NAME OF DEPARTMENT: School of Computing

Subject Name: Internet of Things   **Subject Code:** TBC 505

Course Name: Bachelor of Computer Applications (BCA)

1 Contact Hours: 45   **L** 3   **T** 0 **P** 0

2 Examination Duration(Hrs):   **Theory** 0 3   **Practical** 0 0

3 Relative Weightage: **CWE:** 25   **MTE:** 25   **ETE:** 50

4 Credits: 0 3

5 Semester: | * | | | | |
    Autumn   Spring   Both

6 Pre-Requisite: Basic Electronics Knowledge

7 Subject Area: Electronics

8 Objective: To provide new means to understand the connection between physical devices and Internet

9 Course Outcomes: A student who successfully fulfills the course requirements will be able to:

CO1 Understand the practical aspects of internet of things and study the functional block of IOT.
CO2 Study how IOT and machine to machine communicate.
CO3 Analyze the various design challenges of IOT.
CO4 Design the various applications related projects of IOT.
CO5 Develop some application based on sensors & study various developing tools.

10   Details of the Course:

Unit No.	CONTENT	CONTACT HOURS
1	Introduction to IoT: Defining IoT, Characteristics of IoT, Physical design of IoT, Logical design of IoT, Functional blocks of IoT, Communication models & APIs	9
2	IoT & M2M: Machine to Machine, Difference between IoT and M2M, sensor node and wireless sensor network (WSN), Network & Communication aspects: Wireless medium access issues, MAC protocol survey, Routing protocols, Sensor deployment & Node discovery, Data aggregation & dissemination. Communication protocols, web	9

	connectivity using gateway, SOAP, REST, HTTP, IP addressing in IOT, Medium access control.	
3	Data Acquiring and storage, cloud computing paradigm for data collection, storage and computing, IOT cloud based services, sensor technology, Industrial IOT and automotive IOT, RFID Technology and wireless sensor network technology (WSN)	9
4	Challenges in IoT: Design challenges, Development challenges, Security challenges, other challenges Home automation, Industry applications, Surveillance applications, Other IoT applications.	9
5	Developing IoTs: Introduction to different IoT tools, developing applications through IoT tools, developing sensor based application through embedded system platform, Implementing IoT concepts with python. Edge computing, difference between fog computing, edge computing & IoT, prototyping the embedded devices for IOT.	9
	TOTAL	**45**

11   Suggested Books:

Sl. NO.	NAME OF AUTHORS/BOOKS/PUBLISHERS	YEAR OF PUBLICATION
1	Vijay Madisetti, Arshdeep Bahga, "Internet of Things: A Hands-On Approach"	2014
2	Waltenegus Dargie, Christian Poellabauer, "Fundamentals of Wireless Sensor Networks: Theory and Practice	2014