Course Module for Level 2 – Intermediate Level Course

Course Module Level:	Level 2 - Intermediate Level (+Internship)
Course Objective:	1. This course focuses on Internet of Things (IoT) and its architecture, Protocols, hardware used in IoT, Sensors, Actuators 2. It covers the Hands on Experience with NodeMCU (ESP32 or ESP8266) and development of Internet of Things (IoT) prototypes including devices for sensing and communication helps to develop skills and experiences.
Course Outcome:	1. Students will be explored to understand the various enabling IoT concepts. 2. To Understand Application areas of IoT, IoT Platforms, Software's and Hardware's. 3. Real time explorer using Real-Time Projects.
Course Duration:	3 or 5 Days
Course Prerequisites	Basic knowledge on C and Python Language
	Should Complete Level 1 - Beginner Level course
	Computer Networks respective to Internet

Sl. No	**Lecture /Lab Wise Breakup**	
	Chapters	**Contents**
1	Overview of Basic Concepts	
2	Introduction to NodeMCU (ESP8266 or ESP32)	Introduction to Hardware
		Introduction to Software (Adding board to Arduino IDE)
		Interfacing Sensors to NodeMCU
		Interfacing Actuators to NodeMCU
3	Introduction to Protocol	Introduction to MQTT and working on it
4	Introduction to Cloud	Introduction to AWS

		Exploring on IoT Core Service on AWS
5	Introduction to Raspberry Pi	Introduction to Raspberry RPi
		Getting Started to RPi
		Interfacing Sensors to RPi
		Publishing Data to AWS
6	Introduction to Industrial IoT	Introduction to Node-Red and Simulation
		Introduction to Mindsphere (Insights Hub)
		Activities: Simulation of various industry cases using Node-red and Mindsphere
		Overview of Siemens hardware: Mindconnect Nano
7	Mini - Project	