Elective – I : WIRELESS NETWORKS

CLASS B.E. (INFORMATION TECHNOLOGY)  SEMESTER VII

HOURS PER WEEK

| LECTURES | 04 |
| TUTORIALS | -- |
| PRACTICALS | 02 |

HOURS  MARKS

| THEORY | 3  | 100 |
| PRACTICAL | -- | -- |
| ORAL | -- | 25 |
| TERM WORK | -- | 25 |

Prerequisite: Networking Technology for Digital Devices, Convergence Technology for Networking in communication, C/C++/Java

Objective: The main objective of this course is to get acquainted of Wireless Communication Systems and their Applications through today’s technologies.

1. **Introduction to Wireless Networks:** Evolution of Wireless Networks, Challenges, Overview of various Wireless Networks.


3. **First Generation (1G) Cellular Systems:** Introduction, Advanced Mobile Phone System (AMPS), Nordic Mobile Telephony (NMT).

4. **Second Generation (2G) Cellular Systems:** Introduction, D-AMPS, cdmaOne (IS-95), GSM, IS-41, Data Operations, Cordless Telephony (CT).


8. **Fixed Wireless Access Systems:** Wireless Local Loop versus Wired Access, Wireless Local Loop, Wireless Local Loop Subscriber Terminals (WLL), Wireless Local Loop Interfaces to the PSTN, IEEE 802.16 Standards.


11. **Personal Area Networks (PANs):** Introduction to PAN Technology and Applications, Commercial Alternatives: Bluetooth, Commercial Alternatives: HomeRF.


**Text Book:**

**References:**

**Term Work:**
Term work shall consist of at least 10 experiments covering all topics and one written test. Distribution of marks for term work shall be as follows:

1. Laboratory work (Experiments and Journal) 15 Marks
2. Test (at least one) 10 Marks

The final certification and acceptance of TW ensures the satisfactory Performance of laboratory Work and Minimum Passing in the term work.
**Suggested Experiment List**

1. Study and analysis of wireless device and product specifications.
2. Implementation of spread spectrum techniques like DSSS and FHSS.
3. Use simulation tools like ANSim to study and simulate Ad-Hoc Network.
4. Implementation of MACA as RTS/CTS communication.
5. Study the wireless markup language and develop small application using it.
6. Study and implementation of wireless access and wireless application protocol.
7. Study and implementation of security issues in wireless network.
8. Case study implementation given in the syllabus.