



National Institute of Electronics & Information  
Technology Near IIT Patna, Amhara, Bihta,  
Patna(Bihar) -801106

### Details of the Course

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

**Duration (in Hrs.): 40**

**Fee (in Rs.): Rs 1983/-**

**Eligibility:** Diploma/B.Sc./B.Tech/ In Electronics, Electrical, Instrumentation Engineering, Computer Science, IT or its equivalent. (Completed or Pursuing).

**Course Coordinator: Ankit Kumar (Scientist B)**

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**Apply Online:**

[http://nielitpatnaonline.in/onlinecourse/Certificate\\_Course.php?fbclid=IwAR3a0xB-VpOGOnUhGwfQSDPuDrQvsIRr56stjObTfKq8YN3PUJGEEC1qqek](http://nielitpatnaonline.in/onlinecourse/Certificate_Course.php?fbclid=IwAR3a0xB-VpOGOnUhGwfQSDPuDrQvsIRr56stjObTfKq8YN3PUJGEEC1qqek)

### **Course Content:**

UNIT I: Internet of Things (1st Week)			
Day	Topic	Sub Topic	Duration (in Min.)
1	IoT Introduction	IoT Evolution	120
		IoT Terminologies	
		IoT Building Blocks	
		IoT Architecture	
2	IoT Introduction	IoT Applications, Scope and Case Studies	120
3	Sensor and Actuator	Basic Electronics for IoT	120
		Introduction to Sensors, Working Principle	
4	Sensor and Actuator	Types of Sensors	120
		Sensors for IoT	
5	Arduino	History, Types of boards and Architecture	120
		Components of Arduino Board	
		Arduino UNO	

UNIT II : Internet of Things (2nd Week)			
Day	Topic	Sub Topic	Duration (in Min.)
1	Embedded Serial Protocols	UART	120
		I2C	
		SPI	
2	Arduino Programming	Fundamentals of C Programming	120
		Arduino IDE, Arduino Programming	
3	Arduino Programming	Data Types, Operators and Expressions	120
		Conditional statements	
4	Arduino Programming		120
		Object Oriented Programming	
		Interrupts	
5	Arduino Programming	Built in Arduino Functions Digital I/P, Digital O/P, Analog Operation, PWM	120
		Lab session	

UNIT III: Internet of Things (3rd Week)			
Day	Topic	Sub Topic	Duration (in Min.)
1	Interfacing	Digital I/P	120
		Digital O/P	
		Analog Operation	
		PWM	
2	Sensor Interfacing	Interfacing LDR, Ultrasonic Sensor, DHT11, Touch Sensor, GAS Sensor etc	120
3	Display and peripheral interfacing	Interfacing LCD, KeyPad, RTC, Buzzer	120
4	Wireless for IoT	Wireless Protocols for IoT	120
		PAN,IEEE 802.15	
		WiFi, Bluetooth	
5	ESP32	Introduction to ESP32	120
		ESP32 Dev kit	
		GPIOs, Communication, Digital I/O	

UNIT IV: Embedded System Processors (4th Week)			
Day	Topic	Sub Topic	Duration (in Min.)
1	Interfacing	Analog input, Interrupts	120
		PWM, DAC	
		Sensors Interfacing	
2	Web Server	WiFi module configuration Client Server Model	120
		Web Server Development, HTTP Client	
		Device control and Monitoring	
3	Bluetooth	Introduction to Bluetooth	120
		Classic Bluetooth, Interfacing with Smartphone	
		Interfacing LED, Sensors and Display	
4	BLE Server	BLE Server	120
		Configuration	
		Interfacing LED, LCD	
5	Cloud	Cloud platforms for IoT	120
		Interfacing to Cloud	
		Updating sensor data to using, Controlling devices through cloud	