study Presentation