TINKERCODERS
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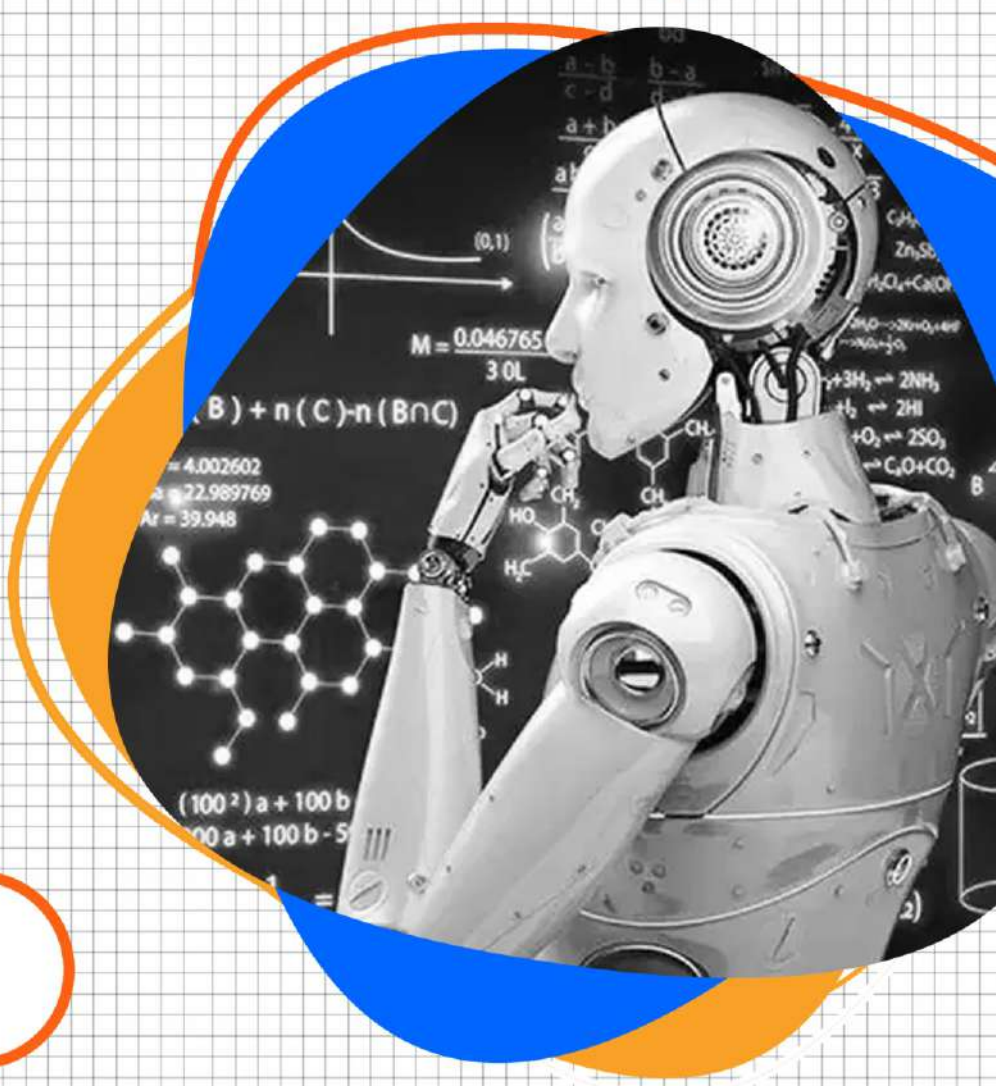
# BLOCK PYTHON & AI

## GRADE 6-8




## COURSE HIGHLIGHTS !

- Live 48 Hours of Sessions
- 48 hours Self Learning Session
- Fundamental of Python Programming
- Create Graphics and visual Effects
- Understand complex computer science concepts by intuitively applying Computational thinking
- Computer Vision & Machine learning
- **Build Real World Application like object detection, Facial features detection, Animal detection etc.**
- **LMS Access - Pre-recorded videos, Documents, Assignments, Codes**

Book your FREE Demo now!

