Course Name	HOME AUTOMATION USING ESP8266 IOT MODULE
Course Code	**EC/2020/019**
Course Duration	40 Hours
Minimum Eligibility Criteria	10th/+2 /ITI/Diploma/Graduate
Pre-requisites (if any)	-
Course Objectives	Training module has been designed for the participants to • Understandthe features of ESP8266 IoT Module • Practice on implementing Webserver in IoT Project • Practice on Fabrication of home automation project using ESP 8266
Course Outcomes	At the end of training, the trainees will be able to • Explain the features of ESP8266 IoT Module • Develop IoT application using Webserver and ESP 8266 • Demonstrate the home automation project using ESP 8266
Expected Job Roles	IoT Project Designer

Course Code	Course Name	Hours		Assessment Marks		Duration of Examination
				Min	Max	
EC/2020/019	HOME AUTOMATION USING ESP8266 IOT MODULE	Theory	16	10	20	3 Hours
		Practical	24	40	80	
		Total	40	50	100	

EC/2020/019 – HOME AUTOMATION USING ESP8266 IOT MODULE

DETAILED SYLLABUS

Unit No	Modules	No.of.Hours	
		Theory	Practical
I	**Introduction ESP8266 IoT Module**	16 Hours	
1.1	Introduction and Features of ESP 8266, Getting Started with ESP8266	08	08
1.2	ESP8266 with Arduino IDE - Blinking LED with Arduino IDE		
1.3	Interacting with GPIOs: Digital Inputs and Digital Outputs - Analog Inputs		
1.4	Pulse Width Modulation		
1.5	Interrupts and Timers - Deep Sleep.		
II	**Web Servers:**	12 Hours	
2.1	Web Server Introduction, Password Protected Web Server	04	08
2.2	Control Sockets Remotely via Web Server, Control ESP8266 with Android Widget App		
2.3	Making Your Web Server Accessible from Anywhere in the World, Temperature Sensor Web Server		
2.4	Asynchronous Web Server, RGB LED Strip with Color Picker Web Server		
2.5	Web Server using SPIFFS		
2.6	Set the ESP8266 as an Access Point.		
III	**ESP8266 IoT and Home Automation Projects**	12 Hours	
3.1	Infrared RGB LED Lamp Controller with ESP8266	04	08
3.2	Weather Station with OLED Display		
3.3	Voltage Regulator (Prepared for LiPo/Li-ion Batteries)		
3.4	Wi-Fi Button (DIY Dash button)		
3.5	ESP8266 Daily Task		
	Total Theory / Practical Hours	**16**	**24**
	Total hours	**40**	

HARDWARE REQUIREMENT

S.NO	LIST OF TOOLS /EQUIPMENTS
1	PC/Laptop
2	ESP 8266 IoT Module
3	Switches, LEDs, Temperature Sensors
4	LCD, OLED and Batteries

SOFTWARE REQUIREMENT

S.NO	NAME OF THE SOFTWARE
1	ARDUINO IDE

REFERENCE BOOKS

S.NO	NAME OF THE BOOK	AUTHOR	PUBLISHER
1	Home Automation with the ESP8266: Build Home Automation	Marco Schwartz	CreateSpace Independent Publishing Platform
2	ESP8266 Home Automation Projects	CatalinBatrinu	Packt Publishing Ltd

ASSESSMENT AND CERTIFICATION

S.No	Criteria for assessment
1.	A trainee will be assessed based on the performance in End Examination for Theory and Practical conducted internally in the CIICP Project Polytechnic College for a duration of 3 hours
2.	A trainee must have 75% of attendance to appear for End examination in Theory and Practical.
3.	The assessment for theory part will be based on the marks scored in the end examination on the knowledge bank of questions (1 word/objective type questions)
4.	The assessment for practical part will be based on the marks scored in the end examination conducted by the CIICP Project Polytechnic and assessed by the Examiners approved by Strategic Plan Implementation Committee (SPIC) of the project polytechnic.
5.	The passing criteria for successful completion of training is every trainee should score 50% of marks in theory and practical examination.
6.	On successful completion of training, certificate will be issued to the participants by the Directorate of Technical Education through the Project Polytechnics.

END EXAMINATION

ALLOCATION OF MARKS

S.NO	Description	Max. Marks
1.	Theory Examination	20
2.	Practical Examination	
	a)Objective and Circuit and Program	20
	b)Procedure and Connections / Execution	20
	c)Result and Viva	20
	d)Record	20
	Total Marks	**100**

THEORY MODEL QUESTION PAPER

EC/2020/019 - HOME AUTOMATION USING ESP8266 IOT MODULE

(Maximum Marks: 20)

(N.B: Answer any Twenty questions)   **20x1= 20 Marks**

1. Write any two features of ESP8266.
2. How many GPIO pins are present in ESP8266?
3. How to set up ESP8266 module?
4. What is meant by PWM?
5. Expand HTTP.
6. Expand HTML.
7. Which interrupt is used to put ESP8266 in deep sleep mode for an indefinite period of time?
8. Define Web server.
9. Which protocol is used in web server?
10. How the temperature sensor web sever can be attained?
11. How to install libraries?
12. What is meant by Asynchronous web server?
13. Expand SPIFFS.
14. Expand DNS.
15. Name the components used to make Infrared RGB lamp controller with ESP8266.
16. Name the files used to build web server.
17. Where the HTML and CSS files should be saved?
18. What is the use of IFTTT?
19. What is the recommended voltage of ESP?
20. Name the steps used to make password protected web server.
21. Name the steps involved in making your Web Server Accessible from Anywhere in the World .
22. What is the use of SPIFFS?
23. What is an access point in ESP8266?
24. Name the different types of sleep mode in ESP8266.
25. What is the clock speed of ESP8266?