CTMTAIDS SII P4: Intelligent Systems and Security

Teaching Scheme					Evaluation Scheme									
					Theory							Practical		
L	T	P	C	TCH	Internal Exams					University Exams		University Exams (LPW)		Total
					TA-1		MSE		TA-2 *					
					Marks	Hrs	Marks	Hrs	Marks	Marks	Hrs	Marks	Hrs	
03	00	00	03	03	25	00:45	50	01:30	25	100	03:00	-	-	200

* Note: TA-2 will be in form of assignments or workshops.

Objectives

1. To give an overview of the concepts and practical examples in the development, feasibility and sustainability of smart cities across the world.
2. To understand the application areas of IOT.
3. To realize the revolution of internet in mobile devices, cloud and sensor networks.
4. To understand building blocks of Internet of Things and characteristics.

UNIT – I

Internet of Things Vision, IoT examples, IoT Applications, Security, Privacy and Trust, Device Level Energy Issues, IoT Related Standardization, Recommendations on Research Topics, SMART Objects Smart objects, Wired Cables, hubs, Wireless RFID, WiFi, Bluetooth, Different functional building blocks of IOT architecture.

UNIT – II

HTTP basics, HTTP architecture, Adding HTTP support to the actuator, CoAP basics, CoAP protocol architecture, MQTT Protocol, Publishing and subscribing, Xamp basics, Xamp protocol architecture.

UNIT – III

Smart Cities: Distributed Intelligence and Central Planning on the Interplay between Humans and Smart Devices, Theoretical Tools, Intelligence Artificial Intelligence (Machine Intelligence), Information Dynamics, Synergetic, Information Dynamics and Allometry in Smart Cities.

UNIT – IV

Leveraging Smart City Projects for Benefitting Citizens: The Role of ICTs Smart

City and ICT: Using Technologies to Improve the Citizens Quality of Life, Smart City Goals: The Impact on Citizens Well-Being and Quality of Life, Critical Dimensions: Urbanization, Local Climate Change, and Energy Poverty, Environmental Issues: The Role of Local and Global Climate Change.

UNIT – V

Understanding the risks, Modes of attack, Tools for achieving security, need for interoperability, Security and privacy issues in smart devices, data breach and identity theft, case study on alexa, google nest etc.

Reference Books: -

1. Internet of Things: Converging Technologies for Smart Environments and Integrated Ecosystems by Dr. Ovidiu Vermesan and Dr. Peter Friess
2. Learning Internet of Things by Peter Waher
3. Internet of Things (A Hands-on Approach) by Vijay Madisetti and Arshdeep Bahga
4. Rethinking the Internet of Things: A Scalable Approach to Connecting Everything by Francis DaCosta
5. Getting Started with the Internet of Things by Cuno Pfister