



**EDSOLS**  
**INNOVATIONS PRIVATE LIMITED**

Artificial Intelligence Labs & Training Program  
Overview

# INTEGRATED ROBOTIC SYSTEMS

Experience innovation with our robotic system featuring a precision-engineered hardware suite. Precision hardware, enhanced decision-making through data science, and seamless human-robot interaction with natural language processing.



## PRIMARY HARDWARES



Raspberry Pi 4



Servo Motor



Camera Module



Audio card



## KIT COMPONENTS

- Color Sorting Kit
- Artificial Fruits and Vegetable Kit
- Garbage Sorting Kit
- Customized Operating System
- Customized Expansion Board
- IR Temperature Sensor
- Speaker
- Directional Array Microphone
- 7 inch Touch Screen Display



## LEARNING OUTCOME

Raspberry Pi projects offer hands-on learning in diverse domains including computer vision, AI, and IoT. Engage in practical applications. Explore the breadth of skills from all the projects by comprehensive understanding of technology.



## HANDS ON PROJECTS

- Face Recognition
- Face Detection and Tracking
- Color Sorting
- Chatbot
- AI Smart Speaker
- Sentiment analysis
- Face Mask Detection
- Image Processing
- Wake Word Algorithm
- Garbage Sorting
- Fruits and Vegetable Sorting
- Document Reader - GPT
- Fake News Detection
- Leaf Disease Detection
- Image Caption Recognition
- Optical Character Recognition
- Sensor Integration



# CURRICULUM FOR AI TRAINING PROGRAM

## OBJECTIVE

To train the students in cutting-edge Artificial Intelligence based product development by providing them access to State of the art Hardware, Modular Software and Skilled Trainers. Students will get to work developing AI models using practical project-based learning with 40+ Projects.

## Artificial Intelligence Concepts Covered

- Artificial Neural Networks
- Convolved Neural Networks
- Recurrent Neural Networks
- Computer Vision
- Machine Learning
- Deep Learning
- Natural Language Processing
- Supervised/Unsupervised Learning
- Reinforced Learning

## Programming Languages

- Python
- Java Script

## Technology Frameworks

- Tensor Flow
- Keras
- PyTorch
- OpenCV
- Scikit-Learn
- Pandas
- Generative Pretrained Transformers (GPT)

## Learning Outcomes

- Learn End to End AI Product Development Skills
- Hands-on experience building and training custom AI Models
- Get experience working on Industry relevant AI Projects
- Full Stack Software development experience

# **GRADE 8**

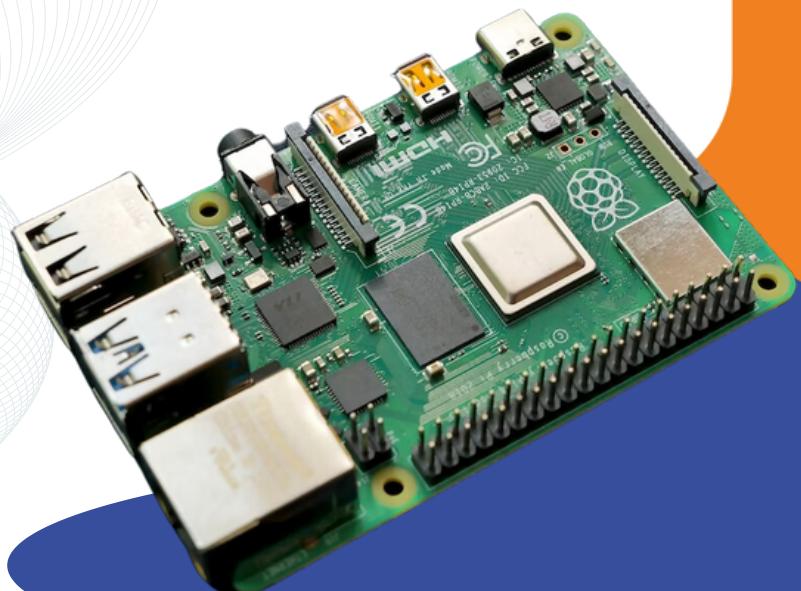
## **(THEORY - 35 HOURS & PRACTICAL – 35 HOURS)**

- Python Programming (Based on Harvard University's CS 50 Curriculum)
- Arrays, Algorithms, Memory Management and Data Structures
- Object Oriented Programming
- Introduction to Natural Language Programming
- Speech Training and Name Entity Recognition
- Text Classification and Sentiment Analysis
- Project 1: Chatbot Development
- Project 2: Document Reader
- Project 3: Smart Speaker Development with Alexa/Google Integration
- Project 4: Custom Wake Word Development
- Project 5: Sentiment Analysis (Optional/Take Home Project)

# **GRADE 9**

## **(THEORY - 35 HOURS & PRACTICAL – 35 HOURS)**

- Introduction to Data Science and Machine Learning
- Fake News Detection
- Leaf Disease Detection and Classification
- Image Caption Generator
- Credit Card Fraud Detection
- Market Basket Analysis
- Stock Market Prediction



# **GRADE 11**

## **(THEORY - 35 HOURS & PRACTICAL - 35 HOURS)**

- Introduction to Computer Vision and Robotics
- Computer Vision Frameworks – Pytorch, TensorFlow, Keras, OpenCV, etc.
- Image Processing and Analytics
- Motion and Object Tracking
- Haar Cascade Classifiers
- Project 1: Face Detection and Tracking
- Project 2: Face Recognition
- Project 3: Colour Calibration Training and Sorting
- Project 4: Garbage Sorting
- Project 5: Fruits and vegetables classification and sorting (Optional)

### **NOTE:**

Our labs cover all key concepts in the field of Artificial Intelligence and Cloud Computing and can be directly mapped to your Artificial Intelligence curriculum. We would also provide customized curriculum mapping and curriculum design upon request.



# INTRODUCING NEXT-GEN LEARNING



Dive into the world of Artificial Intelligence with our state-of-the-art AI Labs. Students will grasp fundamental concepts, learn implementation strategies, and acquire techniques that empower them to generate valuable insights. Prepare for the future by staying ahead of upcoming industries and being proactive in the face of change.

## WHY CHOOSE OUR LABS?

- Cutting-edge Curriculum
- Hands-on Experience
- Future-Ready Education

## STUDENTS WILL GAIN

- A Foundation for Future Learning
- Hands-on Implementation Experience
- Techniques for Valuable Insights
- Understanding of AI Concepts

## RESOURCES TO BE PROVIDED BY THE SCHOOL:

- Conference Rooms with projectors for the Theory Sessions
- Computer Lab with basic Intel i3 Computers
- Computers Running Windows Operating System
- Internet Connectivity (Optional)
- Workbench Tables for Setup and Training

## RESOURCES BROUGHT IN BY EDSOLS:

- All Hardware and Software Required for the training program
- Industry Certified Trainers will be Provided
- Curriculum Design
- Online Support for Industry Certification Programs

## SOFTWARE PACKAGE

50 + IoT and Robotics Projects with Lab Manuals and Tutorials will be provided

We kindly request you to feel free to get in touch for any clarity required.  
Thank you for the opportunity to serve you



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