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# COURSE REQUIREMENTS

- No prior programming knowledge is require
- 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
- Face, Eyes, Nose and Smile Detection
- Object Detection using Computer Vision
- Custom Model using Machine Learning

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# Introduction to Python and AI Connect Geometrical Shape - I (Square,Triangle)

START

**Beginner**

**Grade 6-8**

## Design geometrical Shapes
- Use of motion blocks and turn left or right

## Archery Target
- Use of Dot radius to make circle
- Changing turtle colors

## Design Your Sky(Crescent Moon)
- Concept of Pen up and Pen down
- Overlapping of shapes

## Flag Designing
- Coordinate system
- Adding colors to the flag

## Design your dream car
- Making body of car using control and motion blocks

## Emoji Designing
- Adding color Inside the shape
- Adding different emotions

## Project - 1 Panda Face
- Making panda using controls & motion

## Analog Clock
- Making clock body
- Changing hand size & width

## Design Snowmen
- Making body using circle of different sizes

## Olympic Rings with Function
- Function definition & calling
- Adding parameters like colour and size

## Captain America Shield with Function
- Making of star

## Make wheel with mouse events
- Doing event when button click

## Multicolor pattern- I and II
- Use of list and its methods
- Use of % and / sign

## 3D triangle
- Motion and control blocks
- Math logic to make 3d triangles

## Project - 2 Morning Scenery
- Creating design like grass, sun, house, bird

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# Intermediate

## Grade 6-8

### My self
- Introduction to python
- Data types and its use

### Week Days
- Use of If else
- Different type of operator

### Quiz
- Variable declaration and defination
- Updating score

### Design calculator
- Use of math block
- Type conversion in python

### Print counting number & table
- Introduction to loops
- Different types of loops

### Checking for palindrome number
- Use of / and % sign
- Condition for checking palindrome number

### Sum of number and Square of Number till 20

### Project 3:- Age Calculator
- Addressing negative sign in month
- Finding age of a person

### Factors and LCM of number
- Use of conditional statement
- Iterating for loop

### Find Armstrong Number
- Finding cube of a number
- Updating sum by adding previous sum

### Printing Fibonacci series
- Adding numbers together

### Function Greeting
- Function definition & calling
- Setting parameters for function

### Area of Square and rectangle
- Passing value in function
- Finding area

### Create list & its operation
- Introduction to advance datatypes
- Use of list

### Take out largest data from list and Find Sum
- Finding sum of list

### Project 4:Check for party invitants
- Inserting element in list
- Use of append and delete operation

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# Advanced
## Grade 6-8

### Find place Value of a number
- Adding comma at different place

### Create Tuples & Sets
- Introduction to Tuple and Sets
- Benefit of using tuple sets over list

### Visualising Venn Diagram
- Venn diagram and its use
- Different operations of set

### Introduction to Dictionary
- Introduction to dictionary
- Use of key and value pair

### Create a students directory
- Creating empty dictionary
- Working with key and value

### Introduction to Graph
- Graph and its use
- Different types of graph

### Plot Graph
- Study for corona virus live cases

### Project 4:- Cricket score Analysis
- Create a list for score
- Player performance in IPL

### Introduction to ML and AI
- Application of ML & AI
- Working in different domains

### No Mask no entry (AI)
- Importing package
- Classification of human

### Lets find design shapes (AI)
- Object Detection
- Different shapes in real life

### Car Brands Detection(ML)
- Overview of Teachable machine platform
- Adding classes and samples

### Emotion Emoji(ML)
- Adding Images for different emotions
- Creating model for emotion detection

### Animal Classification(ML)
- Importance of adding more samples
- Detection for dog and cat

### Pose Detection(ML)
- Showing images for different pose

### Project - 6 Sign Language(ML)
- Use of Sign Language
- Checking output after detection

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 Python and AI Connect Geometrical Shape - I(Square,Triangle) | Python and its uses<br>Overview of AI connect<br>Motion and changing angles blocks |
| 2. | Design geometrical Shapes (Rectangle,Dotted Pentagon, Hexagon & Octagon) | Motion blocks like forward and backward<br>Use of for loop<br>Angle values for respective shapes |
| 3. | Archery Target | Use of Dot Radius to make circle<br>Adding Colours<br>Concept of coordinate system |
| 4. | Design Your Sky (Crescent Moon) | Changing Colour<br>Overlapping of Shapes |
| 5. | Flag Designing | Use of position block<br>Adding colors to the flag |
| 6. | Design your dream car | Making body of car using control and motion blocks<br>Use of begin fill and end fill.<br>Use dot radius to make tire |
