

Course Number and Name												
BEC705 - CELLULAR MOBILE COMMUNICATION												
Credits and Contact Hours												
3 and 45												
Course Coordinator's Name												
Mr T.Silambarasan												
Text Books and References												
Text Books: 1. K. Feher, Wireless Digital Communication, Prentice Hall of India, New Delhi, 1995.												
References: 1. T.S. Rappaport, Wireless Communication; Principles and Practice, Prentice Hall, NJ, 1996. 2. W.C.Y. Lee, Mobile Communication Engineering; Theory and Application, Second Edition, McGraw-Hill International, 1998. 3. https://en.wikipedia.org/wiki/Cellular_network												
Course Description												
<ul style="list-style-type: none"> To understand the basic cellular system concepts. To have an insight into the various propagation models and the speech coders used in mobile communication. To understand the multiple access techniques and interference reduction techniques in mobile communication. 												
Prerequisites						Co-requisites						
Computer Communication and Networks						Nil						
required, elective, or selected elective (as per Table 5-1)												
Selected Elective												
Course Outcomes (COs)												
CO1: Discuss cellular radio concepts.												
CO2 : Identify various propagation effects.												
CO3 : To have knowledge of the mobile system specifications.												
CO4 : Classify multiple access techniques in mobile communication.												
CO5: Outline cellular mobile communication standards.												
CO6 : Analyze various methodologies to improve the cellular capacity												
Student Outcomes (SOs) from Criterion 3 covered by this Course												
COs/SOs	a	b	c	d	e	f	g	h	i	j	k	
CO1	H					M		H	M	H		
CO2	M	L	M				H		L			
CO3	M	H	M	L		M	L				H	
CO4	M	H		M	H		M	M		M		
CO5		L				M			L			
CO6				M	H	H			M			

List of Topics Covered	
UNIT I INTRODUCTION TO WIRELESS MOBILE COMMUNICATION	9
History and evolution of mobile radio systems, Types of mobile wireless services/systems – Cellular, WLL, Paging, Satellite systems, Standard, Future trends in personal wireless systems.	
UNIT II CELLULAR CONCEPT AND SYSTEM DESIGN FUNDAMENTALS	9
Cellular concept and frequency reuse, Multiple Access Schemes, Channel assignment and handoff, Interface and system capacity, Trunking and Erlang capacity calculations.	
UNIT III MOBILE RADIO PROPAGATION	9
Radio wave propagation issues in personal wireless systems, Propagation models, Multipath fading and based and impulse models, Parameters of mobile multipath channels, Antenna systems in mobile radio.	
UNIT IV MODULATION AND SIGNAL PROCESSING	9
Analog and digital modulation techniques, Performance of various modulation techniques – Spectral efficiency, Error rate, Power Amplification, Equalization/Rake receiver concepts, Diversity and Space-time processing, Speech coding and channel coding.	
UNIT V SYSTEM EXAMPLES AND DESIGN ISSUES	9
Multiple Access Techniques – FDMA, TDMA and CDMA systems, Operational systems, Wireless networking, design issues in personal wireless systems.	
Total : 45 Periods	