

Year & Sem:	Course Code: EC3603	Course Name: Mobile Communications	No. of Credits: 4	L 2	T&PS 2	P 0
Unit-I: Basics: Antenna fundamentals, received power calculations for freespace, pathloss exponent, receiver sensitivity, Noise temperature, noise figure. Unit-II: Cellular concepts: frequency reuse, traffic analysis, trunking efficiency, call blocking probability, Blocked calls cleared system, blocked calls delayed system. Unit-III: Wireless Channels(part-1): Large scale path loss – Path loss models: Free Space and Two-Ray models -Link Budget design – Small scale fading- Rayleigh fading, Rician fading - Parameters of mobile multipath channels – Time dispersion parameters-Coherence bandwidth – Doppler spread & Coherence time, Unit-IV: Wireless Channels(part-2): Fading due to Multipath time delay spread – flat fading – frequency selective fading – Fading due to Doppler spread – fast fading – slow fading. Average duration of fade, level crossing rate, wide sense stationary channels, correlated and uncorrelated scattering. Unit-V: Diversity: Introduction to MIMO systems, Selective combining, Maximal ratio combining(MRC), Equal gain combining, zero forcing and MMSE equalizers. Unit-VI: Multiple Access techniques: Code Division Multiple Access- Principle, Power control, Effects of multipath propagation. Orthogonal Frequency Division Multiplexing – Principle, Cyclic Prefix, Second Generation(GSM, IS-95) and Third Generation Wireless Networks and Standards References/Text Books: 1.Rappaport,T.S., “Wireless communications”, Second Edition, Pearson Education, 2010. 2.Simon Haykin & Michael Moher, “Modern Wireless Communications”, Pearson Education, 2007 3. Gordon L. Stuber, “Principles of Mobile Communication”, Springer International Ltd.,2001. 4.Andrea Goldsmith, Wireless Communications, Cambridge University Press, 2007. 5.David Tse and Pramod Viswanath, “Fundamentals of Wireless Communication”, Cambridge University Press, 2005. Lecture Plan: Unit-I & -II syllabus for MID-I, Unit-III & -IV syllabus for MID-II and Unit-V & -VI syllabus for MID-III examinations. Video Lectures (Web Links): 1. 2. Study Materials (Web Links): 1. 2.						