

SEMESTER 6

S. No.	Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
								Sessional	Final Exam	Total
1	ECE-601	Wireless and Mobile Communication	PCC	4	3	1	0	50	100	150

Course Outcomes:

At the end of the course the student will be able to:	
CO1	Discuss the major cellular Communication standards (1G/2G/3G/4G/5G).
CO2	Characterize the tradeoffs among frequency reuse, signal to interference ratio, capacity and spectral efficiency.
CO3	Articulate the modulation techniques and various wireless communication systems standards like GSM, IS-95.
CO4	Impart details of advanced mobile communication standards and their evolution
CO5	Comprehend the concept of mobile network, transport layer and wireless technologies.

Detailed Syllabus**Section-A**

Unit 1: Introduction to Wireless Communication System: Evolution of mobile communications, Mobile Radio System around the world, Examples of Wireless communication, Second generation Cellular Networks, 3G and its architecture, Comparison between various cellular generations. Introduction to 4G & 5G Technology.

(10 Hrs)

Unit 2: The Cellular Concept: Introduction, Hexagonal geometry cell and concept of frequency reuse, Handoff strategies, Co-channel interference and system capacity, Adjacent channel capacity, Improving Coverage and capacity-Cell splitting, Sectoring.

(9 Hrs)

Unit 3: Multiple Access Techniques and Wireless Channels: TDMA, FDMA, CDMA and SDMA, GSM- Features, Architecture, Channel types, CDMA Digital Cellular standard (IS-95), CDMA features, CDMA forward channels, CDMA reverse channels.

(11 Hrs)**Section-B**

Unit 4: Advanced Mobile Communication Standards: Introduction to IEEE 802.11 WLAN standard and its variants, PHY layer technologies, MAC mechanism, Security, IEEE 802.15 WPAN standard, Bluetooth Architecture and Protocol stack, IEEE 802.16 Wireless broadband access standards, PHY and MAC layer overviews, WiMAX network architecture.

(8 Hrs)

Unit 5: Mobile Network, Transport and Application Layers: Mobile IP, Packet delivery process, Mobile ad-hoc networks and routing protocols, Mobile TCP, Wireless Application Protocols.

(8 Hrs)**Textbooks**

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Wireless Communication Principles and Practice	Theodore S. Rappaport	PHI	2 nd (2018)
2	Wireless Communication	T L Singal	TMH	1 st (2017)
3	Mobile Communication Engineering	W.C.Y Lee	TMH	2 nd (2017)

Reference Books

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Wireless Communication	T L Singal	TMH	1 st (2017)
2	Wireless Communications and Networking	Vijay Garg	Morgan Kaufmann	1 st (2008)
3	Personal & Mobile Communication	Raj Pandaya	Wiley Blackwell	2 nd (2004)