

# KIIT POLYTECHNIC, BHUBANESWAR

## LESSON PLAN Session (2024-2025)

|                                                   |                                                |                                                                                                  |
|---------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Discipline:</b> Computer Science & Engineering | <b>Semester:</b> 6 <sup>th</sup> , Summer/2025 | <b>Name of the Faculty:</b><br>Abhaya Kumar Panda<br><b>Email ID:</b><br>abhayafcs@kp.kiit.ac.in |
| <b>Subject:</b> Internet of Things (Th-2)         | <b>No. of Days/week:</b> 04                    | <b>Start Date:</b> 04/02/2025<br><b>End Date:</b> 17/05/2025                                     |

| Week | Class Day | Theory Topics                                                                                        |
|------|-----------|------------------------------------------------------------------------------------------------------|
| 1st  | 1st       | <b>Introduction to Internet of Things:</b> Introduction, Characteristics of IoT, Applications of IoT |
|      | 2nd       | IoT Categories, IoT Enablers and connectivity layers                                                 |
|      | 3rd       | Baseline Technologies, Sensor                                                                        |
|      | 4th       | Actuator                                                                                             |
| 2nd  | 1st       | IoT components and implementation, Challenges for IoT                                                |
|      | 2nd       | Question Answer Discussion                                                                           |
|      | 3rd       | <b>IOT Networking:</b> Terminologies, Gateway Prefix allotment, Impact of mobility on Addressing.    |
|      | 4th       | Multihoming                                                                                          |
| 3rd  | 1st       | Deviation from regular Web                                                                           |
|      | 2nd       | IoT identification and Data protocols                                                                |
|      | 3rd       | IoT identification and Data protocols (Cont..)                                                       |
|      | 4th       | Question Answer Discussion                                                                           |
| 4th  | 1st       | <b>Connectivity Technologies:</b> Introduction, IEEE 802.15.4                                        |
|      | 2nd       | ZigBee, 6LoWPAN                                                                                      |
|      | 3rd       | RFID, HART and wireless HART                                                                         |
|      | 4th       | NFC, Bluetooth,                                                                                      |
| 5th  | 1st       | Z wave, ISA100.11. A                                                                                 |

|      |     |                                                                                                |
|------|-----|------------------------------------------------------------------------------------------------|
|      | 2nd | Quiz Test                                                                                      |
|      | 3rd | <b>Wireless Sensor Networks:</b> Introduction, Components of a sensor node, Modes of Detection |
|      | 4th | Challenges in WSN, Sensor Web                                                                  |
| 6th  | 1st | Cooperation and Behavior of Nodes in WSN, Self Management of WSN, Social sensing WSN           |
|      | 2nd | Application of WSN, Wireless Multimedia sensor network, Wireless Nano sensor Networks          |
|      | 3rd | Underwater acoustic sensor networks, WSN Coverage                                              |
|      | 4th | Stationary WSN, Mobile WSN                                                                     |
| 7th  | 1st | <b>M2M Communication:</b> M2M communication                                                    |
|      | 2nd | M2M Ecosystem                                                                                  |
|      | 3rd | M2M service Platform                                                                           |
|      | 4th | Interoperability                                                                               |
| 8th  | 1st | Question Answer Discussion                                                                     |
|      | 2nd | <b>Programming with Arduino:</b> Features of Arduino                                           |
|      | 3rd | Components of Arduino Board                                                                    |
|      | 4th | Arduino IDE                                                                                    |
| 9th  | 1st | Case Studies                                                                                   |
|      | 2nd | Question Answer Discussion                                                                     |
|      | 3rd | <b>Programming with Raspberry Pi:</b> Architecture                                             |
|      | 4th | Pin Configuration                                                                              |
| 10th | 1st | Case studies                                                                                   |
|      | 2nd | Case studies                                                                                   |
|      | 3rd | Implementation of IoT with Raspberry Pi                                                        |
|      | 4th | <b>Software defined Networking:</b> Limitation of current network, Origin of SDN               |
| 11th | 1st | SDN Architecture                                                                               |
|      | 2nd | Rule Placement, Open flow Protocol                                                             |
|      | 3rd | Controller placement, Security in SDN, Integrating SDN in IoT                                  |
|      | 4th | Question Answer Discussion                                                                     |
| 12th | 1st | Quiz Test                                                                                      |
|      | 2nd | <b>Smart Homes:</b> Origin and example of Smart Home Technologies                              |
|      | 3rd | Smart Home Implementation                                                                      |

|      |     |                                                                             |
|------|-----|-----------------------------------------------------------------------------|
|      | 4th | Home Area Networks (HAN)                                                    |
| 13th | 1st | Home Area Networks (HAN)(Cont..)                                            |
|      | 2nd | Smart Home benefits and issues                                              |
|      | 3rd | <b>Smart Cities:</b> Characteristics of Smart Cities, Smart city Frameworks |
|      | 4th | Challenges in Smart cities                                                  |
| 14th | 1st | Data Fusion                                                                 |
|      | 2nd | Smart Parking, Energy Management in Smart cities                            |
|      | 3rd | <b>Industrial IoT:</b> IIoT requirements, Design considerations             |
|      | 4th | Applications of IIoT , Benefits of IIoT                                     |
| 15th | 1st | Challenges of IIoT                                                          |
|      | 2nd | Question Answer Discussion                                                  |
|      | 3rd | Previous year Question Answer Discussion                                    |
|      | 4th | Previous year Question Answer Discussion                                    |