

## Model Curriculum: IoT Assistant

S No.	NOS	Topics	Duration (Hours)		Learning Outcomes
			Theory	Lab	
1	Identification and troubleshooting of Basic Electronics components	<ul style="list-style-type: none"> <li>• Identification of electronics components</li> <li>• Understanding the Fundamentals of basic electronics</li> <li>• Troubleshooting of electronics components</li> <li>• Understanding the operation of measurement devices.</li> </ul>	20	40	<ul style="list-style-type: none"> <li>• Students will be able to identify the basic electronics components like Resistor, Inductor, diodes, transistor, LED, Capacitor etc.</li> <li>• Students will be able to learn the fundamentals of basic electronics.</li> <li>• Students will be able to understand how to operate the multimeter, ammeter, voltmeter, voltage supply etc.</li> <li>• Students will be able to learn the operation of diodes, transistors, Zener diodes, rectifiers etc.</li> <li>• Students will understand how to assemble the electronics components to make a circuit using Bread-board as well as veroboard.</li> <li>• Students will be able to perform soldering - de-soldering along with troubleshooting the basic PCB circuits.</li> </ul>
2	Conceptualising IoT Platform - Arduino	<ul style="list-style-type: none"> <li>• Introduction to microprocessor and micro controller</li> <li>• Introduction to Internet of Things(IoT) – applications, protocols, use-cases</li> <li>• Introduction to Arduino</li> <li>• Embedded C Language</li> <li>• Interfacing of sensors and actuators with Arduino Boards</li> </ul>	50	70	<ul style="list-style-type: none"> <li>• Student will understand the basic difference between microprocessor and micro-controller, different types of micro-controller boards.</li> <li>• Students will come to know about the fundamentals of Internet of Things(IoT) - applications, protocols, use-cases</li> <li>• Students will be able to understand the IoT ecosystem, basic building blocks of IoT.</li> <li>• Student will learn about the different types of Arduino boards in brief.</li> <li>• Students will learn about the basic difference between transducers, sensors and actuators.</li> <li>• Students will come to know about the different types of sensors and their working principles.</li> <li>• Students will write programme using embedded C language on Arduino Platform</li> <li>• Students will learn and do hands-on in interfacing digital and analog sensors with Arduino Uno.</li> </ul>

3	Conceptualising of IoT based use-cases	<ul style="list-style-type: none"> <li>• Smart Street Light control</li> <li>• Home automation using Arduino</li> <li>• Password enabled Digital Lock using Arduino</li> </ul>	20	40	<ul style="list-style-type: none"> <li>• Students will learn, how to make a prototype of Intelligent street light control using LDR, LED and Relay</li> <li>• Students will learn, how to develop a home automation system using Bluetooth, PIR and Relay.</li> <li>• Students will learn how to make a password enabled digital lock using keypad, LCD, buzzer.</li> </ul>
<b>Sub Total = 240 hours</b>			90	150	
4	Employability Skills		30		Students will be able to get the additional skills apart from the technical skills, to be job ready
5	OJT/Project		30		Students will be able to learn the working in a job.
<b>Total Duration</b>			<b>300</b>		