

**GOVT. POLYTECHNIC, HAMIRPUR (H.P.)**  
Lesson Planning

Semester: 6<sup>th</sup>

Branch: Information Technology

Subject: WIRELESS COMMUNICATION AND MOBILE COMPUTING

Session: Jan-May 2024

Laboratory: yes

Teacher: Mukesh Bhardwaj

Sr. No.	No of Lectures	Chapter/Unit Description	Detailed contents	Reference Resources	Remarks
1	8	Unit-1 : Introduction to Wireless Communication	Wireless communication and its applications, advantages and disadvantages of wireless communication, Types of Services : broadcast, paging, cellular telephony, trunking radio, cordless telephony, WLAN, PAN, adhoc & sensor networks, fixed wireless access; challenges in wireless communication, electromagnetic spectrum, licensed/unlicensed spectrum bands, ISM band, terrestrial and satellite microwave communication, broadcast radio, infrared and lightwave communication, wireless transmission impairments – attenuation, distortion, noise, interference, pathloss, shadowing and fading.	R1,R2	
2	10	Unit-2 : Fundamentals of Wireless Communication	Concept of bandwidth, analog and digital signals, data rate, signal strength, SNR, RSSI, electromagnetic wave propagation: ground waves, sky waves and line-of-sight propagation; radio waves, microwaves, infrared; Overview of Propagation Mechanisms: reflection, diffraction and scattering; outdoor and indoor propagation.	R1,R2	
3	10	Unit-3 : Wireless Communication Systems	Cellular Communication: cellular concept, cellular system architecture, cells, clusters, frequency reuse, cell splitting, handoff, Digital Cellular System : TDMA, ETDM, PCS, CDMA, Global System for Mobile Communication (GSM), GSM network : switching system, BSS, operation and support system, Generations of cellular networks and their features (1G – 5G).	R1,R2	
4	8	Unit-4: Wireless LAN Technology and Bluetooth	Wireless LAN (WLAN), IEEE-802.11, WLAN applications, WLAN types, WLAN problems –	R1,R2	

			hidden station and exposed station problems; Bluetooth technology, Direct Sequence Spread Spectrum, Frequency Hopping Spread Spectrum, Personal Area Networks.		
5	8	Unit-5 : Mobile Computing Introduction	Mobile computing, Mobile computing functions, Mobile Computing Devices, Middleware and Gateways, Mobile computing environment, Applications and services.	R1,R2	
6	8	Unit-6 : Mobile Computing Architecture	Three tier architecture for Mobile Computing, design considerations for mobile computing, client context manager, introduction to CC/PP, Policy manager, semantic web, security manager, context aware systems, GPS, Mobile computing through Internet.	R1,R2	
7	4	Unit-7 : Operating System for Mobile Device	An overview of Android Operating System, Architecture, Features of Android OS.	R1,R2	

**Reference Books:**

1. Wireless Communication: Principles and Practice by Theodor S. Rappaport, Pearson Education
2. Mobile Computing: Technology, Applications and Service Creation by Asokek Talukdar and Roopa R. Yavagal, TMA.

*Mudus 4*  
*29/01/2024*  
**Signature of Teacher with Date**

*Jathani*  
**Signature of HOD**