Kids IT Courses

Open CV Certification Course Outline

MODULE 1: What is OpenCV & Computer Vision?

- What is OpenCV?
- How computers “see” images
- Real-life uses (face filters, object tracking, robots)
- Fun examples: Instagram filters, motion sensors

MODULE 2: Images as Data

- What is a pixel?
- Color models: RGB, grayscale
- Read and display images with OpenCV
- Activity: Show and edit your favorite image in Python

MODULE 3: Image Processing Data

- Resize, rotate, crop images
- Convert to grayscale
- Draw shapes and text
- Mini project: Add fun effects to a photo

MODULE 4: Filters & Effects

- Apply blur, sharpen, edge detection
- Make a cartoon-style image
- Real-world example: Snapchat filters
- Experiment: Try filters on a selfie or pet picture

MODULE 5: Face Detection with OpenCV

- Use Haar Cascade to detect faces
- Draw rectangles around faces in an image
- Add emojis or hats to faces
- Discussion: How is this used in real life?

MODULE 6: Motion Detection

- Capture video from webcam
- Detect moving objects
- Create motion alert system
- Fun idea: Motion-activated dancing robot graphic

MODULE 7: Object Tracking & Colors

- Detect specific colors (e.g., red ball, blue pen)
- Track and draw motion trails
- Mini challenge: Create a color-controlled paint app
- Learn about color range and masking

MODULE 8: Final Project – Smart Vision App

- Combine filters, face detection, and drawing
- Ideas: AI mirror, virtual makeup, motion art
- Present your app to friends/family
- Get certified as “Young Vision Coder”

Bonus Material

- Kid-friendly folders of faces, animals, and objects for experimentation
- Simple definitions of OpenCV terms (pixel, grayscale, mask, frame)
- Starter code for filters, motion detection, face tracking
- Kids design their dream photo filter on paper before coding
- Editable certificate to award creativity and course completion