**20EE22P1- IoT Lab**

|  |  |  |  |
| --- | --- | --- | --- |
| **Course Category:** | Professional core | **Credits:** | 1.5 |
| **Course Type:** | Laboratory | **Lecture-Tutorial-Practical:** | 0-0-3 |
| **Pre-requisite:** | C-Programming &basic electrical concepts | **Sessional Evaluation:**  **External Exam Evaluation:**  **Total Marks:** | 40  60  100 |

|  |  |  |
| --- | --- | --- |
| **Course Objectives:** | Students undergoing this course are expected to learn: | |
| 1. The basic knowledge of Arduino kit. 2. To measure different parameters usingArduino . 3. Various applications of Arduino. 4. To interface different sensors with Arduino kit 5. The basic programming knowledge on Arduino kit 6. The interfacing of different types of sensors to Arduino kit. | |
| **Course Outcomes:** | After completing the course the student will be able to | |
| CO1 | Understand voltage, current, temperature and pressure circuitry using Arduino kit. |
| CO2 | Apply appropriate techniques for position error detection. |
| CO3 | Analyse the different sensorsusing Arduino kit. |
| CO4 | Evaluate physical quantity using sensors and Arduino kit. |
| CO5 | Demonstrate the basic programming on Arduino kit |
| CO6 | Design to interface different types of sensors to Arduino kit |
| **Course Content:** | Minimum of 10 experiments to be conducted out of the following:  **List of Experiments**  1. Voltage and Current Detection Circuitry.  2. Temperature and Pressure Detection Circuitry.  3. Water flow and Level Detection Circuitry.  4. Position Indication (LVDT, Pot).  5. Proximity sensors (inductive).  6. Distance (Ultrasonic) sensor.  7. Light sensor.  8. Humidity sensor.  9. Rainfall and Soil moisture Sensor..  10. Accelerometer sensor.  11.Motion sensor  12.Wave generation  13.Speed control of DC motor with Arduino | |
| **e-reference** | <http://mct.asu.edu.eg/uploads/1/4/0/8/14081679/lab1.pdf>  http://www.dissidents.com/resources/LaboratoryManualForEmbeddedControllers.pdf | |