| 7. | Emoji Designing | Adding Color Inside the shape<br>Filling shape and color<br>Adding different expressions |
| 8. | Project - 1 Panda Face | Making ears, eyes & nose using control blocks<br>Different size of filled circle to make face |
| 9. | Analog Clock | Making long , short and seconds hand in clock<br>Use of color, width & the position of turtle |
| 10. | Design Snowmen | Making body using circle of different sizes<br>Adding facial expressions |
| 11. | Olympic Rings with Function | Function creation<br>Adding Parameters for color and size<br>Logic to make circle using for loop |
| 12. | Captain America Shield with function | Use of functions<br>Dot radius to make concentric circles<br>Motion and angle blocks to make star |
| 13. | Make wheel with mouse events | Doing event when button click<br>Use of mouse click instance to make wheel<br>Logic to make wheels using motion blocks |
| 14. | Multicolor pattern- I and II | List & its methods<br>Use of % and / sign<br>Logic to make patterns like square etc |
| 15. | 3 D triangle | Setting and adding the parameters and argument<br>Math logic to make 3d triangles |
| 16. | Project - 2 Morning Scenery | Creating design like a Sun, Grass, birds & house<br>Use of motion & control blocks |

# COURSE **OUTLINE**

## Intermediate

| Session Number | Activity name | Learning Outcome |
|---|---|---|
| 1. | My self | Introduction to Python<br>Exploration of AI connect platform<br>Data types and Its use<br>Printing output in console |
| 2. | Week Days | Use of If else<br>Different types of operators<br>Comparing values |
| 3. | Quiz | Variable declaration and definition<br>Updating score<br>Comparing different values |
| 4. | Design calculator | Use of math block<br>Type conversion in python |
| 5. | Print counting number & table | Introduction to Loops<br>Different types of Loop<br>Use of range |
| 6. | Sum of number and Square of Number till 20 | Setting the range for loop<br>Updating value of variable |
| 7. | Checking for palindrome number | Use of / and % sign<br>Converting one datatype into another |
| 8. | Project 3:- Age Calculator | Addressing Negative sign in month<br>Finding age of a person |
| 9. | Factors and LCM of number | Use of conditional statement<br>Iterating for loop |
| 10. | Find Armstrong Number | Finding cube of a number<br>Updating sum by adding previous sum |
| 11. | Printing Fibonacci series | Adding numbers together<br>Updating variable from previous value |
| 12. | Function Greeting | Define function<br>Parameter and argument of function<br>Use of print function |
| 13. | Finding area of square and rectangle | Condition for finding square<br>Passing value in function<br>Return type function |
| 14. | Create list & its operation | Importance of list<br>Use of list<br>Various operation in list |
| 15. | Take out largest data from list and Find Sum | Finding Sum of list<br>Iterating element in list<br>Condition for checking each number |
| 16. | Project 4:Check for party invitants | Inserting element in list<br>Use of append and delete operation |

# COURSE **OUTLINE**

## Advanced

| Session Number | Activity name | Learning Outcome |
|---|---|---|
| 1. | Find place Value of a number | Introduction to place value chart<br>Adding Comma at different places |
| 2. | Create Tuples & Sets | Introduction to Tuple and Sets<br>Benefit of tuple & sets over list<br>Different operation involved |
| 3. | Visualising Venn Diagram | Venn diagram and its use<br>Adding value in lists<br>Checking for union, difference etc |
| 4. | Introduction to Dictionary | Introduction to dictionary<br>Use of Key and value pair<br>Getting the value through key |
| 5. | Create a students directory | Creating empty dictionary<br>Adding key and value |
| 6. | Introduction to Graph (Single and Double) | Graph and Its use<br>Different types of graph<br>Create list |
| 7. | Plot Graph (No of corona cases vs year) | Study for corona virus live cases<br>Plot a graph for different waves<br>Finding the best graph suits |
| 8. | Project 4:- Cricket score Analysis | Create a list for Score<br>Plotting score in different graph<br>Performance of player in IPL |
| 9. | Introduction to ML and AI | Introduction to Machine Learning and AI<br>Application of ML and AI<br>Future Scope of ML and AI<br>Implementaion of ML and AI by leading Industry |
| 10. | No Mask no entry(AI) | Importing package<br>Classification of human<br>Detecting the face feature |
| 11. | Lets find design shapes (AI) | Object detection<br>Different shapes in real life |
| 12. | Car Brands Detection(ML) | Overview of Teachable machine platform<br>Adding Classes<br>Doing Training, testing and implementing the data |
| 13. | Emotion Emoji(ML) | Adding Images for different emotion<br>Creating model for emotion detection |
| 14. | Animal Classification(ML) | Importance of multiple samples<br>Detection for dog and cat |
| 15. | Pose Detection(ML) | Showing Images for different pose<br>Making an effective model |
| 16. | Project - 6 Sign Language(ML) | Use of sign language<br>Checking for output after detection<br>Adding condition for each sign |

