



BRAINWARE UNIVERSITY

[MCA492A][2023- 24]

DETAIL ACTIVITY PLAN FOR PRACTICAL COURSES

Name of the Instructor/Faculty: Dr.K.Kavitha			
Designation of Faculty: Associate Professor			
Department of Faculty: Computational Science			
Course Name & Code: Internet of Things & Data Analytics Lab			
Course Credit: 2	Weekly L-T-P: 0-0-4	Total Contact Hours in the semester: 60P	Maximum Marks: 100
Programme(s) Name & Semester/Term: Master of Computer Applications 2022 & 3rd semester			
Target students [Section(s)/Group(s)] & Total Students: MCA Section - A+B+C Group1.1			

Course Outcomes, Module(s)/Experiment Number and Learning Level Mapping.

Sl	Course Outcomes	Module(s)
1.	CO1: Understand and explain the concepts of IoT.	1
2.	CO2: Analyze and evaluate various sensors with Arduino.	1,2
3.	CO3: Create and evaluate different statistical models.	3

Components of Assessments:

1. Continuous Internal Assessments (CIE) as per the syllabus and assessment policy
2. End Semester Examination as per the syllabus and assessment policy

Experiment No	Name of the Experiment	Date(s) (From-To)	Objective(s)	Duration (in hours)	Book(s) for Theory (If applicable)	Reference (Lab Manual)
1.	Traffic Signal (basics of Arduino, LED, Breadboard, Resistor)	13.02.2024 –17.02.2024	Aim of this assignment is to demonstrate basics of Arduino, LED, Breadboard, Resistor and create a program code to implement traffic signals.	4 Hrs	Analytics for the Internet of Things (IoT): Intelligent analytics for your intelligent devices, Andrew Minter, Packt Publishing, 2017.	
2.	Visitors count using PIR motion sensor.	20.02.2024 – 24.02.2024	Aim of this assignment is to provide simple practice to Make	4 Hrs	Analytics for the Internet of Things	



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			an LED connected to a specific pin on the Arduino blink on and off. Program code showcase the use of Arduino, LED, resistor (220Ω), breadboard, jumper wires.		(IoT): Intelligent analytics for your intelligent devices, Andrew Minter, Packt Publishing, 2017.	
3.	Rain Drop Sensor.	27.02.2024 – 02.03.2024	Aim of this assignment is to Create a digital raindrop sensor using Arduino typically involves using a raindrop sensor module that includes a digital output. These modules are equipped with a sensor that detects raindrops and outputs a digital signal to the Arduino.	4 Hrs	Analytics for the Internet of Things (IoT): Intelligent analytics for your intelligent devices, Andrew Minter, Packt Publishing, 2017.	
4.	Moisture Sensor.	05.03.2024 – 09.03.2024	Aim of this assignment is to focus on a moisture sensor is a device used to measure the moisture level in soil or other materials. It is commonly used in gardening and agriculture to monitor soil moisture for plants.	4 Hrs	Analytics for the Internet of Things (IoT): Intelligent analytics for your intelligent devices, Andrew Minter, Packt Publishing, 2017.	
5.	Room temperature detection.	12.03.2024 – 16.03.2024	Aim of this assignment is to monitor the ambient temperature of a room over a cycle of 24 hours and display the current temperature, the maximum temperature recorded, and the minimum temperature recorded within that 24-hour cycle on an LCD panel.	4 Hrs	Analytics for the Internet of Things (IoT): Intelligent analytics for your intelligent devices, Andrew Minter, Packt Publishing, 2017.	



