

INTERNET OF THINGS

Course Code	23IT3701	Year	IV	Semester	I
Course Category	PC	Branch	IT	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	-
Continuous Internal Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes		
Upon successful completion of the course, the student will be able to:		BL
CO1	Understand the fundamentals, evolution and architecture of Internet of Things (IoT)	L2
CO2	Apply IoT sensing, actuation and processing mechanisms.	L3
CO3	Apply IoT Communication and connectivity Technologies in real-world scenarios.	L3
CO4	Analyze IoT systems in terms of Interoperability Fog Computing and challenges.	L4

Mapping of Course Outcomes with Program Outcomes (CO/PO/PSO Matrix)													
Note:1-Weak correlation 2-Medium correlation 3-Strong correlation													
*-Average value indicates course correlation strength with mapped PO													
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	-											
CO2		3	3										
CO3			3		3							3	
CO4		3		3							3		3

Syllabus		
UnitNo.	Contents	Mapped CO
I	Predecessors of IoT: Introduction, Wireless Sensor Networks, Machine-to-Machine Communications, Cyber Physical Systems Emergence of IoT: Introduction, Evolution of IoT, Enabling IoT and the Complex Interdependence of Technologies, IoT Networking Components, Addressing Strategies in IoT	CO1, CO2
II	IoT Sensing and Actuation: Introduction, Sensors, Sensor Characteristics, Sensorial Deviations, Sensing Types, Sensing Considerations, Actuators, Actuator Types, Actuator Characteristics IoT Processing Topologies and Types: Data Format, Importance of Processing in IoT, Processing Topologies, IoT Device Design and Selection Considerations, Processing Offloading.	CO1, CO2
III	IoT Connectivity Technologies: Introduction, IEEE 802.15.4, Zigbee, Thread, ISA100.11A, Wireless HART, RFID, NFC, DASH7, Z-Wave, Weightless, Sigfox, LoRa, NB-IT, Wi-Fi, Bluetooth IoT Communication Technologies: Introduction, Infrastructure Protocols, Discovery Protocols, Data Protocols, Identification Protocols, Device Management, Semantic Protocols	CO1, CO3
IV	IoT Interoperability: Introduction, Standards, Frameworks Fog Computing and Its Applications: Introduction, View of Fog Computing Architecture, Fog Computing in IoT, Selected Applications of Fog Computing	CO1, CO4
V	Paradigms, Challenges, and the Future: Introduction, Evolution of New IoT Paradigms, Challenges Associated with IoT, Emerging Pillars of IoT IoT Case Studies: Agricultural IoT, Vehicular IoT.	CO1, CO4
Learning Resources		
Text Books		
<ol style="list-style-type: none"> 1. Introduction to IoT, Sudip Misra, Anandarup Mukhaerjee, Arjit Roy, Cambridge University Press, 2021 2. 2. Internet of Things: Architecture, Design Principles and Applications, Rajkamal, McGraw Hill Higher Education 		
Reference Books		
<ol style="list-style-type: none"> 1. Fog and Edge Computing: Principles and Paradigms, Rajkumar Buyya (Editor), Satish Narayana Srirama (Editor), ISBN: 978-1-119-52498-4, January 2019 2. 2. Getting Started with the Internet of Things, CunoPfister , Oreilly 		
e- Resources & other digital material		
https://nptel.ac.in/courses/106/105/106105166/		