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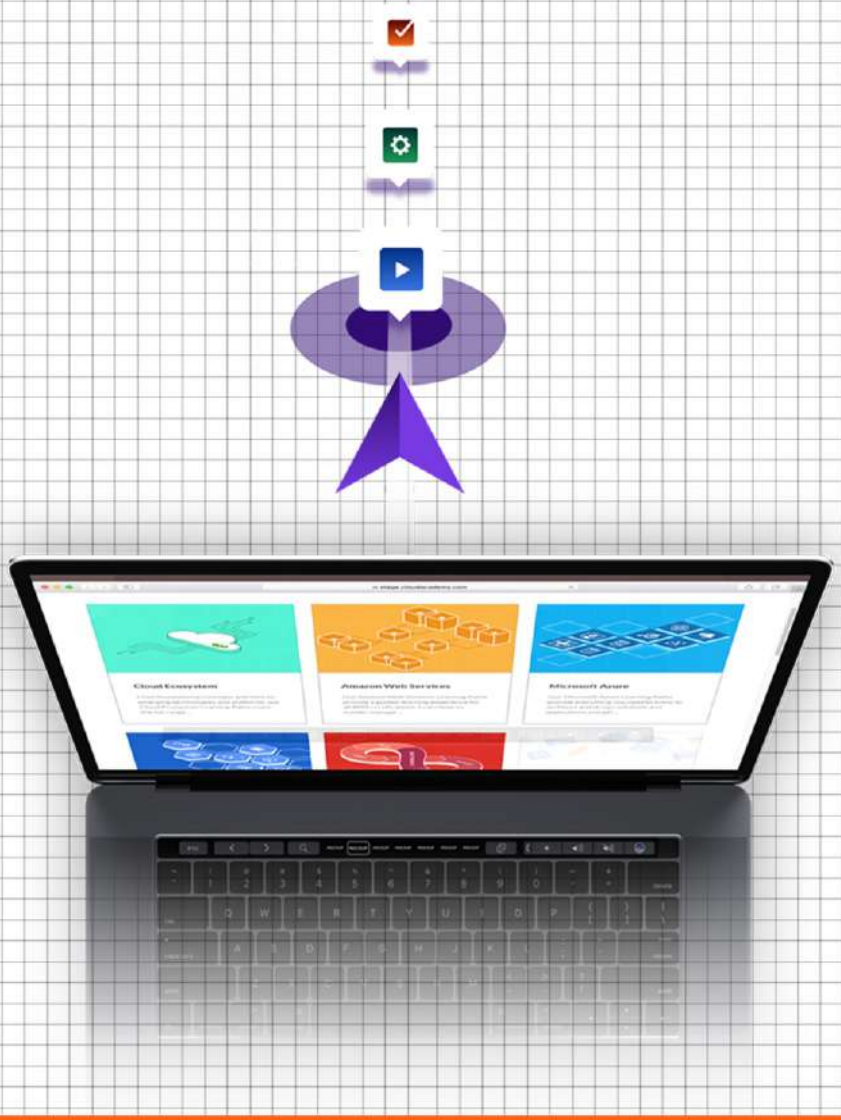

# OTHER COURSES

- Python Programming
- Artificial Intelligence & Machine learning
- Android & IOS app. development
- Virtual Robotics
- Web development