



Indian Institute of Petroleum and Energy

Visakhapatnam

Certificate Course on

Machine Learning - Fundamentals and Applications

Objective of the course

Manufacturing industries are in the process of digitalization of their units and plants. Firms are interested in leveraging the data from the plants to gain insights on plant operations and make informed decisions based on it. The objective of the course is to provide fundamental understanding of data analytics and machine learning techniques for manufacturing and chemical process industries.

Eligibility criteria

- There is no pre-requisite for any particular educational background. However, it is expected that the participants should have basic understanding of mathematical concepts
- Experience in any programming language, preferably python is a plus but not mandatory.

Course fees (INR)

- Students (Bachelors, Masters, PhD scholars): 1500/- + 18% GST per person
- Faculty, Postdoc: 3000/- + 18% GST per person
- Industry Participants: 15000/- + 18% GST per person
- A special 10% discount for a group of 3 to 10 participants
- **Special Scheme for Academia (students, faculty and postdocs):** Free registration for 1 participant with a group of 11 participants (including self) & 10% discount to all 10 participants + letter of appreciation to the institute/department.

Important dates

- Registrations starts on: 05-08-2023.
- Registrations closes on: 22-09-2023.
- Course starting date: 23-09-2023.

Registration Process

Go to <https://www.iipe.ac.in/outreach/CHEMC1.php> and follow the instructions to register and enroll for the course.

Course content and details

- **Course Duration:** 13 weeks
- **Course timings:** 2 hours-Every Saturday (6.00-8.00 P.M.)
- **Delivery mode:** Online (Cisco-WebEx Meetings)

No. of hours	Topic and contents
2	Introduction to Data science, Data analytics, Types of Data and Data analytics
2	Descriptive Statistics: Frequency tables, Bar charts, Univariate and Multivariate Descriptive statistics
2	Linear Algebra: Data matrix, Vectors, Matrices, Rank, Eigen values and Eigen vectors, Singular Value Decomposition
2	Introduction to Machine Learning, Relation between AI, ML and DL, Approaches, Supervised, Unsupervised, classification, Function approximation, Machine Learning Workflow.
2	Supervised Learning-Linear regression
2	Supervised Learning-Logistic regression
2	Unsupervised Learning: Use cases, K-means clustering
2	Interpretability Analysis - SHAP, ALE
2	Introduction to Python, Control structures, Functions, Pandas library, Scikit-learn library.
2	Hands-on Session-Linear regression
2	Hands-on Session-Logistic regression
2	Hands-on Session-K-means clustering
2	Capstone Project: Problem Definition, Description and Ideas to solve, Discussion

Have Questions? Contact us

For any queries on the registration and course related matters contact:

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