

INTERNZONE - INTRODUCTION TO MACHINE LEARNING

The Section Distinguished Lecture Platform ([SDLP](#)) of [IEEE Kerala Section](#) in collaboration with the Student Activities Committee ([IEEE LINK](#)) of IEEE Kerala Section and the IEEE Student Branch, Government Engineering College Palakkad has defined a three-month internship programme on 'Introduction to Machine Learning' for the students of various institutes in Kerala.

About the Programme

Machine learning algorithms are now empowering the world around us. For students in any field who wish to take their career to the next level, this is the right tool to set up a platform for the student.

The programme will provide a good understanding of the core concepts, and will also in identifying and applying standard machine learning techniques suitable for a given problem

The programme on 'Introduction to Machine Learning' is offered as an online program. The programme touches upon the fundamentals theoretical areas in Machine Learning with a blend of industrial applications. Projects and online hands-on sessions are also provided for fruitful learning.

Dates of the programme

10th July 2021 to 01 November 2021

Programme Objectives

- 1 To introduce students to the fundamental concepts of machine learning
- 2 Familiarize students with basic learning algorithms, techniques and their applications
- 3 Enable students to apply machine learning algorithms to solve real-world problems
- 4 To introduce some of the practical applications of machine learning techniques

Course Outcomes

On completion of the course students are expected to:

- 1 Have a good understanding of the core concepts of supervised and unsupervised learning
- 2 Have an understanding of the strengths and weaknesses of several popular machine learning approaches
- 3 Be able to identify and apply standard machine learning techniques suitable for a given problem in their domain

- 4 Be equipped to address some of the key challenges in machine learning such as feature selection, model selection, model complexity, etc.
- 5 Be able to evaluate, interpret and compare the results of various algorithms

Pre-requisites: Nil (Some programming experience would be helpful)

Highlights of the programme

- A rich blend of fundamentals and industrial applications.
- Projects and other hands-on sessions are provided for fruitful learning

About the sessions

Session (40 minutes to 1-hour duration)	Area	Period
1- 15 sessions (one session per week)	Building up the foundations and industrial applications	Three months July to September 2021 (Saturdays)
Group project based on sessions 1-15		
16, 17, 18	One session per week for doubt clearing and discussion	Three weeks time will be given for completing a project in groups
19	Project presentation	Nov. 01, 2021

Mentoring

The students will be made groups of 10 each and each group will be provided with a mentor from the IEEE – Young Professionals group to clarify their doubts while doing their project.

Important dates

10th July 2021 – Inauguration and Orientation programme
24th July 2021 – First session

Registration

Register using the following

<https://www.yepdesk.com/introduction-to-machine-learning>

Course Plan

Session	Topics to be Covered	Resource Person	Month
0	Orientation and a brief introduction about the course		10 th July 2021
1 and 2	Introduction to machine learning Linear regression Regularization	Ms. Shabana K M Research Scholar Computer Science and Engineering IIT Palakkad	First Session starts on 24 th July 2021
3 and 4	Logistic regression k-nearest neighbors classifier Naïve Bayes classifier		July - Sepember 2021
5	Decision tree		
6	Application areas of Machine Learning - Anomaly Detection	Mr. Sibin Sam Development Engineer Siemens Bangalore	
7 and 8	Perceptron Support vector machine (SVM) Bagging and Boosting	Ms. Shabana K M Research Scholar Computer Science and Engineering IIT Palakkad	
9 and 10	Artificial neural network Model selection		
11	k-means clustering		
12	Hierarchical clustering DBSCAN		
13	Principal component analysis (PCA)		
14 and 15	Application areas of Machine Learning - Image Processing	Mr. Sibin Sam Development Engineer Siemens Bangalore	September, 2021
16, 17, 18	Discussion and doubt-clearing session based on the project	Ms. Shabana K M and Faculty/Student Mentors	October 2021 (One session/week)
19	Presentation by groups		01 November 2021