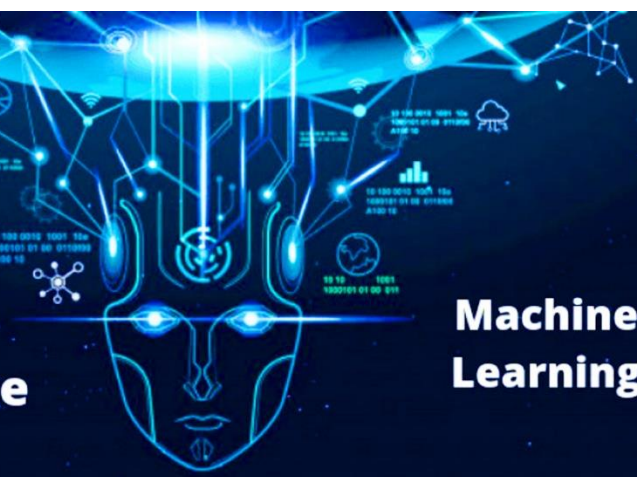




CHRIST
COLLEGE (AUTONOMOUS)
IRINJALAKUDA, KERALA
Reaccredited by NAAC with 'A' grade

**Artificial
Intelligence**

**Machine
Learning**



DEPARTMENT OF PHYSICS CERTIFICATE COURSE DETAILS

NAME OF THE COURSE

Artificial Intelligence and
Machine Learning

COURSE CODE

CPCC26

OFFERED BY

Department of Physics

COURSE COORDINATOR

Dr. Xavier Joseph
Department of Physics

PARTNERSHIP WITH

Artificial Intelligence
Research and Intelligent
Systems-airis4D,
Thellicoer 689544

COURSE DETAILS

Course details 30 hours of tutorials with 30 assignments and one project. . The lectures are followed by assignments that carry one credit each. Project will have 2 bonus credits A candidate require a minimum of 25 credits to get the course certificate. Four Level certification- Platinum, Gold, Silver and Bronze. Platinum and Gold certificate holders can have walk-in entry for the diploma course in AI at airis-4D

ABOUT COLLEGE

Chirst College (Autonomous), Irinjalakuda established in the year 1956 by CMI fathers has always been a place where young generations are moulded towards a bright future. College has excellent infrastructure, with state of the art laboratories, seminar rooms and lecture halls. The campus is Wi-Fi enabled. Presently Collge is house for 4500+ students, 200 teaching staff and 45 supporting staff. The strength of the College lies in its hardworking and tech savvy teachers who are eager to involve in all matters of students. The lush green campus with gardens and open gym is moving towards the next phase on education both offline and online.

WHAT IS THE COURSE?

Python language is the most widely used language in computer science. Starting from basics to advanced python, covering numpy, pandas, matplotlib, scikit-learn and several machine learning and AI algorithms from perceptron, back propagation, support vector machines etc along with practical examples are taught in the course.



SCOPE OF THE COURSE

1. Become an expert in Python Language
2. Learn to use machine learning algorithms.
3. Help to start a career in AI

LEARNING OUTCOMES

1. Designing and writing AI and ML programs in Python for scientific and commercial applications
2. Master the techniques for data validation.
3. Become experts in noise filtering and visualisation.

COURSE OUTLINE

Starting from basics to advanced python, covering numpy, pandas, matplotlib, scikit-learn and several machine learning and AI algorithms from perceptron, back propagation, support vector machines etc along with practical examples are taught in the course. There will be 30 hours of tutorials with 30 assignments and one project.

All software required for the course will be included in the course material that may be freely downloaded. Participants may need access to a computer of minimum 4GB RAM and 500GB storage for installing and doing the assignments.

COURSE MODULES

Module I: Python the modern Computational Language

Introduction to Python - Jupyter Notebook - simple mathematical operations - functions - loops and structures - pythonic programming - arrays - dictionaries - lists **5 hrs + 5 assignments**

Introduction to NumPy - data types in python - numpy arrays - array indexing - array slicing - reshaping arrays - joining and splitting arrays - overcoming the limitations of loops - timeit - Functions - Aggregations - math operations on arrays - broadcasting - sorting arrays **5 hrs + 5 assignments**

Module II : Data storage and Visualisation

Introduction to Pandas - Pandas Series Object - Pandas Dataframe - Pandas Index - Data Selection - Missing Data Management - Null Values - Concat and Append - Merge and Join **5 hrs + 5 assignments**

Matplotlib - plots - colours - styles - scatter plots - error bars - density and contour plots - histograms - subplots - imshow **5 hrs + 5 assignments**

Module III : Machine Learning and AI

What is Machine Learning - Categories of Machine Learning - Scikit Learn - Data representation in scikit learn - Basic ideas of Clustering - Perceptron - Backpropagation Algorithm - Classification - Regression - Exploring MNIST data **5 hrs + 5 assignments**

Hyper parameters and Model Validation - Feature Engineering - K- Means Clustering - Naive Bayes Classifier - Linear Regression - Support Vector Machines - Decision Trees and Random Forests

5 hrs + 5 assignments + 1 project

Contact : xavierjm73@gmail.com