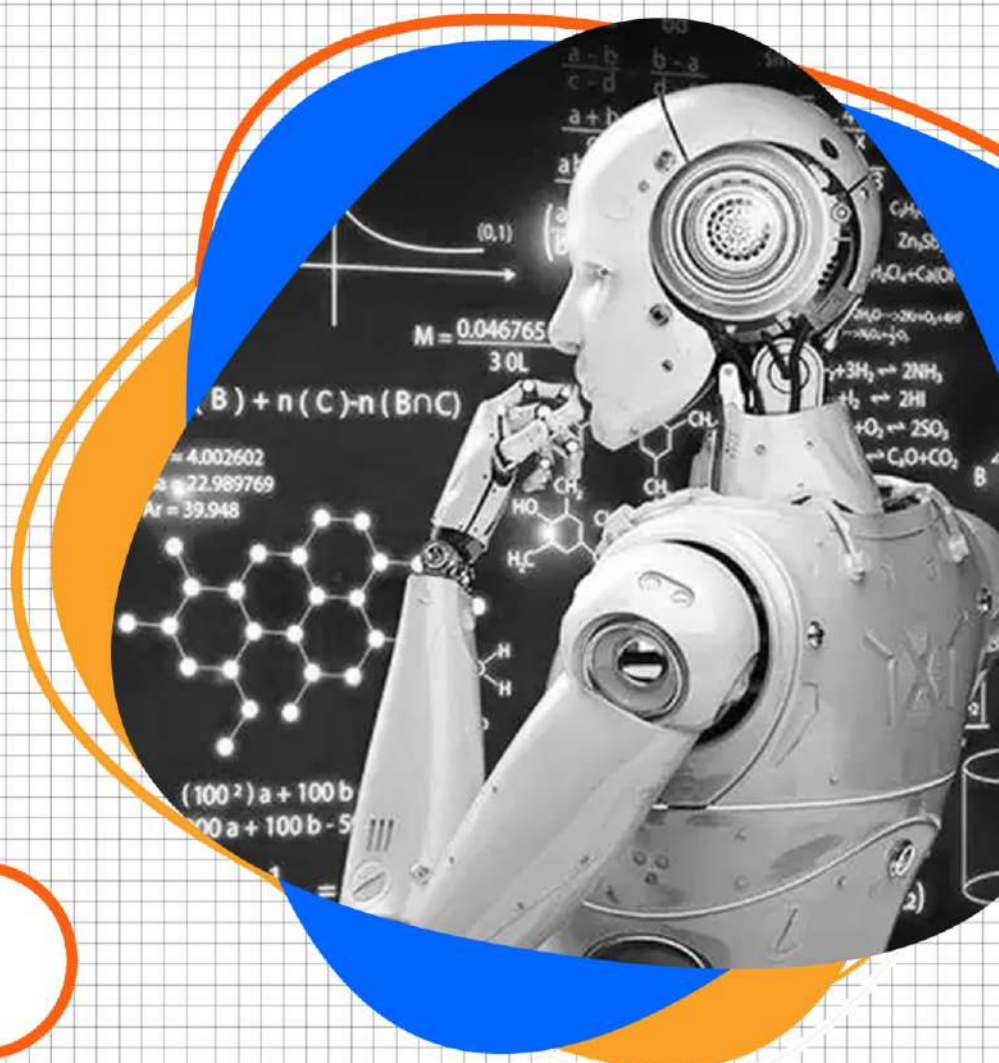




TINKERCODERS
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Python AI & ML

GRADE 9-12



COURSE HIGHLIGHTS !

- Live 48 Hours of Sessions
- 48 hours Self Learning Sessions
- File handling in Python
- Learn to pre process data, clean data, and analyze large data.
- Explore large datasets and wrangle data using Pandas
- Perform image manipulation with OpenCV
- Detect objects and facial features, including corner, edge, eyes, nose and nose detection techniques
- Open and stream video using Media pipe
- Implement Machine Learning algorithms
- Learn model building, evaluation, algorithms and machine learning concepts
- Classify images, data, and sentiments using deep learning
- **Build 10 real application based projects in the course**
- **LMS Access - Pre-recorded videos, documents, assignments, code files and quizzes**



Book your
FREE Demo now!

