

Python

- Introduction to Python
- Installing & Working with Python IDLE
- Configuring Environmental Variables - Command Window
- Installing Anaconda Navigator (Jupyter Notebook)
- Working with Anaconda Navigator (Spyder Notebook)
- Working with Google Colab
- Working with Pycharm
- Working with Libraries
- Simple Arithmetic
- Introduction to Strings
- Indexing and Slicing with Strings
- String Properties and Methods
- Print Formatting with Strings
- Lists in Python
- Dictionaries in Python
- Tuples with Python
- Sets in Python
- Booleans in Python
- I/O with Basic Files in Python
- Python Objects and Data Structures
- Comparison Operators in Python
- Chaining Comparison Operators in Python with Logical Operators
- If Elif and Else Statements in Python
- For Loops in Python
- While Loops in Python
- Useful Operators in Python
- List Comprehensions in Python
- Methods and the Python Documentation
- Introduction to Functions
- Basics of Python Functions
- Logic with Python Functions
- Tuple Unpacking with Python Functions
- *args and **kwargs in Python
- Lambda Expressions, Map, and Filter Functions
- Attributes & Class Keyword
- Class Object Attributes and Methods
- Inheritance and Polymorphism
- Special(Magic/Dunder) Methods
- Modules and Packages

- name and "main"
- Errors and Exceptions Handling
- Pylint Overview
- Decorators with Python Overview
- Generators with Python
- Python Collections Module
- Opening and Reading Files and Folders
- Python Datetime Module
- Python Math and Random Modules
- Python Debugger
- Python Regular Expressions
- Timing Your Python Code
- Zipping and Unzipping files with Python
- Setting Up Web Scraping Libraries
- Grabbing a Title
- Grabbing an Image
- Book Examples
- Introduction to Images with Python
- Working with CSV Files in Python
- Working with PDF Files in Python
- Sending Emails with Python
- Receiving Emails with Python

Artificial Intelligence

- DAY – 1 Overview of this course | Introduction to AI | How to create basic AI application (Chat bot using DialogFlow)
- DAY – 2 How to install Python & Libraries | Basics of python Programming for AI.
- COMPUTER VISION
- DAY – 3 Introduction to Computer Vision| How to install computer vision libraries
- DAY – 4 Moving Object Detection and tracking using OpenCV
- DAY – 5 Face Detection and Tracking using OpenCV
- DAY – 6 Object Tracking based on color using OpenCV
- DAY – 7 Face Recognition using OpenCV
- DAY – 8 Face Emotion recognition using 68-Landmark Predictor OpenCV
- DEEP LEARNING
- DAY – 9 Introduction to Deep learning | How to install DL libraries
- DAY – 10 Designing your First Neural Network
- DAY – 11 Object recognition from Pre-trained model
- DAY – 12 Image classification using Convolutional Neural Network
- DAY – 13 Hand gesture recognition using Deep Learning
- DAY – 14 Leaf disease detection using Deep Learning

- DAY – 15 Character recognition using Convolutional Neural Network
- DAY – 16 Label reading using Optical Character recognition
- DAY – 17 Smart Attendance system using Deep Learning
- DAY – 18 Vehicle detection using Deep Learning
- DAY – 19 License plate recognition using Deep Learning
- DAY – 20 Drowsiness detection using Deep Learning
- DAY – 21 Road sign recognition using Deep Learning
- MACHINE LEARNING
- DAY – 22 Introduction to Machine learning| How to install ML libraries
- DAY – 23 Evaluating and Deploying the various ML model
- DAY – 24 Fake news detection using ML
- DAY – 25 AI snake game design using ML
- NATURAL LANGUAGE PROCESSING
- DAY – 26 Introduction to NLP & it's Terminology | How to install NLP Libraries NLTK
- DAY – 27 Title Formation from the paragraph design using NLP
- DAY – 28 Speech emotion analysis using NLP
- DEPLOYING AI IN HARDWARE
- DAY – 29 Cloud-based AI, Object recognition using Amazon Web Service (AWS) & Imagga
- DAY – 30 Deploying AI application in Raspberry Pi with Neural Compute stick & Nvidia Jetson Nano

