

	<b>5.1</b>	<b>Introduction, system overview:</b> Frequency bands and spectrum flexibility, network structure, protocol structure	
	<b>5.2</b>	<b>Physical layer:</b> Frames, slots, and symbols, modulation, coding, multiple-antenna techniques	
	<b>5.3</b>	<b>Logical and Physical Channels:</b> Mapping of data onto (logical) sub-channels.	
	<b>5.4</b>	<b>Physical layer procedures:</b> Establishing a connection, retransmissions and reliability, scheduling, power control, handover.	
<b>6.0</b>		<b>Advanced techniques for 4G deployment</b>	<b>08</b>
	<b>6.1</b>	<b>Multi-antenna Techniques:</b> Smart antennas, multiple input multiple output systems	
	<b>6.2</b>	<b>Cognitive radio:</b> Architecture, spectrum sensing	
	<b>6.3</b>	<b>Relaying multi-hop and cooperative communications:</b> Principles of relaying, fundamentals of relaying	
		<b>Total</b>	<b>48</b>

#### **Text Books :**

1. Theodore S. Rappaport “wireless communications - principles and practice”, PEARSON , Second edition.
2. T L Singal “wireless communications”, Mc Graw Hill Education.
3. Andreas F. Molisch “wireless communications” WILEY INDIA PVT LTD, Second edition.

#### **References:**

1. Upena Dalal “Wireless and Mobile Communications”, Oxford university Press.
2. Vijay K.Garg “Wireless Communications and Networking”,Morgan–Kaufmann series in Networking-Elsevier

#### **E-Resources:**

1. MIT Open Course ware : <https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-452-principles-of-wireless-communications-spring-2006/>
2. NPTEL: <http://nptel.ac.in/courses/117104099/>
3. Virtual Lab : <http://vlab.co.in/>