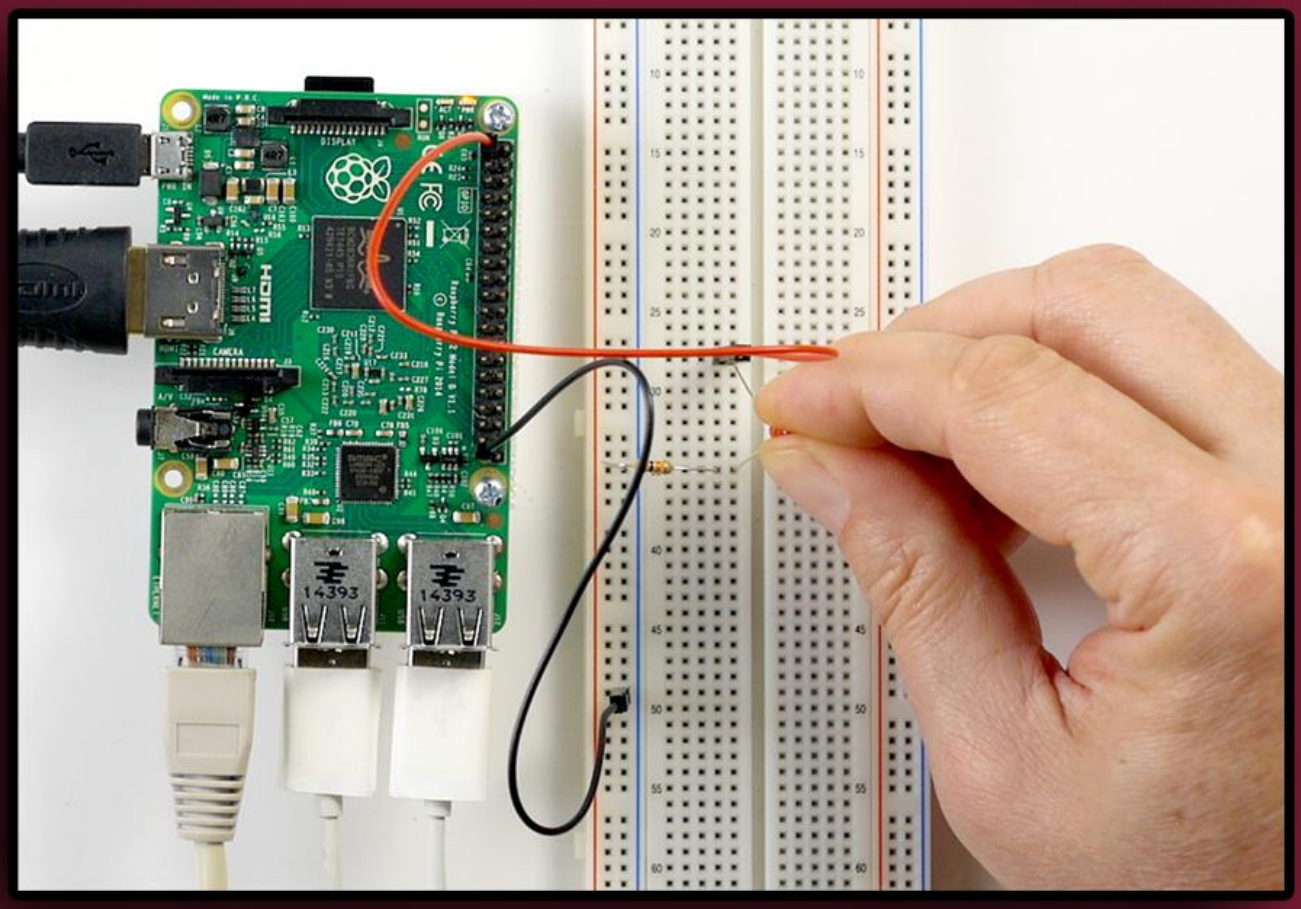
RASPBERRY PI WITH PYTHON



2 MONTHS COURSE WITH HANDS ON EXPERIENCE

CERD PAKISTAN

CENTER FOR ELECTRONICS RESEARCH & DEVELOPMENT

What is Raspberry Pi

Raspberry Pi is a credit card size, single board computer that can be used for a number of applications.

Why Learn Raspberry Pi

The Raspberry Pi opens the door to almost infinite possibilities. Its tiny, its cheap and its portable. Raspberry Pi has been designed for programming and comes with many things preinstalled such as Python and with the combination of Python with GPIO pins, the possibilities are endless.

Raspberry Pi is a powerful board with a 64bit Linux Operating System, it can be used in a wide variety of projects, including Internet of Things (IoT), Machine Learning (ML), Artificial Intelligence (AI), Computer Vision and other projects.

As a student you can utilize this in your Semester Projects and well as Final Year Projects (FYPs). You will become Professional to make projects for Large Scale Companies as many companies are using Raspberry Pi in their projects.

Why study Raspberry Pi from CERD

We have qualified Engineers as our course Instructors, we have delivered many sessions of Raspberry Pi trainings at University Level. We continuously update our courses according to the latest technologies that are in the market today. Our courses are not theoretically based but are entirely based on Programming and hands on practical experience.

Internship at CERD Pakistan & Fee Refund

We are going to refund 100% Fee to top one student of this course.

Top 3 students from this course are going to be offered internships at CERD. Duration of internships are decided upon various factors. Student is given the choice to select between Software Engineering Internship or Electronics based Hardware Engineering Internship.

What you will learn (Course Outline)

**2 Months Course, Classes on Sundays Only.*

Introduction

- Microcontrollers VS Microprocessors
- Introduction to Raspberry Pi
- Importance of Raspberry Pi
- Comparing Raspberry Pi with other boards.
- Some Raspberry Pi Projects

Getting Started with Raspberry Pi

- Introduction to Linux & Debian OS
- Raspberry Pi Ports & Peripherals
- Introduction to Linux Shell

Introduction to Python Programming

- Advantages of Python
- Comparing Python with other Languages
- Programming in Python from Basics

Programming in Python

- Programming GPIO OUTPUT using Python
- Programming GPIO INPUT using Python
- PWM Programming (Software PWM)
- Interfacing Servo motor
- Enabling Python at Boot

Interfacing DC Motor

- H-bridge
- Introduction and types of H-bridges
- L293D Dual H-Bridge IC
- Interfacing L293D with Raspberry Pi

Remote Access

- Accessing Remotely through SSH
- Accessing Remotely through VNC

- Accessing Remotely through TeamViewer

Interfacing Sensors

- Interfacing DHT22 Temp. & Humidity Sensor
- Interfacing Ultrasonic distance sensor
- Interfacing PIR Motion Sensor

Internet of Things (IoT)

- Introduction to Internet of Things
- Introduction to Thingspeak Server
- Updating data on Thingspeak Server using Raspberry Pi
- Getting data from Thingspeak Server using Raspberry Pi

Computer Vision/ Image Processing using OpenCV

- Introduction to Computer Vision and Python
- Basics of OpenCV using Python
- Raspberry Pi, OpenCV and Python