

IoT WITH ARDUINO ESSENTIALS

JULY 2019 ONWARDS

Instructor Information

Instructor	E-mail	Office Location & Hours
Debajyoti Sarkar	debajyoti@ebiw.com	College More-Sector V, 11:00 am - 3:30 pm, 4 Hours/Day

WHO THIS COURSE IS FOR

- No previous electronics or programming knowledge required, but preferred
- Professionals who wants to switch to IoT Technology
- Someone who is interested in learning about the Arduino platform
- Someone interested in building cool projects
- Someone interested in learning about electronics
- Electronics hobbyist
- Students
- Makers or Inventors

REQUIREMENTS

- Be curious about Arduino
- Have the desire to build fun, cool and exciting projects as a way to learn Arduino
- Prefer a hands-on approach to learning
- No previous electronics or programming knowledge needed
- All electronics and programming principles will be taught from scratch
- Arduino Uno Microcontroller
- Arduino Kit will be helpful (connecting wires, breadboard, resistors, push button switches etc.) A kit will get you through at least 90% of the course.

WHAT YOU'LL LEARN

This is a **hands-on, projects-based approach** to learning the Arduino platform catered to **all levels of experience**. In this course, you will build projects and learn essentials such as:

- ✓ Understand what is Arduino and what is prototyping
- ✓ Use the multimeter to measure voltage, current, resistance and continuity
- ✓ Master the fundamentals of Arduino programming with Arduino IDE based on C/C++
- ✓ Control IoT components with various sensors using Arduino
- ✓ Design circuits and write your own code for any projects
- ✓ Build functioning circuits through simulation as well as with breadboards
- ✓ Learn Soldering
- ✓ Light up LEDs, control motors, control LCD displays, and many more
- ✓ Understand PCB schematics and designing
- ✓ How to use software libraries in Arduino programming
- ✓ Hands-on training on 3+ Industry projects
- ✓ 3D LED Cube project
- ✓ Monitoring room temperature with sensors
- ✓ Switching lights with mobile
- ✓ Understand what is IoT and how the IoT Technology works
- ✓ How to incorporate new ideas into practical projects through prototyping

ARDUINO KIT CONTENT

1. Arduino Uno
2. USB cable
3. Breadboard
4. Jumper Wires
5. Single-stranded Wire
6. Multimeter
7. 9V Battery
8. 3.3V Button Battery
9. LEDs, RGB LEDs
10. Resistor Box
11. Servo Motor
12. DC Motor
13. Buzzer
14. Potentiometer
15. Infrared sensor, temperature sensor modules
16. 16 x 2 LCD display
17. Switches
18. Soldering Iron, wire, flux
19. Perforated board
20. 2 channel Relay Module

COURSE SCHEDULE*

WEEK	DAY	TOPIC	HOURS
Week 1	Day 1	Understanding IoT and Applications of IoT	2
Week 1	Day 1	Getting acquainted with Arduino & its Basics	2
Week 1	Day 2	Electronics Basics	2
Week 1	Day 2	Using Arduino IDE, Tinkercad simulation	2
Week 2	Day 3	Buttons, LEDs, RGBs and other functions	2
Week 2	Day 3	Q&A Session	2
Week 2	Day 4	3D LED Cube project	4
Week 3	Day 5	3D LED Cube project	4
Week 3	Day 6	PWM, Analog, Digital Signals and Arduino	4
Week 4	Day 7	Motors and Sensors	4
Week 4	Day 8	Serial, I2C, SPI communications	2
Week 4	Day 8	Q&A Session	2
Week 5	Day 9	Controlling Buzzer	2
Week 5	Day 9	Controlling 16 x 2 LCD Display	2
Week 5	Day 10	Controlling RGB LED with IR sensor Project	4
Week 6	Day 11	Controlling RGB LED with IR sensor Project	4
Week 6	Day 12	Q&A Session	2
Week 6	Day 12	Temperature monitor project	2
Week 7	Day 13	Temperature monitor project	4
Week 7	Day 14	Temperature monitor project	2
Week 7	Day 14	Q&A Session	2
Week 8	Day 15	Controlling LEDs with Bluetooth Project	4
Week 8	Day 16	Controlling LEDs with Bluetooth Project	4
Week 9	Day 17	Controlling LEDs with Bluetooth Project	4
Week 9	Day 18	Q&A Session	1
Week 9	Day 18	Certifications & Feedback	1

2 Months 1 Week**18 Days****TOTAL****72 Hours****2 Days/Week, 4 Hours/Day (8 Hours/Week)*