VEER NARMAD SOUTH GUJARAT UNIVERSITY – SURAT
T Y B. Sc. (Computer Science)
Syllabus for T. Y. B. Sc. Semester-VI
Effective From: June-2022
Course: 603 Introduction to Internet of things (IoT)

Course code	603
Course Title	Introduction to Internet of things
Credit	2
Teaching per week	2 hrs
Minimum weeks per semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	Newly Introduced
Purpose of the course	• Give exposer of application domains of ofIoT . • To give understanding of protocols used for connecting devices/ sensors through Internet. • Basic Idea of hardware of sensors/ devices and interfacing them to operating systems like linux for IoT applications
Course objectives	To understand the concepts and protocols related to Internet of Things. To get an idea where the application areas are available for the Internet of Things to be applied.
Pre-requisite	Basic knowledge of networking and Digital fundamental
Course out come	CO1. Student will understand IoT Technologies behind intelligent and smart devices CO2. Students will get idea of Sensors and Actuators used in IoT. CO3. Students will learn about network of physical devices that are embedded with sensors, software, and other technologies. CO4: Students will understand about devices/endpoints of IOT and their functionality. CO5. Students will get idea of InterfacingIoT devices with Linux.

Mapping between COs PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■		■	
CO2			■		■	
CO3	■	■	■		■	
CO4	■	■	■		■	■
CO5	■	■	■		■	■

Course Content

Unit 1: Introduction to Internet of Things

1.1 Definition & Characteristics of IoT

1.2 Understanding of IoT Architecture

1.3 Various domains of IoT

1.4 Physical Design of IoT

1.4.1 IoT devices

1.4.2 IoT protocols

1.5 Logical Design of IoT

1.5.1 IoT Functional Blocks

1.5.2 IoT Communicational Models and APIs

Unit 2. IoT and M2M

2.1 Introduction M2M

2.2 Introduction to Sensor Technology

2.3 Difference between IoT and M2M,

2.4 Security for IoT

Unit 3.Sensors and Actuators in IoT

3.1 Definition of Sensors

3.2 Types of sensors and its usage

(Temperature, Humidity, Gas Detector, Ultrasonic, Fire detector, Light, Sound, IR, Water Level)

	3.3 Introduction to Actuators 3.4 Types of Actuators 3.5 Difference between Sensors & Actuators **Unit 4. IoT Physical Devices & Endpoints** 4.1 Building blocks of an IoT device 4.2 Exemplary Device: Raspberry Pi 4.2.1 Concepts, purpose, Application areas of Raspberry 4.2.2 Understanding of Raspberry pi board components 4.2.3 Various Interfaces of Raspberry pi 4.2.4 Interfacing Raspberry pi with various flavours of Linux 4.3 Basics idea of IOT Physical Servers & Cloud Offerings
Reference Books	1. Internet of Things , A Hands – On Approach, ArshdeepBahga, Vijay Madisetti published by ArshdeepBahga& Vijay Madisetti 2. Internet of Things architecture and Design Principles, Raj Kamal, 3. McGrawhill Education private limited, 2017 Learning Internet of Things, Peter Waher, / Packt Publishing Limited, 2015 4. The Internet of Things, HakimaChaouchi, Wiley,2017 5. Getting started with the Internet of Things: by CunoPfister, O"Reilly Media. **6.** The Internet of Things: Enabling Technologies, Platforms, and Use Cases", by Pethuru Raj and Anupama C. Raman (CRC Press)
Teaching Methodology	Class Work, Discussion, Self-Study, Seminars and/or Assignments
Evaluation Method	30% Internal assessment. 70% External assessment