PVP-19

IOT IN HEALTH CARE

Course Code	19EC4702F	**Year**	IV	**Semester**	I
Course Category	Program Elective V	**Branch**	ECE	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	Nil
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	
CO1	Demonstrate the sensing principles, technologies and security issues involved in Biomedical Telemetry(L2)
CO2	Identify the sensing technologies for biomedical telemetry(L3)
CO3	Identify various security issues involved in biomedical telemetry(L3)
CO4	Analyze the role of IOT in biomedical applications(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	PO12	PSO1	PSO2
CO1	3	3	3	3	3	3	3						3	3
CO2	3	3	3	3	3	3	3						3	3
CO3	3	3	3	3	3	3	3						3	3
CO4	3	3	3	3	3	3	3						3	3
Average* (Rounded to nearest integer)	3	3	3	3	3	3	3						3	3

Syllabus

Unit No.	Contents	Mapped CO
I	Introduction to Biomedical Telemetry. Typical Biomedical Telemetry System, Challenges in Biomedical Telemetry, Commercial Medical Telemetry Devices	CO1
II	Sensing Principles for Biomedical Telemetry, Introduction, Biosensor Structure, Electrochemical Biosensors, Amperometric Electrochemical Biosensors, Optical Biosensors, Thermal/Calorimetric Biosensors, Piezoelectric Biosensors, Other Types of Biosensors	CO1, CO2
III	Sensing Technologies for Biomedical Telemetry, Introduction, Non-invasive Sensors and Interfaces, Invasive and Implantable Sensors	CO1, CO2
IV	Safety Issues in Biomedical Telemetry, Introduction, Operational Safety, Product and Device Hazards, Patient and Clinical Safety, Human Factor and Use Issues, Electromagnetic Compatibility and Interference Issues, Occupational Safety	CO1, CO3

V	IoT in Biomedical Applications IoT client &IoT gateway in healthcare, IoT driven smart health care application for everyday use, life critical applications, Health care IOT for rural area, Use of Big Data and Visualization in IoT, Industry 4.0 concepts, sensor markup language	CO4

Learning Resources
Text Books
1.K S Nikitha, "Handbook of Biotelemetry", Wiley publishers, 2014 2. Samuel Greengard, "The Internet of Things", MIT Press, 1stEdition, 2015
Reference Books
1. D Patranabis, "Telemetry Principles", Tata McGraw Hills, 2007 2. Catarina I Reis and Maria D S Maximiano, "Internet of Things and Advanced Applications in Healthcare", IGI-Global, 2017.