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6.	Touch Sensor.	19.03.2024 – 23.03.2024	Aim of this assignment is to illustrate touch sensor is commonly used to control devices where touch is detected. It defines the touch sensor's signal pin that we have connected with the Arduino's digital pin. It helps to know about setup (), Loop (), digitalRead().	4 Hrs	Analytics for the Internet of Things (IoT): Intelligent analytics for your intelligent devices, Andrew Minter, Packt Publishing, 2017.	
7.	Infrared Sensor.	26.03.2024 - 30.03.2024	Aim of this assignment is to demonstrate how to connect IR sensor to an Arduino Uno, read its output, and interface multiple sensors to the Arduino how Infrared Sensor Work.	4 Hrs	Analytics for the Internet of Things (IoT): Intelligent analytics for your intelligent devices, Andrew Minter, Packt Publishing, 2017.	
8.	Servo Moto.	09.04.2024 – 13.04.2024	Aim of this assignment is to illustrate the connections between the ESP32 and the servo motor Servo Moto and to create a Servo Sweep programme that continuously oscillates between the extremes of left and right.	4 Hrs	Analytics for the Internet of Things (IoT): Intelligent analytics for your intelligent devices, Andrew Minter, Packt Publishing, 2017.	
9.	Smart hand sanitizer.	16.04.2024 – 20.04.2024	Aim of this assignment is to track the frequency of usage of the Smart hand Sanitizer and to dispense the sanitizer without requiring physical contact.	4 Hrs	Analytics for the Internet of Things (IoT): Intelligent analytics for your intelligent devices, Andrew Minter,	



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					Packt Publishing, 2017.	
10.	Fire alarm system.	23.04.2024 – 27.04.2024	Aim of this assignment is to using an IR flame sensor, LCD, and speaker is to provide an effective and timely response to the presence of a fire or flame. The system is designed to detect the infrared radiation emitted by flames, process this information, and trigger visual and audible alerts to notify occupants or relevant authorities about the potential fire hazard.	4 Hrs	Analytics for the Internet of Things (IoT): Intelligent analytics for your intelligent devices, Andrew Minter, Packt Publishing, 2017.	
11.	Automatic Room Lighting System.	30.04.2024 – 04.05.2024	Aim of this assignment is to demonstrate Automatic Room Lighting System using Arduino Uno, PIR Motion Sensor, LDR (Light Dependent Resistor), LED Lights, Resistors, Breadboard, and jumper wires is to create an intelligent and energy-efficient lighting system that automatically adjusts the room lighting based on occupancy and ambient light levels.	4 Hrs	Analytics for the Internet of Things (IoT): Intelligent analytics for your intelligent devices, Andrew Minter, Packt Publishing, 2017.	
12.	Process big data using Hadoop framework.	07.05.2024 - 11.05.2024	Aim of this assignment helps to understand the functionalities of Mapper and Reducer Classes to find out the frequency of each word.	4 Hrs	Big-Data Analytics for Cloud, IoT and Cognitive Computing, Kai Hwang and Min Chen, Wiley, 1st Edition, 2017	



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13.	Build and apply linear and logistic regression models.	14.05.2024 - 18.05.2024	Aim of this assignment is to create and apply Linear and Logistic Regression Models for a simple linear regression model using Python and the popular machine learning library, scikit-learn. It helps to make predictions or understand the strength and nature of the association between the variables.	4 Hrs	Big-Data Analytics for Cloud, IoT and Cognitive Computing, Kai Hwang and Min Chen, Wiley, 1st Edition, 2017	
14.	Perform data analysis with machine learning methods.	21.05.2024 - 25.05.2024	Aim of this assignment is to performing data analysis with machine learning methods is to gain insights, make predictions, and automate decision-making processes using computational models.	4 Hrs	Big-Data Analytics for Cloud, IoT and Cognitive Computing, Kai Hwang and Min Chen, Wiley, 1st Edition, 2017	
15.	Perform graphical data analysis.	28.05.2024 - 01.06.2024	Aim of this assignment is to performing graphical data analysis using Python to visually explore, analyze, and communicate insights from data and Understand relationships between different variables or features.	4 Hrs	Big-Data Analytics for Cloud, IoT and Cognitive Computing, Kai Hwang and Min Chen, Wiley, 1st Edition, 2017	
16.	Practice Lab	11.06.2024 - 15.06.2024	Data Analysis	4 Hrs		

Total Experiment/ Lab Hours: 64

Suggested Readings

1. Analytics for the Internet of Things (IoT): Intelligent analytics for your intelligent devices, Andrew Minter, Packt Publishing, 2017.
2. Big-Data Analytics for Cloud, IoT and Cognitive Computing, Kai Hwang and Min Chen, Wiley, 1st Edition, 2017

Laboratory Manual



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A handwritten signature in blue ink, appearing to read "Dr. K. Kavitha", is written on a light blue rectangular background.

Signature of the Faculty

Dr.K.Kavitha