22OE302: MOBILE NETWORKS

Course Name	Mobile Networks			L	T	P	C	CIA	SEE	TM
Course Code	22OE302			3	0	0	3	30	70	100
Year of Introduction: 2023	Year of Offering: 2023	Year of Revision: No Revision		Percentage of Revision: Nil						
L-Lecture, T-Tutorial, **P**-Practical, **C**-Credits, **CIA**-Internal Marks, **SEE**-External Marks, **TM**-Total Marks										

Course Descriptive and Purpose: The primary objective of the Mobile Network course is to help learners understand the fundamental principles and concepts of mobile computing and telecommunication systems. Upon completion of the course, learners will be able to understand the basics of mobile telecommunication systems, network layer protocols, transport and application layer protocols, and different mobile platforms. They will also be able to develop applications for mobile platforms.
Course Objectives: This course will help the students to learn about basic concepts of Computer Networks, TCP/IP Protocol & Internet Protocol, Types of Cellular Networks, MANETS and Wireless Sensor Networks.

Specific objectives include:
- To provide understanding of the basic concepts of Computer Networks.
- To gain knowledge on TCP/IP Protocol & Internet Protocol.
- To understand various types of Cellular Networks.
- To gain knowledge on MANETS.
- To provide basic knowledge on Wireless Sensor Networks.

Course outcomes:
Upon successful completion of the course, the student will be able to:
CO1: To demonstrate a comprehensive understanding of computer networks, including LANs and VANs, network devices, various network topologies, and the role of hubs in network communication.
CO2: Acquire deep understanding of the TCP/IP protocol stack, the uses and functions of TCP protocols, and will be able to discern and explain the key differences between IPv4 and IPv6 addressing schemes.
CO3: Have a comprehensive knowledge of the evolution of mobile communication networks from 1G to 5G, including their distinctive features, an understanding of GSM architecture, and insight into GPS architecture.
CO4: Proficient in identifying MANETs, providing examples of MANET applications, recognizing the issues and challenges associated with MANETs, and understanding the practical applications of MANET technology.
CO5: Capable of defining wireless sensor networks, articulating their advantages and applications, comprehending the concept of the Internet of Things (IoT), and explaining the integration of IoT with wireless sensor networks for various practical scenarios.

SYLLABUS

UNIT-I (12 Hours)

Computer Networks: LAN, VAN, Network Device, Hubs, Networks Topologies.

UNIT-II (12 Hours)

TCP/IP: TCP/IP Protocol Stack, Uses & Functions of TCP Protocols, Difference between IPV4 and IPV6.

UNIT-III (12 Hours)

Cellular Networks: 1G, 2G, 3G, 4G and 5G and Features of these Networks, GSM Architecture, GPS Architecture.

UNIT-IV (12 Hours)

MANETS: MANETS, Examples of MANETS, Issues and Challenges of MANETS, Application of MANETS.

UNIT-V (12 Hours)

Wireless Sensor Networks: Wireless Sensor Networks, Advantages and uses of Wireless Sensor Networks, IOT, Integration of IOT with Wireless Sensor Networks.

Text Book:

1. Computer Networks, Andrew S.Tanenbaum, 5th Edition, Pearson, 2010

References:

1. Itu-t recommendations networks 2.0-3.0
2. Itu-t recommendation for next network 2030
3. Itu-t recommendation aloha

PARVATHANENI BRAHMAYYA SIDDHARTHA COLLEGE OF ARTS & SCIENCE

(An Autonomous College in the jurisdiction of Krishna University)

Course Name: Mobile Networks

Course Code: 22OE302

(w.e.f admitted batch 2022-23)

Time: 3 Hours **Max Marks: 70**

SECTION-A

Answer ALL Questions **(5×4=20Marks)**

1.(a)Explain LAN.(CO1,L2)

(or)

(b) Explain Hubs. (CO1,L2)

2. (a) What is Protocol? Explain TCP/IP Protocol Stack. (CO2,L1)

(or)

(b) List out and explain Functions of TCP Protocols. (CO2,L1)

3.(a) What are the differences between 4G and 5G Networks.(CO3,L1)

(or)

(b) List out the services of GSM. (CO3,L1)

4.(a) Explain Applications of MANETS. (CO4,L2)

(or)

(b) Explain MANETS briefly. (CO4,L2)

5.(a) Explain advantages of Wireless Sensor Networks. (CO5,L2)

(or)

(b) Explain IOT.(CO5,L2)

SECTION-B

Answer Five Questions Choosing One Question from each unit.

All Questions Carry Equal Marks. **(5×10=50Marks)**

6. (a) Explain about VAN and its working.(CO1,L2)

(or)

(b) Explain different Networks Topologies. (CO1,L2)

7. (a) Divide various Protocols in TCP/IP Protocol Stack. (CO2.L4)

(or)

(b) Differentiate IPV4 and IPV6. (CO2, L4)

8. (a) What is cellular network? Explain features of 1G, 2G and 3G Networks. (CO3,L1)

(or)

(b) What is GPS? Explain GPS Architecture. (CO3,L1)

9. (a) Explain in detail about MANETS.(CO4,L2)

(or)

(b) Explain Issues and Challenges of MANETS. (CO4,L2)

10 (a) Explain about Wireless Sensor Networks.(CO5,L5)

(or)

(b) Explain process of Integration of IOT with Wireless Sensor Networks. (CO5,L5