



**#Learn\_from\_Home**

# MACHINE LEARNING USING PYTHON

Course Code : LFH/DAML/05

Duration: 15 - 21 days

## Course Syllabus

### INTRODUCTION

This industry oriented course is developed by both the Software development division & Training division of **ipsr solutions limited**. IPSR is a **public limited IT company** with 20 years of expertise in [Software product development](#), [Training services](#), [Placement services](#) & [Digital Marketing services](#). During the past 2 decades, IPSR has trained candidates from **50+ countries** and helped **40000+ candidates** to build their IT career. Our IT services division is a pioneer in development of **Academic solution products**, incorporating cutting edge technologies like Artificial Intelligence, Data Analytics and Machine learning. Live industry experts from this IT division contribute a major role in delivering this course. Our placement division is having **1500+ placement tie-up companies** and we are conducting [recruitment on all days](#).

The Course curriculum is designed and developed by a team of expertise panel lead by following academicians

❑ **Dr. Mendus Jacob, M.Sc., M.Phil., Ph.D., MIOd**

- ❑ M.D & C.E.O - IPSR & Valin Technologies, U.K.
  - ❑ Director - MCA, Marian College, Kuttikkanam (Autonomous)
  - ❑ Former Director of School of Applicable Mathematics, M.G. University. ❑
- Academician and Entrepreneur with 30+ years of experience

❑ **Dr. Sunil Job K.A, M.Sc, M.Ed, M.Phil, Ph.D., RHCE**

- ❑ Chief of Academic Solutions - IPSR
  - ❑ Former college Principal and a Specialist in Data Analytics & Machine Learning ❑
- Blogger and a Resource person for National conferences
- ❑ Academician with 25+ years of experience



## Course Outcome (CO)

While successfully completing this course, the learner will be able to:

- Do data processing and post processing using python
- Do Machine Learning using Python packages.

## What does this course give you?

Skill required to do Data Analytics using Python packages in real world data.

**Prerequisite :** Basic Data Analysis, Python for Data Analytics, Advanced Analytics using Python

## Course content

### What is Machine Learning

- Machine Learning relation with Data Analytics
- What is Prediction
- Need for Prediction Task

### Supervised Learning

- What is Training and Testing?
- Accuracy
- Data splitting as Training and Testing
- Independent Columns and Dependent Target/Label column
- Cross -Validation splitting
- Target Data Imbalance
- Data Sampling



## **Introduction To Github account**

- Creating Github account
- Repository creation, Push Pull, commit using Github onlinetools
- Creating streamlit sharing account
- Requesting for streamlit sharing invite

## **Machine Learning Prediction Algorithms**

### ***Regression***

- Linear Regression
- Parameters
- Mean Absolute Error, MSE, RMSE
- OLS Regression
- Decision Tree Regression
- Random Forest Regression

### ***Classification***

- Decision Boundary
- Logistic Regression
- Hyper Parameters
- Accuracy, AUC, Recall, Precision, F1-score
- Decision Tree (CART)
- Random Forest Classification
- KNN
- Linear SVM
- Radial SVM
- Naïve Bayes



### **Data Processing -code working**

- Data Collection, Task setting as Regression/Prediction
- Separating Data for unseen data prediction
- Data Preprocessing
- Model comparison study
- Selecting Best model
- Tuning Hyperparameters -optimizing for Accuracy measures
- Finalizing model
- Pickling model
- Loading model and testing in new notebook

### **Data Post Processing -code working**

- What is a Webapp?
- Introduction to streamlit
- Streamlit template file for webapp
- Testing webapp in colab with pyngrok hosting

### ***Permanent deployment of tested webapp***

- creating Requirements.txt file
- Uploading project to Github
- Streamlit sharing invite mail for web hosting
- Deployment of webapp

### **Mini Projects**

#### **Recommended Learning Path**

1. Basic Data Analysis -----> Advanced Data Analysis(zero coding)
2. Basic Data Analysis -----> Advanced Data Analysis-----> Python for Data Analytics
3. Basic Data Analysis -----> Python for Data Analytics-----> Advanced Data Analytics using Python
4. Basic Data Analysis-----> Python for Data Analytics----->Advanced Data Analytics using Python -----> Machine Learning



5. Basic Data Analysis-----> Python for Data Analytics----->Advanced Data Analytics using Python ----> Machine Learning -----> AI with Deep Learning

## Contact Us

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We have branches at Kochi, Thiruvananthapuram, Calicut and Bengaluru.