Course Syllabus

# Python Intermediate

* For loops
* While loops
* If
* Else
* Elif
* Break
* Continue
* Functions
* Lambda function
* Comprehensions

# Python Advanced

* Error / Exception Handling
* File Handling
* JSON module
* OS Module
* Pickle Module
* Datetime Module
* Copy Module
* OOPs Concept
* Class
* Object
* Constructor
* Inheritance
* Polymorphism
* Abstraction
* Encapsulation

# Statistics Advanced

* Descriptive Statistics
* Measure of central tendency
* Measure of dispersion
* Outliers
* Covariance
* Correlation
* Testing
* Hypothesis testing
* Mean
* Median
* Mode

# Supervised Machine Learning Part 1

* Linear Regression
* Simple Linear Regression
* Multiple Linear Regression
* Polynomial Linear Regression
* Loss Function
* MSE
* MAE
* RMSE
* Optimizers
* Gradient Descent
* Regularization Parameters
* L1 and L2 Regularization
* Mini Project - 1: Developing Regression Model to find car cost status
* Mini Project - 2: Finding best Regression Line using Gradient Descent Optimizers

# Supervised Machine Learning Part 2

* KNN
* Logistic Regression
* Naive Bayes
* Decision Tree
* Ensemble: Bagging Random Forest Classifier
* Ensemble: Boosting Gradient Boosting
* AdaBoost
* XG Boosting
* Support Vector Machine (SVM)

# Deep Learning ANN

* Neurons
* Synapses
* Weights
* Biases
* Activation functions
* Input layer
* Hidden layers
* Output layer
* Feedforward networks
* Backpropagation
* Gradient descent
* Learning rate
* Loss function
* Epochs
* Batch size
* Training data
* Validation data
* Test data
* Overfitting
* Underfitting
* Regularization
* Dropout
* Weight initialization
* Normalization
* Standardization
* Hyperparameters
* Model evaluation
* Tanh
* ReLU
* Leaky ReLU
* Softmax
* Thresholded ReLU
* Mean Squared Error (MSE)
* Mean Absolute Error (MAE)
* Binary Cross-Entropy
* Categorical Cross-Entropy
* Sparse Categorical Cross-Entropy
* SGD
* Mini-batch Gradient Descent
* Adagrad
* Adadelta
* RMSprop
* Adam
* L1 regularization
* L2 regularization
* Dropout
* Data augmentation
* Batch normalization
* Layer normalization
* Accuracy
* Precision
* Recall
* F1-score
* ROC-AUC
* Confusion matrix
* Precision-Recall curve
* Mean Average Precision (mAP)
* R-squared

# Deep Learning CNN

* Convolutional layers
* Filters (kernels)
* Feature maps
* Stride
* Padding
* Pooling layers
* Max pooling
* Average pooling
* Flattening
* Fully connected layers
* Softmax activation
* Cross-entropy loss
* Backpropagation
* Gradient descent
* Batch normalization
* Layer normalization
* Dropout
* VGG 16
* VGG19
* ResNet
* TensorFlow
* Keras

# OpenCV

* Image reading and writing
* Image resizing
* Image rotation
* Image translation
* Image filtering
* Edge detection
* Contour detection
* Color space conversion
* Image thresholding
* Geometric transformations
* Feature detection
* Face detection
* Video processing

# Computer Vision

* Viola Jones
* HOG
* Yolo v1
* Yolo v2
* Yolo v3
* Yolo v4
* Yolo v7
* Yolo v8
* Unet Segmentation
* v7 Segmentation
* POS Estimation

# NLP - Natural Language Processing

* Tokenization
* Lowercasing
* Stop word removal
* Stemming
* Lemmatization
* Text normalization
* Removing punctuation
* Removing special characters
* Removing numbers
* Part-of-speech tagging
* Named entity recognition (NER)
* NLTK

# Generative AI

* RNNs
* Hidden state
* Sequence modeling
* BPTT
* Vanishing gradient problem
* Exploding gradient problem
* LSTM
* GRU
* Bidirectional RNN
* Sequence-to-sequence models
* Encoders and Decoders
* Attention
* Transformers
* BERT
* Distilled BERT
* RoBERTa
* Hugging Face
* GPT Models
* Diffusion Models
* Stable Diffusion Models
* LangChain
* RAG

# Power BI

* Power BI Introduction
* Power BI Installations
* Data Explanation
* Visualizations
* Bar chart
* Line chart
* Pie chart
* Area chart
* Scatter plot
* Bubble chart
* Treemap
* Funnel
* Card
* Geographic map
* Filled map
* Histogram
* Donut chart
* Model View Explanation
* DAX Formulas
* Power Query

# SQL

* SELECT statement
* FROM clause
* WHERE clause
* JOINs
* INNER JOIN
* LEFT JOIN
* RIGHT JOIN
* FULL JOIN
* GROUP BY clause
* HAVING clause
* ORDER BY clause
* Aggregate functions
* Subqueries
* UNION and UNION ALL
* Views
* Indexes
* Transactions
* COMMIT
* ROLLBACK
* Constraints
* Data manipulation
* INSERT
* UPDATE
* DELETE

# Excel

* Formulas and Functions
* Math formulas
* LOOKUP
* INDEX-MATCH
* PivotTables
* Charts and Graphs
* Column chart
* Line chart
* Pie chart
* Conditional Formatting
* Data Validation
* Named Ranges
* Excel Tables
* Text Manipulation Functions
* LEFT
* RIGHT
* CONCATENATE
* Date and Time Functions
* DATE
* TODAY
* MONTH
* Data Import and Export