

Credit hours: 20

## Prerequisites

- Introduction to electricity,
- Arduino 101

## Course Requirements

- Laptop
- IOT 101 Kit

## COURSE DESCRIPTION

This is a hands-on course, students will be introduced to concept of remote controlling, they will learn how to design and program functioning circuits and mini systems based-on the NodeMCU as a development board, run and control them remotely from anywhere through Wi-Fi signals. Also, students will be familiar with Blynk platform as well Blynk App to use it as a user interface for communicating with the development board and getting circuits and systems controlled.

## Learning Objectives

By the end of this course, student will be able to:

1. Knowledge and Understanding:
  - A. Realize and perceive what IOT is as a definition, what and how various branches of science form it.
  - B. Give more consideration to engineering calculations, circuitry limitations and devices specifications when designing a circuit or an electrical/ electromechanical system.
2. Skills and capabilities:
  - A. Use information sources optimally to figure out required data for designing purposes.
  - B. Design and program various systems range from simple systems to complicated one within IOT field.
  - C. Solve some technical daily problems related to simple electrical circuits and devices.
  - D. Delve deeply into IOT world, design and program more complicated systems in a methodological way.

## CONTACT



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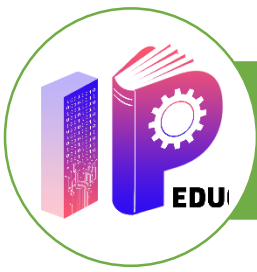
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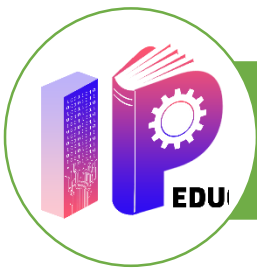


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## COURSE SYLLABUS

#	Topics	No. of Lectures
<b>Ch1: Introduction to IOT</b>		
1	preamble	1
2	ESP8266 chips	
3	ESP chips	
4	Development boards and ESP8266 boards	
5	NodeMCU	
6	Alternative Boards	
<b>Ch2: Blynk platform</b>		
1	preamble	1
2	Blynk app	
<b>Ch3: Programmatic affairs</b>		
1	preamble	1
2	Code lines and the programming structures	
<b>Ch4: : Basics of control</b>		
1	Actual pins in action <ul style="list-style-type: none"><li>• Exp.1: Simple LED</li><li>• Exp.2: DC motor and L298 Driver</li><li>• Exp.3 (Additional experiment): Turn on/off high-voltage loads</li></ul>	1
2	Virtual pins in action <ul style="list-style-type: none"><li>• Exp.1: Simple LEDs</li><li>• Exp.2: RGB LED</li><li>• Exp.3: Control of a Servo motor</li><li>• Exp.4 (Additional experiment): Show Numbers</li></ul>	1



## COURSE SYLLABUS

#	Topics	No. of Lectures
<b>Ch4: Basics of control</b>		
3	Data exchange: <ul style="list-style-type: none"><li>• Exp.1: Detect motion</li><li>• Exp.2: Measure distance</li><li>• Exp.3: Gas sensation</li><li>• Exp.4: Temperature under control</li><li>• Exp.5(Additional experiment): light effect</li></ul>	2
<b>Ch5: Boost Blynkers</b>		
1	Blynk reports	2
2	Troubleshooting	
3	Blynk as apps inventor	
<b>Graduation Project</b>		1

**Note: each lecture takes up to 2 hours**