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COURSE REQUIREMENTS



- Basic Understanding Of Textual Python Programming
- A Mac or Windows Computer
- Access to the internet



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WHAT YOU'LL LEARN IN THE COURSE



**Fundamental of
Python Programming**



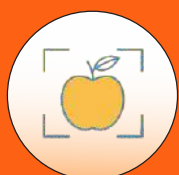
**Turtle module for
Graphics designing**



Computational Thinking



Deploying module on the Website



**Object detection using
computer vision**



**Custom
Model using
Machine learning**

Introduction to AI and ML



START



TINKERCODERS
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Beginner

Grade 9-12



File Handling

- Open, read, write, and append file
- Json and Csv handling

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Numpy

- Introduction to Numpy and Application
- How to import and its use



Data Exploration

- Introduction to Pandas
- Data Structure in panda.

Data Exploration -2

- Merging,Joining,and Concatenating
- Working with Missing Data



Data Visualisation

- Types of Plot and its importance

</>



Project-1

- Type of Machine Learning
- Data Splitting

Project 2

- Introduction to Classification Model



Image Apperance using OpenCV

- Intro to images and Pixel
- Type of Image(grey, color image)

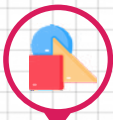


Image processing - 2(Adding Shapes)

- Image Segementation
- Draw Shapes

</>

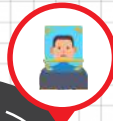
Project-3 Color Detection

- Importance of Hue,Saturation ,Value



Image processing - 3
(HaarCascade Algorithms)

- Concept of Haarcascade Algorithms



Facial Features Detection

- Face Detection
- Smile Detection

Human detection

- Human Detection xml file
- Roi of human in the image



Project -4 Number plate detection

- Detecting vehicle Number plate



</>

Intermediate**Grade 9-12**

Video Processing

- Processing video through Laptop camera



Accessing and Storing Video

- Take picture from video stream and store
- Accessing phone camera

Face Detection

- Face Detection in video



Human Detection

- Human Detection in video

Self Driving Car

- Detecting the humans and cars from Live Video



Project -5 Logo Insertion

- Detect the person

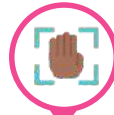


Project -6 Social Distancing

- Detect the person

Hand Detection

- Hand Detection using Media pipe

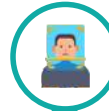


Pose Detection

- Pose Detection using Media Pipe

Face mesh

- Face Detection using Media Pipe



Objectron

- Object Detection using Media Pipe in 3 axis

Selfie Segementation

- Changing background of video stream using Media Pipe



Holistic

- Holistic utilizes the pose
- Face and hand landmark

Project - 7

- Hand Detection using Media pipe
- Importing libraries



Project - 7 Gesture Volume Control

- Connecting hand and volume
- Audio utilities



ML Libraries

- Introduction to Tree



Advanced

Grade 9-12



Random Forest

- Working on Multiple tree

</>

Model Selection And Accuracy Boosting

- K-floed Cross Validation



Model Deployment

- Introduction to Streamlit
- Creating a basic webpage

Model Deployment -2

- Introduction to Github
- Model Deployment on Cloud



Overview Of NLP

- Introduction and Application of NLP
- Field of NLP

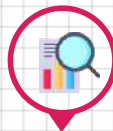


Understand and Use Techniques from NLP

- Different Techniques for NLP

Learn to Work with Text files

- Python Inbuilt Read and write File



Use NLTK for sentiment Analysis

- Introduction to NLTK



Introdnution to some key techniques from NLP

- Techniques for NLP



Project 8: Spam Detection code

- Cleaning Data and Preprocessing



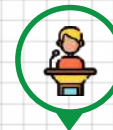
Project -9: Chat bot

- Adding library files required

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Project -9: Chat bot

- Give response to the human questions



Project - 10: Speech Recognition

- Importing required modules
- Install pyaudio

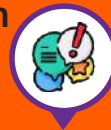


Project - 10

- Converting text to speech

Project - 10: Speech Recognition

- Doing some action based speech commands



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END





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HOW THIS COURSE WILL HELP YOUR CHILD

● **CIC approach**

Consumer to innovator to the creator

This course aims to turn the student from a consumer of technology to the creator of technology.

● **Activity-Based learning**

Learn the required programming concepts by performing activities

● **Project - Based Learning**

Learn the required programming concepts by performing activities

Instead of a theoretical and traditional way of learning, students will build projects during the course.

