**Syllabus:**

**Unit 1: Internet of Things (IoT)**

Vision, Definition, Conceptual Framework, Architectural view, technology behind IoT, Sources of the loT, M2M Communication, loT Examples. Design Principles for Connected Devices: IoT/M2M systems layers and design standardization, communication technologies, data enrichment and consolidation, ease of designing and affordability.

**Unit 2: Hardware for loT**

Sensors, Digital sensors, actuators, radio frequency identification (RFID) technology, wireless sensor networks, participatory sensing technology. Embedded Platforms for loT: Embedded computing basics, Overview of IOT supported Hardware platforms such as Arduino, NetArduino, Raspberry pi, Beagle Bone, Intel Galileo boards and ARM cortex.

**Unit 3: Network & Communication aspects in loT**

Wireless Medium access issues, MAC protocol survey, Survey routing protocols, Sensor deployment & Node discovery, Data aggregation & dissemination.

**Unit 4: Programming the Arduino**

Arduino Platform Boards Anatomy, Arduino IDE, coding, using emulator, using libraries, additions in arduino, programming the arduino for loT.

**Unit 5: Challenges in IoT Design challenges**

Development Challenges, Security Challenges, Other challenges loT Applications: Smart Metering, E-health, City Automation, Automotive Applications, home automation, smart cards, communicating data with H/W units, mobiles, tablets, Designing of smart street lights in smart city.