

Ex.No	Title	Tasks	Tools/Software Options
1	Sensor Node Development-1	Familiarize a selected microcontroller. <ul style="list-style-type: none"> • Work with the peripherals. • Interface sensors • Interface communication modules • Interface display/actuators 	Node MCU Arduino Mbed LPC 2148 MSP 430
2	Sensor Node Development-2	Familiarize a selected microcontroller. <ul style="list-style-type: none"> • Work with the peripherals. • Interface sensors • Interface communication modules • Interface display/actuators 	Node MCU Arduino Mbed LPC 2148 MSP 430
3	Sensor Node Development-3	Familiarize a selected microcontroller. <ul style="list-style-type: none"> • Work with the peripherals. • Interface sensors • Interface communication modules • Interface display/actuators 	Node MCU Arduino Mbed LPC 2148 MSP 430
4	Netsim experiment	Create a scenario for a network and simulate and analyze the network.	Netsim
5	MQTT implementation <ul style="list-style-type: none"> • with online broker • with local broker 	Implement publisher/subscriber clients for an application using the nodes developed in Exp 1/2/3. Subpart 1 – working with online brokers. Subpart 2 – Installing a local broker on a SBC and creating a network for MQTT implementation.	https://mqtt.org/software/
6	Client –Server communication model	Implement TCP/IP communication between 2 nodes .	
7	Development of gateway node	Using a SBC create a node capable of communicating using heterogeneous communication technology.	RPi/BBB
8	Database management	Implement a python based program capable of storing the incoming data into a database of your choice.	MySQL/SQLite
9	Front End Development	Develop a GUI which should <ul style="list-style-type: none"> • display data in the database created in previous experiment • plot the sensor data 	Tkinter/pyQt5
10	Web server Development	Develop a python based webserver with <ul style="list-style-type: none"> • Log in option • Real time sensor data visualization 	Flask/Django
11	IoT platforms <ul style="list-style-type: none"> • Thingspeak • Adafruit • Ubidots 	Communicating data from sensor nodes to these IoT platforms and familiarizing with the features of these IoT platforms.	

