

Join the most fun and effective coding classes

# Coding's Art

## Certificate Program in Python Programming & Game Development

**Duration: 6 Months | Includes Turtle, Tkinter & Pygame Projects**

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### Month 1 – Python Foundations

#### Topics Covered:

- Syntax overview and writing your first Python program
  - Data types (int, float, string, boolean) and type conversion
  - Variables and user input
  - Conditional statements (if, elif, else)
  - Loops (for & while) with practical examples
  - Functions and reusable code modules
  - Understanding errors and debugging basics
  - Weekly mini tasks to build strong foundational logic
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**To Enroll, Call/WhatsApp: +91 98559 88930**

## Month 2 – Data Handling & Mini Project

### Topics Covered:

- Lists, tuples, dictionaries, and sets
- Adding, updating, removing, and searching data within structures
- File handling: reading and writing text files
- Real-world file processing examples
- Problem-solving exercises with data

### Project of the Month:

- ✓ CLI App (Calculator or Unit Converter)
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## Month 3 – Turtle Graphics & Game Logic

### Topics Covered:

- Drawing shapes and patterns
- Using loops to automate drawings & animations with Turtle
- Movement control (keyboard/mouse) & Collision detection basics
- Managing game speed and coordinates
- Working with images/shapes in Turtle
- Project structure and planning

### Project of the Month:

- ✓ Turtle Race Game *or* Snake Game
- ## Month 4 – Tkinter GUI

## Month 4 – Tkinter GUI Development

### Topics Covered:

- Creating windows, frames, and layouts
- Labels, input fields, text boxes & Buttons and event handling
- Validating user input & Message boxes and alerts
- Designing clean UI layouts Using grid and pack geometry managers
- Mini database/file saving for Tkinter apps
- Connecting logic with UI components

### Projects of the Month:

- ✓ To-Do List App or Billing App *or* Image Compressor App
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## Month 5 – Pygame Core Game Development

### Topics Covered:

- Understanding sprites and sprite groups
- Collision detection (rect-based and pixel-perfect)
- Player movement, enemy movement logic, Scoring system
- Adding and controlling sound effects
- Handling keyboard events & Managing frame rate and game loop
- Loading images and optimizing assets

### Project of the Month:

- ✓ **Alligator Game** (Complete Pygame project)

## Month 6 – Pygame Advanced Concepts & Final Game

### Topics Covered:

- Advanced sprite animations (frame-based animation)
- Complex collision behaviors (multiple enemies, obstacles)
- Advanced movement patterns (AI-like enemy movement)
- Improved scoring mechanics and difficulty levels
- Polishing sound, visual effects, UI screens
- Creating start screen, pause screen, game-over screen
- Game packaging (making a distributable EXE)

### Project of the Month:

#### ✓ One Advanced Game (choose any one):

- Car Racing Game
- Fruit Catcher Game
- Space Shooter Game

### What You Will Learn

- Strong foundation in Python programming
- Practical understanding of data structures
- Graphics and animations with Turtle
- Desktop apps using Tkinter
- 2D game development with Pygame
- 5 complete portfolio projects
- 6-Month Certificate from Coding's Art