● **Our PBL approach will help student in**

Allows students to acquire key knowledge & skills through the development of projects that respond to real-life problems

Develop critical thinking

Retain the concept

Integration of different concepts

COURSE **OUTLINE**
Beginner

Session Number	Activity name	Learning Outcome
1.	Introduction to AI and ML	Introduction to Artificial intelligence AI and Its real life example Computer Vision & Machine Learning
2.	File Handling	Open, read, write, and append file Json and Csv handling
3.	Numpy	Introduction to Numpy and Application How to import and its use Array Attributes and Methods NumPy Indexing and Selection Universal Array Functions
4.	Data Exploration	Introduction to Pandas Data Structure in panda. Operation in Pandas
5.	Data Exploration -2	Merging,Joining,and Concatenating Working with Missing Data Applying function on Pandas
6.	Data Visualisation	Types of Plot and its importance Scatter Plot, Histogram, CountPlot, Boxplot,Pairplot
7.	Project-1 House Price Prediction	Type of Machine Learning Data Splitting Introduction to Linear Regression Predicting the Price of House
8.	Project 2- Classifying the Flower Category	Introduction to Classification Model Classifying the category of flower using ML
9.	Introduction to Image Apperance using OpenCV	Intro to images and Pixel Type of Image(grey, color image) Reading with Image in OpenCV Image Resizing and Cropping
10.	Image processing - 2 (Adding Shapes)	Image Segementation Draw Shapes Adding Text
11.	Project-3 Color Detection	Importance of Hue,Saturation ,Value Working with HSV Model Filtering a paticular color from live image
12.	Image processing - 3 (HaarCascade Algorithms)	Concept of Haarcascade Algorithms XML and its use Concept of Haarcascade classifier
13.	Facial Features Detection	Face Detection Smile Detection Nose Detection
14.	Human detection	Human Detection xml file Roi of human in the image
15.	Project -4 Number plate detection	Detecting vehicle Number plate

COURSE **OUTLINE**
Intermediate

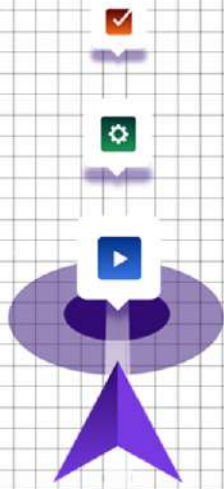
Session Number	Activity name	Learning Outcome
1.	Video Processing	Processing video through Laptop camera Laptop camera video to gray Difference in video and camera image
2.	Accessing and Storing Video	Take picture from video stream and store Accessing phone camera
3.	Face Detection	Face Detection in video
4.	Human Detection	Human Detection in video
5.	Project -5 Logo Insertion	Inserting a logo in an live wecam
6.	Self Driving Car	Detecting the humans and cars from Live Video
7.	Project -6 Social Distancing	Detect the person calculating the distance between humans
8.	Hand Detection	Hand Detection using Media pipe
9.	Pose Detection	Pose Detection using Media Pipe
10.	Face mesh	Face Detection using Media Pipe
11.	Objectron	Object Detection using Media Pipe in 3 axis
12.	Selfie Segementation	Changing background of video stream using Media Pipe
13.	Holistic	Holistic utilizes the pose Face and hand landmark
14.	Project - 7 Gesture Volume Control	Hand Detection using Media pipe Importing libraries
15.		Connecting hand and volume Audio utililities Adding landmarks Pointing the two fingers

COURSE **OUTLINE**
Advanced

Session Number	Activity name	Learning Outcome
1.	ML Libraries	Introduction to Tree Importance of Information Gain Introduction to Entropy
2.	Random Forest	Working on Multiple tree
3.	Model Selection And Accuracy Boosting	K-floed Cross Validation Grid Search CV XGBoost
4.	Model Deployment	Introduction to Streamlit Creating a basic webpage
5.	Model Deployment -2	Introduction to Github Model Deployment on Cloud
6.	Overview Of NLP	Introduction and Application of NLP Field of NLP
7.	Understand and Use Techniques from NLP	Different Techniques for NLP
8.	Learn to Work with Text files	Python Inbuilt Read and write File Working with .csv and .tsv with read and write
9.	Use NLTK for sentiment Analysis	Introduction to NLTK Naive Bayes Algorithm
10.	Introdution to some key techniques from NLP	Techniques for NLP
11.	Project 8: Spam Detection code	Cleaning Data and Preprocessing Creating the bag of word Training Model using Naive Bayes
12.	Project -9: Chat bot	Adding library files requiered
13.		Give response to the human questions
14.	Project - 10: Speech Recognition	Importing required modules Install pyaudio
15.		Converting text to speech Understanding the speech
16.		Doing some action based speech commands



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OTHER COURSES



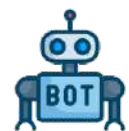
Python
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Artificial
Intelligence &
Machine learning



Android & IOS app.
development





Virtual Robotics



Web
development

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