

Tentative Schedule

Day/Slot 10:00 am – 12:00 pm

- Day 1 • Course Introduction

Python

- Day 2 • Introduction
• Why Python Programming?
• Data Type and Operators

- Day 3 • Data Structures
• Control Flow

- Day 4 • Function
• Scripting

- Day 5 • Practical 1
• Practical 2

Raspberry Pi

- Day 6 • Introduction
• Why Raspberry Pi?
• Introduction
• How to Start?
• Raspberry Pi Vs Arduino

- Day 7 • Operating System
• Raspberry Pi setup
• Raspberry Pi Configuration
• Navigating the File system
• Text Editors

- Day 8 • Permissions
• Accessing File
• Python in Raspberry Pi
• GPIOs
• Protocol Pins
• PWM
• Tkinter Library

- Day 9 • Communication
• Practical 1

- Practical 2

Arduino

- Day 10
 - Introduction
 - Arduino board
 - Sketches
 - Arduino IDE
- Day 11
 - Arduino Libraries
 - C programming Basics for Arduino
- Day 12
 - GPIOs
 - Communication
- Day 13
 - Practical 1
 - Practical 2

Sensors and Actuators

- Day 14
 - Sensors Introduction
 - Actuators Introduction
 - Basic Setup
 - Sensor Selection
 - Actuator Selection
- Day 15
 - Programming for Every Sensor and Actuators
 - Making of Small Devices
- Day 16
 - Use of Various Sensors
 - Use of Various Actuators
- Day 17
 - Practical 1
 - Practical 2

Internet of Things (IoT)

- Day 18
 - Introduction,
 - IoT Devices and Computers
 - Case Study
- Day 19
 - Adoption towards IoT
 - Benefits, Risk, Privacy and Security
 - Embedded System
 - Networking and Wan
- Day 20
 - Internet structure
 - Protocols

- TCP/ IP Application Layers
- Day 21
- Practical 1
 - Practical 2

Webots

- Day 22
- Introduction
- Day 23
- User interface
 - Virtual Simulations of a Wheeled Robot
- Day 24
- Virtual Simulations of Humanoid Robot
- Day 25
- Practical 1
 - Practical 2

Robot Design with NX

- Day 26
- Introduction about NX
- Day 27
- User interface
 - Modeling
 - Assembly
- Day 28
- Drafting
 - Practical 1
 - Practical 2
- Day 29
- Projects Explanation and Discussion
- Day 30
- Case Study