PVP 22

WIRELESS COMMUNICATIONS AND SIGNAL PROCESSING LAB

22ECMC1L1 **Credits: 2**
Lecture: --- **Internal assessment: 25 marks**
Lab: 3 periods/week **Semester end examination: 50 marks**

Prerequisites: Principles of Wireless Communications

Course Outcomes:

After the completion of this course, a student will be able to:

1. Demonstrate the concepts of wireless communications
2. Analyze wireless communication systems with different modulation and demodulation schemes
3. Develop and implement different types of digital communication systems using USRP
4. Simulate digital communication systems

Part A: (Any 5 experiments)

Hardware Experiments:

1. Frequency Division Multiplexing (FDM)
2. Amplitude Shift Keying (ASK)
3. Frequency Shift Keying (FSK)
4. Phase Shift Keying (PSK)
5. Quadrature Phase Shift Keying (QPSK)
6. Eye Diagram
7. Equalization

Part B: (Any 5 experiments)

MATLAB or LABVIEW based Simulation Experiments:

1. Digital modulation schemes – ASK, FSK, PSK
2. Performance comparison of digital communication systems
3. Communication over fading channels – Rayleigh fading & Rician fading channels
4. CDMA systems
5. Matched filter, Correlation receiver & Equalizer
6. Multi carrier communication
7. Carrier recovery and bit synchronization

Learning Resources
Text Books
1. Simon Haykin, Introduction to Analog and Digital Communication System- John Wiley and Sons, 3rd Ed., 2009 2. John G. Proakis, Masoud Salehi, Fundamentals of Communication Systems - Pearson, 2nd Ed., 2013
Reference Books
1. H Taub & D. Schilling, Gautam Sahe, Principles of Communication Systems –TMH, 3rd Ed., 2007 2. Sam Shanmugam, Analog and Digital Communication System- John Wiley and Sons,3rd Ed., 2009