Data Analytics

- Day-1: Introduction to Artificial Intelligence, Data Analytics & Road Map to become a Data Scientist
- EXCEL
- Day-2: Data Preparation - Power Query & Tables
- Day-3: Data analytics- Formula & Pivot Table
- Day-4: Story Telling - Charts & Dashboard
- Day-5: Automation - VBA Macros & Power Query
- STATISTICS & PROBABILITY
- Day-6: Descriptive Statistics - Mean, Mode, Median, Quartile, Range, InterQuartile Range, Standard Deviation
- Day-7: Probability - Permutations, Combinations
- Day-8: Population and Sampling
- Day-9: Probability Distributions - Normal, Binomial and Poisson Distributions
- Day-10: Hypothesis Testing & ANOVA - One Sample and Two Samples - z Test, t-Test, F Test and Chi-Square Test

- BI tools - Tableau

- Day-11: Connect Tableau to a Variety of Datasets
- Day-12: Analyze, Blend, Join, and Calculate Data
- Day-13: Visualize Data in the Form of Various Charts, Plots, and Maps
- BI tools - Power BI
- Day-14: Connect Tableau to a Variety of Datasets
- Day-15: Visualize Data in the Form of Various Charts, Plots, and Maps and Calculate Data
- Python
- Day-16: Introduction to Python & Installing Python and its Libraries
- Day-17: Basic Python Programming for Data Analytics
- Numpy & Pandas
- Day-18: Python Numpy functions
- Day-19: Pandas for Data analytics in Python
- Data Visualization
- Day-20: Matplotlib for data visualization
- Day-21: Seaborn for data visualization
- Kaggle Exploratory
- Day-22: Kaggle Dataset and Notebooks
- Database - SQL
- Day-23: SQL basics for Data analytics - Part-1
- Day-24: SQL basics for Data analytics - Part-2
- Database - MongoDB
- Day-25: MongoDB basics for Data analytics
- Machine Learning
- Day-26: Introduction to Machine Learning & its libraries
- Day-27: Evaluating and Deploying Machine Learning Classification algorithm for classification of State of Electric power system
- Deep Learning
- Day-28: Introduction to Deep Learning & its libraries
- Day-29: Covid-19 Detection using X-Ray Images with CNN
- Natural Language Processing
- Day-30: Tag Identification system using NLTK

MACHINE LEARNING

- Day-1: Overview A.I | Machine Learning
- Day-2: Introduction to Python | How to write code in Google Colab, Jupyter Notebook, Pycharm & IDLE

- SUPERVISED LEARNING - CLASSIFICATION & REGRESSION

- Day-3: Advertisement Sale prediction from an existing customer using LOGISTIC REGRESSION
- Day-4: Salary Estimation using K-NEAREST NEIGHBOR
- Day-5: Character Recognition using SUPPORT VECTOR MACHINE
- Day-6: Titanic Survival Prediction using NAIVE BAYES
- Day-7: Leaf Detection using DECISION TREE
- Day-8: Handwritten digit recognition using RANDOM FOREST
- Day-9: Evaluating Classification model Performance using CONFUSION MATRIX, CAP CURVE ANALYSIS & ACCURACY PARADOX
- Day-10: Classification Model Selection for Breast Cancer classification
- Day-11: House Price Prediction using LINEAR REGRESSION Single Variable
- Day-12: Exam Mark Prediction using LINEAR REGRESSION Multiple Variable
- Day-13: Predicting the Previous salary of the New Employee using POLYNOMIAL REGRESSION
- Day-14: Stock price prediction using SUPPORT VECTOR REGRESSION
- Day-15: Height Prediction from the Age using DECISION TREE REGRESSION
- Day-16: Car price prediction using RANDOM FOREST
- Day-17: Evaluating Regression model performance using R-SQUARED INTUITION & ADJUSTED R-SQUARED INTUITION
- Day-18: Regression Model Selection for Engine Energy prediction.
- UNSUPERVISED LEARNING - CLUSTERING
- Day-19: Identifying the Pattern of the Customer spent using K-MEANS CLUSTERING
- Day-20: Customer Spending analysis using HIERARCHICAL CLUSTERING
- Day-21: Leaf types data visualization using PRINCIPLE COMPONENT ANALYSIS
- Day-22: Finding Similar Movie based on ranking using SINGULAR VALUE DECOMPOSITION
- UNSUPERVISED LEARNING - ASSOCIATION
- Day-23: Market Basket Analysis using APRIORI
- Day-24: Market Basket Optimization/Analysis using ECLAT
- REINFORCEMENT LEARNING
- Day-25: Web Ads. Click through Rate optimization using UPPER BOUND CONFIDENCE
- NATURAL LANGUAGE PROCESSING
- Day-26: Sentimental Analysis using Natural Language Processing
- Day-27: Breast cancer Tumor prediction using XGBOOST
- DEEP LEARNING

