Course code	Course Title	L	T	P	C
BITE403P	Embedded Systems and IoT Lab	0	0	2	1
Pre-requisite	BITE301L			Syllabus version	
				1.0	

Course Objectives:

1. Impart the embedded programming for real world problems.
2. Explore IoT devices for physical world and cyber space integration.

Course Outcomes:

1. Build a hardware platform encompassing a microcontrollers, sensors and peripherals.
2. Apply programming skills and IT tools necessary for embedded product development.
3. Analyze complex problems through challenges posed by IoT design leading to new low-cost architectural models.

	Indicative Experiments	Hours
1.	8051 Microcontroller I/O operations: Embedded C programs	2 hours
2.	8051 Embedded C programs for Servo motor interfacing	2 hours
3.	Familiarization with Arduino Uno /Raspberry Pi to get the values from sensors and turn on/ off the actuators	2 hours
4.	Program to retrieve the sensor data using Arduino/Raspberry Pi and monitor the values through a web application	2 hours
5.	Program to control the actuators using Arduino/Raspberry Pi through a web application.	2 hours
6.	Program to control appliances using BLE	4 hours
7.	Program to implement different topologies using Zigbee protocol	4 hours
8.	Program using NFC/RFID for tracking systems	4 hours
9.	Program to implement Face Recognition using Raspberry Pi	4 hours
10.	Program to implement Voice Recognition using Raspberry Pi.	4 hours
	Total Laboratory Hours	**30 hours**

Mode of Assessment: Continuous Assessments, Final Assessment Test

Recommended by Board of Studies	20-05-2022		
Approved by Academic Council	No. 66	Date	16-06-2022