Details of the Course

Name of The Course: Industrial Training & Internship in Internet of Things(IoT)

Duration: 8 weeks
Fee (in Rs.): Rs 4307/-
Eligibility: Diploma/B.Sc./B.Tech/ In Electronics, Electrical, Instrumentation Engineering, Computer Science, IT or its equivalent/BCA/MCA. (Completed or Pursuing).

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http://nielitpatnaonline.in/onlinecourse/Certificate_Course.php?fbclid=IwAR3a0xB-VpOGOnUhGwfQSdPuDrQvsIRr56stjObTfKq8YN3PUJGEEC1qqek

Course Content:

UNIT I: Introduction to Internet of Things			
Day	**Topic**	**Sub Topic**	**Duration in Hours**
1	IoT Introduction	IoT Evolution	
		IoT Terminologies	
		IoT Building Blocks	
		IoT Architecture	
2	IoT Introduction	IoT Applications, Scope and Case Studies	
3	Sensor and Actuator	Basic Electronics for IoT	
		Introduction to Sensors, Working Principle	
4	Sensor and Actuator	Types of Sensors	
		Sensors for IoT	
5	Arduino	History, Types of boards and Architecture	
		Components of Arduino Board	
		Arduino UNO	10

UNIT II : Arduino Programming			
Day	**Topic**	**Sub Topic**	**Duration in Hours**
15	Embedded Serial Protocols	UART	
		I2C	
		SPI	
2	Arduino Programming	Fundamentals of C Programming	
		Arduino IDE, Arduino Programming	
3	Arduino Programming	Data Types, Operators and Expressions	
		Conditional statements	
4	Arduino Programming	Function	
		Object Oriented Programming	
		Interrupts	
5	Arduino Programming	Arduino inbuilt function, Digital I/P, Digital O/P, Analog Operation, PWM	
		Practical session	15

UNIT III: IoT application development using Arduino			
Day	**Topic**	**Sub Topic**	**Duration in Hours**
1	Interfacing	Digital I/P	
		Digital O/P	
		Analog Operation	
		PWM	
2	Sensor Interfacing	Interfacing LDR, Ultrasonic Sensor, DHT11, Touch Sensor, GAS Sensor etc	
3	Display and peripheral interfacing	Interfacing LCD, KeyPad, RTC, Buzzer, RFID	
4	Wireless for IoT	Wireless Protocols for IoT	
		PAN,IEEE 802.15	
		WiFi, Bluetooth	
5	ESP32	Introduction to ESP32	
		ESP32 Dev kit	
		GPIOs, Communication, Digital I/O	15

UNIT IV: IoT Connectivity Solution			
Day	**Topic**	**Sub Topic**	**Duration (in Min.)**
1	Interfacing	Analog input, Interrupts	
		PWM, DAC	
		Sensors Interfacing	
2	Web Server	WiFi module configuration Client Server Model	
		Web Server Development, HTTP Client	
		Device control and Monitoring	
3	Bluetooth	Introduction to Bluetooth	
		Classic Bluetooth, Interfacing with Smartphone	
		Interfacing LED, Sensors and Display, BLE Server	
4	Other Communication protocols	LoRaWAN, Zigbee and nRF	
5	IoT Cloud platform	Cloud Computing Fundamentals, Data Collection, Storage and Computing using a Cloud Platform, IoT and cloud integration, IoT implementation using Thingspeak ,Adafruit IO and other open source cloud paltforms	10

UNIT V: : Internet of Things application development using Raspberry Pi			
	Topic	**Sub Topic**	**Duration (in Min.)**
1-5	RaspberryPi	Single Board Computer, Introduction to Raspberry Pi, Hardware Layout and Pinouts, Operating Systems, Booting RPi, configuring the RPi, Networking, Remote access, Python IDE, Python packages for IoT, RPi Hardware interfaces, GPIO and interfacing peripherals, Sensor Interfacing, Programming Raspberry Pi for IoT application using python, Webserver, Node-RED, Wiring Pi, MQTT, Thingspeak, Thingspeak MQTT API, IoT application development using RPi	20
UNIT VI: Project			
Day	**Topic**	**Sub Topic**	**Duration (in Hrs.)**

1	Project	IoT based project implementation	10