- Day-28: Bank Customer classification using ANN
- Day-29: Pima-Indians Diabetes Classification using CONVOLUTIONAL NEURAL NETWORK

- Day-30: A.I Snake Game using REINFORCEMENT LEARNING

DEEP LEARNING

- Section 1: Course Overview
- DAY-1 Introduction to Deep Learning
- DAY-2 Basic Computer Vision
- Section 2: Artificial Neural Network
- DAY-3 Neurons & Perceptron
- DAY-4 Activation Function
- DAY-5 Gradient Descent
- DAY – 6 Stochastic Gradient Descent
- DAY – 7 Backpropagation
- DAY – 8 Artificial Neural Network – Project 1
- Section 3: Deep Neural Network
- DAY – 9 Optimization Algorithms – SGD, Momentum, NAG, Adagrad, Adadelta, RMSprop, Adam
- DAY – 10 Batch Normalization
- DAY- 11 Hyperparameter tuning
- DAY- 12 Interpretability
- DAY- 13 Deep Neural Network – Project 2
- Section 4: Convolutional Neural Network
- DAY- 14 Convolutional Neural Network & its Layers
- DAY- 15 CNN Architecture
- Day-16 Different frameworks on Deep Learning (Tensorflow, Keras, PyTorch & Caffe)
- Day-17 Object Recognition using Pre Trained Model – Caffe – Project 3
- Day-18 Image classification using Convolutional Neural Network from Scratch – Tensorflow & Keras – Project 4
- Day-19 Custom Image Classification using Transfer Learning – Project 5
- Day-20 YOLO Object recognition – Project 6
- Day 21 Image Segmentation – Project 7
- Day 22 Project using MxNet – Project 8
- Day 23 Project using PyTorch – Project 9

- Day 24 Social Distancing detector – Project 10
- Day 25 Face Mask detector – Project 11
- Section 5: Recurrent Neural Network
- Day 26 Introduction to RNN and LSTM
- Day 27 Project using RNN – Project 12
- Section 6:

- Day 28 Introduction CUDA Toolkit and cuDNN for deep learning
- Day 29 Getting started with the Intel Movidius Neural Compute Stick – Project 13
- Day 30 Custom Object classification using Nvidia Jetson – Project 15

Internship on Generative AI

- Day 1: Introduction to AI, ML, and DL
- Day 2: Python for Machine Learning
- Day 3: Linear Algebra and Calculus for ML
- Day 4: Supervised and Unsupervised Learning
- Day 5: Model Evaluation and Cross-Validation
- Day 6: Introduction to Neural Networks
- Day 7: Convolutional Neural Networks (CNNs)
- Day 8: Recurrent Neural Networks (RNNs)
- Day 9: LSTM and GRU Networks
- Day 10: Autoencoders and Variational Autoencoders (VAEs)
- Day 11: Introduction to GANs
- Day 12: Deep Convolutional GAN (DCGAN)
- Day 13: Wasserstein GAN (WGAN)
- Day 14: Conditional GANs (cGANs)
- Day 15: Advanced GANs (StyleGAN, Progressive GANs)
- Day 16: Introduction to Language Models
- Day 17: Transformer Architecture
- Day 18: Hugging Face and Pre-trained Models
- Day 19: Text Summarization and Question Answering
- Day 20: Machine Translation and Multimodal Generation
- Day 21: Introduction to Retrieval-Augmented Generation (RAG)
- Day 22: LangChain for LLMs
- Day 23: Few-shot and Zero-shot Learning
- Day 24: Prompt Engineering
- Day 25: Deployment of Generative Models
- Day 26: Generative Models for Healthcare Applications
- Day 27: Generative Models for Scientific Applications
- Day 28: Generative Models for Art and Design
- Day 29: Generative Models for Audio and Time Series
- Day 30: Real-world Projects and Capstone