



SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by
NAAC with 'A' Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W G DT, Narsapur -534280, (Andhra Pradesh)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING TEACHING PLAN

Course Code	Course Title	Semester	Branches	Contact Periods /Week	Academic Year	Date of commencement of Semester
23EC7T01	CELLULAR&MOBILE COMMUNICATIONS	VII	ECE	5	2026-27	17-06-2026

COURSE OUTCOMES: After completion of the course students are able to

CO1	To Identify the limitations of conventional mobile Telephone systems and to Understand the concepts of cellular systems (K2)
CO2	To determine the different types of interferences influencing cellular and mobile communications (K3)
CO3	To explain the frequency management, channel assignment and the concept of handoff in cellular systems (K3)
CO4	To evaluate the Multiple access schemes in mobile and to develop the ability to search, select, organize and present information on new technologies in mobile and cellular communications(K4)

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
I	CO-1: To Identify the limitations of conventional mobile Telephone systems and to Understand the concepts of cellular systems (K2)	UNIT-1: CELLULAR SYSTEMS				Chalk & Talk, PPT & Tutorial
		1.1	Limitations of Conventional System	T1,R1	1	
		1.2	Basic Cellular Mobile System, First, second, Generations	T1,R1	1	
		1.3	third and fourth and Generation cellular wireless systems	T1,R1	1	
		1.4	Operation of Cellular System.	T1,R1	1	
		1.5	Fundamentals of cellular Radio System Design	T1,R1	1	
		1.6	concept of frequency reuse channels	T1,R1	1	
		1.7	Co-channel Interference, Co-channel Interference Reduction Factor	T1,R1	1	
		1.8	desired C/I from a normal case in a Omni	T1,R1	1	



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			directional Antenna system		
		1.9	Trunking and grade of service	T1,R1	1
		Total			9
II	CO-2 : To determine the different types of interferences influencing cellular and mobile communications (K3)	UNIT-2: CO-CHANNEL&NON-CO-CHANNEL INTERFERENCE			
		2.1	Measurement of Real Time Co-Channel Interference	T1,R1	1
		2.2	design of Antenna system	T1,R1	1
		2.3	Antenna parameters and their effects	T1,R1	1
		2.4	diversity techniques: Space Diversity	T1,R1	1
		2.5	Polarization diversity, frequency diversity and time diversity	T1,R1	1
		2.6	Non-co channel interference-adjacent channel interference	T1,R1	1
		2.7	Near End far end interference	T1,R1	1
		2.8	effect on coverage and interference by power decrease	T1,R1	1
		2.9	antenna height decrease	T1,R1	1
		Total			9
III	CO-3: To explain the frequency management, channel assignment and the concept of handoff in cellular systems (K3)	UNIT-3FREQUENCY MANAGEMENT AND CHANNEL ASSIGNMENT			
		3.1	Numbering and grouping,	T1,R1	1
		3.2	setup access	T1,R1	1
		3.3	paging channels	T1,R1	1
		3.4	channel assignments to cell sites	T1,R1	1
		3.5	channel assignments to mobile units	T1,R1	1
		3.6	channel sharing and borrowing	T1,R1	1
		3.7	sectorization	T1,R1	1
		3.8	overlaid cells	T1,R1	1
		3.9	non fixed channel assignment.	T1,R1	1
		Total			9

Chalk &
Talk, PPT &
Tutorial

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IV	CO-3: To explain the frequency management, channel assignment and the concept of handoff in cellular systems (K3)	UNIT-4 HANDOFFS				Chalk & Talk, PPT & Tutorial
		4.1	Handoff Initiation	T2,R2	1	
		4.2	types of handoff	T2,R2	1	
		4.3	delaying handoff	T2,R2	1	
		4.4	advantages of Handoff	T2,R2	1	
		4.5	power difference hand off	T2,R2	1	
		4.6	forced handoff	T2,R2	1	
		4.7	mobile assisted	T2,R2	1	
		4.8	soft and Hard handoffs	T2,R2	1	
		4.9	Intersystem and Intra system handoffs	T2,R2	1	
		4.10	dropped call rates and their evaluation	T2,R2	1	
Total				10		
V	CO-4: To evaluate the Multiple access schemes in mobile and to develop the ability to search, select, organize and present information on new technologies in mobile and cellular communications (K4)	UNIT-5: DIGITAL CELLULAR NETWORKS AND MULTIPLE ACCESS SCHEMES				Chalk & Talk, PPT, Active Learning & Tutorial
		5.1	GSM architecture	T3,R2	1	
		5.2	GSM channels	T3,R2	1	
		5.3	TDMA	T3,R2	1	
		5.4	FDMA	T3,R2	1	
		5.5	CDMA	T3,R2	1	
		5.6	Principles of CDMA cellular systems	T3,R2	1	
		5.7	Principles of OFDM based broad band wireless systems	T3,R2	1	
		5.8	4G LTE basics – OFDM	T3,R2	1	
		5.9	OFDMA	T3,R2	1	
		5.10	Generalized framework for Filtered OFDM	T3,R2	1	
		5.11	FBMC	T3,R2	1	
		5.12	Introduction of 5G.	T3,R2	1	
Total				12		
	Content beyond Syllabus	Introduction to 6G		T2,R1	1	
Total				13		
CUMULATIVE PROPOSED PERIODS					60	
Text Books:						
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
1	Mobile Cellular Telecommunications – W.C.Y. Lee, Tata McGraw Hill, 2nd Edn., 2006. Wireless Communications - Theodore. S. Rapport, Pearson education, 2nd Edn., 2002					
2	T.S.Rappaport,“WirelessCommunications–PrinciplesandPractice”(2ndedition) Pearson, 2010, ISBN 9788131731864					



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Reference Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Principles of Mobile Communications- Gordon L. Stuber, Springer International 2nd Edition, 2001.
2	Modern Wireless Communication - Simon Haykin Michael Moher, Persons Education, 2005.
3	Wireless Communication theory and Techniques, Asrar U.H. Sheikh, Springer, 2004.
3	Wireless Communications- A. Goldsmith, Cambridge Univ Press, 2005
4	"Fundamentals of Wireless Communications," - D. Tse and P. Viswanath, Cambridge Univ Press, 2005

Web Details

1	https://www.bing.com/videos/riverview/relatedvideo?q=Cellular+and+mobile+communications&mid=D8130E95440A90FBA710D8130E95440A90FBA710&churl=https%3a%2f%2fwww.youtube.com%2fchannel%2fUCpuCKBmQA70bNy39-VJU_4g&mcid=3E254571C4CF41B787D7144EC4CD977D&FORM=V
2	https://en.wikipedia.org/wiki/Comparison_of_mobile_phone_standards

	Name	Signature with Date
i. Faculty I	Dr.S.Srilali	
ii. Faculty II	Mr.I.V.Ravi Kumar	
iii. Faculty III	Mrs.K.Pavani	
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vi. Programme Coordinator	Dr.B.S.Rao	



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