

## MACHINE LEARNING USING PYTHON

### PART I-Machine Learning

Module 1- Foundations of Machine Learning- Types of Machine, Learning algorithms- Choosing the right algorithm- Building machine learning models- Applications of Machine Learning.

Module 2- Introduction to Google Colab- Python libraries- Pandas, Numpy, Sklearn, Seaborn and Matplotlib- Overview of popular Machine Learning datasets- Data preparation-Visualization.

Module 3- Supervised and unsupervised learning- Clustering techniques- K-Means algorithm- Classification techniques- Logistic Regression- Support Vector Machines.

Module 4- Getting started with Artificial Neural Networks- Basic elements of a Neural Network.

### PART II-Deep Learning

Module 1- Deep Learning –Introduction, shallow & Deep Neural Network, Applications.

Module 2- Overview of optimizers and losses, working with image datasets, image preprocessing and visualization

Module 3- Autoencoders- Convolutional Autoencoders- Image reconstruction using CAE.

Module 4- Convolutional Neural Networks- Introduction to Keras- Classification using CNN, Transfer Learning

Module 5- Fine tuning and regularization strategies- Mini project



#### CAMPUS

Kottukulam Hills, Pathamuttom P. O., Kottayam – 686 532, Kerala | Tel: +91 481 2433787 | [scas@saintgits.org](mailto:scas@saintgits.org)

#### CORPORATE OFFICE

II Floor, Unity Building, K. K. Road, Kottayam – 686 002, Kerala | Tel: +91 481 2584330, 2300365 | [mail@saintgits.org](mailto:mail@saintgits.org)

[www.saintgits.org](http://www.saintgits.org)

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