



NeuVays

INNOVATION
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** Note: This syllabus may be vary as per the requirement

Module	Internet of Things (IoT)	
1	Introduction	What is IOT- In Depth Explanation Concepts and Technologies behind Internet of Things (IOT) The Past, Present, and Future of IOT Scope of IOT in India How large is the IOT Market in Different Domain Different skills required to become an IoT developer
2	IOT Architecture	IOT Network Architecture IOT Device Architecture IOT Application Architecture IOT cloud Architecture
3	IOT Device Design	Sensors & Actuator – Classification & selection criteria based on nature, frequency, and amplitude of signal Embedded Development Boards – Arduino UNO, Raspberry Pi, NodeMcu Interfacing peripherals & Programming GPIOs – Input/output peripherals, Sensor modules Design Considerations – Cost, Performance & Power Consumption tradeoffs
4	Getting started with Raspberry pi	Introduction to Raspberry pi Raspberry pi different model comparison Raspberry Pi operating system choices Set up your Raspberry pi Raspbian OS
5	Raspberry pi vs Arduino	Introduction To Arduino Advantages of Raspberry pi over Arduino Differences Between Arduino and Raspberry
6	Hands on session on Raspberry pi using Linux OS commands	Introduction Linux vs other Operating system Linux basic commands Installation of packages Linux Filehandling installation on Linux
7	Remote Access to Raspberry pi	Remote Access using SSH Remote Access using Tight VNC

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8	Programming Languages	C/C++ Embedded C Python
9	Practical session on Python Programming Language	Program using Loops Program using function Python Libraries Oops concept in Python Hardware interfacing with python Exception Handling in Python Web connectivity with python Data storage in Python
10	Embedded system with Raspberry pi	Introduction to Embedded system Embedded system basic block diagram Difference between Microprocessor and Microcontroller Key points for Choosing the Right Microcontroller Using Raspberry Pi in Embedded System Raspberry pi GPIO interfacing Led Interfacing with Raspberry pi using python Switch counter project using python DC Motor Interfacing with Relay H-Bridge Circuit Working of L293D PIR sensor interfacing with raspberry pi DHT22 /11 sensor interfacing with Raspberry pi
11	IOT Communication Protocols	Wired Communication Protocols – UART, USART,SPI,I2C Wireless Communication Protocols – Bluetooth , Wi-Fi, Gateway Networking Protocols – OSI Reference Model, TCP/IP, Ethernet Application Protocols – HTTP, Web sockets, MQTT
12	Cloud Computing	Overview of Computing Different types of computing Concept of cloud computing Architecture of Cloud Description on Iaas , Paas , Saas Top Cloud service providers Role of Cloud Computing in IOT Tools for integration of IOT devices with Cloud Cloud Foundry
13	Cloud server for IOT	Connecting Esp8266 with Internet Sending Data using esp8266 to Thing Speak Sending Data using esp8266 to BLYNK Server



		Controlling actuators connected using Internet with android app
14	The Node-RED programming model	Node-Red Examples with Cloud Platform Node red Basic flow with Hello world Node red Weather Station Node red Twitter analysis Node-Red Using Raspberry pi and IOT Watson Controlling Led using Twitter feed

** we will also implement some projects of Internet of Things (IoT) along with that.

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