

<b>COURSE TITLE</b>	<b>TE142321: Wireless and Mobile Communication Systems</b> Credits: 3 Semester: II
<b>LEARNING OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Students understand concept, elements and performance of wireless and mobile communication system including physical layer, MAC, datalink and networks.</li> </ul>
<b>COMPETENCY</b>	<p>Capability to explain and understand in:</p> <ul style="list-style-type: none"> <li>• Basic concept, elements and system of wireless and mobile communications.</li> <li>• System engineering and technology of broadband wireless communications</li> <li>• Traffic engineering in wireless and mobile broadband communications</li> <li>• Design of wireless and mobile communication system and networks</li> </ul>
<b>SUBJECTS</b>	<ul style="list-style-type: none"> <li>• Basic concepts of wireless and mobile communications including terminologies, elements of system and layer of communications, problems and optimizing system.</li> <li>• Propagation: wireless and mobile channel models, large and small scale fading, coverage estimation, diversity</li> <li>• Adaptive modulation and equalization: adaptive modulation, review on frequency selective channel model, adaptive equalization.</li> <li>• Cellular networks: concepts, interference and capacity of system.</li> <li>• System engineering: array antenna, adaptive array, introduction to MIMO, time space coding, spatial multiplexing (SDMA).</li> <li>• Traffic engineering: traffic in cellular system, blocking probability in single cell and in multiple cells with handover systems, multimedia traffic in broadband systems</li> <li>• Performance in broadband communication networks: model and analysis of broadband networks: delay, jitter, packet loss, throughput.</li> <li>• Trend in broadband wireless and mobile communications, cross-layer optimization and applications: cooperative system, sensor networks etc.</li> </ul>
<b>MAIN REFERENCES</b>	<ul style="list-style-type: none"> <li>• Theodoere S. Rappaport, <u>Wireless Communications: Principles and Practice</u>, Second Edition, Prentice Hall: Upper Saddle River, NJ, 2002.</li> <li>• K. Pahlavan &amp; P. Krishnamurthy, <u>Principles of Wireless Networks</u>, Prentice Hall: Upper Saddle River, NJ, 2002.</li> <li>• Andrea Goldsmith, <u>Wireless Communications</u>, Cambridge University Press, 2005.</li> </ul>
<b>OPTIONAL REFERENCES</b>	<ul style="list-style-type: none"> <li>• K. Pahlavan &amp; Allen H. Levesque, <u>Wireless Information Networks</u>, John Wiley &amp; Sons Inc., 2005.</li> <li>• David Tse &amp; Pramod Viswanath, <u>Fundamentals of Wireless Communication</u>, Cambridge University Press, 2005.</li> </ul>
<b>PREREQUISITE</b>	<ul style="list-style-type: none"> <li>• TE142318: Random Processes and Signal Processing</li> <li>• TE 142319: Digital Communication System</li> </ul>