Govt. Polytechnic Sundernagar

Lesson Planning (Theory)

Branch :Computer Engg **Semester:6th**

Subject: Wireless Communication & Mobile Computing **Session: Jan-June,2024**

Teacher: Sonali Malhotra **Classroom: EC-102**

S.No	No of Lectures	Chapter Description	Detail Content	Reference Resource	Remark
1.	1 to 8 hrs (8 hrs)	Unit-1 : **Introduction to Wireless Communication**	Wireless communication and its applications, advantages and disadvantages of wireless communication, Types of Services : broadcast, paging, celluar 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	9 to 18 hrs (10 hrs)	Unit-2 : **Fundamentals of Wireless Communication**	Concept of banwidth, analog and digital signals, data rate, signal strength, SNR, RSSI, electromagnetic wave propagarion: 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	19 to 28 hrs (10 hrs)	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,R3	
4	28 to 36 hrs (8 hrs)	Unit-4 : **Wireless LAN Technology and Bluetooth**	Wireless LAN (WLAN), IEEE-802.11, WLAN applications, WLAN types, WLAN problems – hidden station and exposed station problems; Bluetooth technology, Direct Sequence Spectrum Scheme, Frequency Hopping Spread Spectrum, Personal Area Networks.	R1	
5.	36 to 44 hrs (8 hrs)	Unit-5 : **Mobile Computing Introduction**	Mobile computing, Mobile computing functions, Mobile Computing Devices, Middleware and Gateways, Mobile computing environment, Applications and services.	R1, R3	

6.	44 to 52 hrs (8 hrs)	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, R3	
7.	52 to 56 hrs (8 hrs)	Unit-7 : **Operating System for Mobile Device**	An overview of Android Operating System, Architecture, Features of Android OS	R3	

Reference Resources:

1.Hand written notes .
2. Wireless Communications Principles and Practice by Theodore S. Rappaport
3. Mobile Computing: Technology, Applications and Service Creation by Asokek Talukdar and Roopa R. Yavagal

Govt. Polytechnic Sundernagar

Lesson Planning (Practical)

Branch :Computer Engg **Semester:6th**

Subject: Wireless Communication & Mobile Computing **Session: Jan-June,2024**

Teacher: Sonali Malhotra **Lab: Multimedia Lab**

Sr. no.	No. o f Practical	Name of practical	Tentative date of performance		Actual date of performance	Remarks	Signature
			Group-I	Group-II			
1.	1.	**To identify various wireless networking devices and to recognise physical topology in the lab**	30/1,1/2,6/2,8/2 13/2,15/2,20/2, 22/2	2/3,3/2,9/2, 16/2,17/2, 23/2			
2.	2.	**To create WLAN of at least five wireless devices using any simulation tool (e.g. packettracer)**	27/2,29/2,5/3, 7/3,12/3,14/3, 19/3, 21/3	1/3,2/3,15/3, 16/3,22/3, 23/3			
3.	3.	**To setup a WLAN using access point.**	26/3,28/3,2/4, 4/4	30/3,5/4,6/4			
4.	4.	**To transfer data between two wireless devices (e.g.PC-PC, PC-Smart phone)**	9/4,16/4,18/4	12/4,19/4, 20/4			
5.	5.	**Data sharing using bluetooth.**	23/4,25/4,30/4	26/4,27/4, 3 /5			
6	6.	**Case study of Android operating system**	2/5,7/5,9/5,14/5 ,16/5,21/5	4/5,17/5,18/ 5,24/5			