



SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY

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.D.T., NARSAPUR-534280, (Andhra Pradesh)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Period /Week	Academic Year	Semester commencement date
16EC7E02	Cellular & Mobile Communications (R-16)	VII	ECE	5	2021-22	04-10-2021

COURSE OUTCOMES

After completion of the course student are able to

1	Design Hexagonal shaped cells and how these are implemented in real world.(K1,K2,K4)
2	Explain different types of antenna systems in mobile communication.(K1,K2,K3)
3	Analyze Handoffs and different types of handoffs and Dropped call rates and their evaluation.(K2,K3,K4)
4	Describe applications of GSM Architecture and GSM channels, multiple access scheme, TDMA, CDMA. (K1,K2,K4)

Unit No	Out Come/Bloom's Level	Topics/Activity	Reference Text book	Contact Periods	Delivery Method	
1	CO1: Design Hexagonal shaped cells and how these are implemented in real world.(K1,K2,K4)	CELLULAR & MOBILE COMMUNICATIONS				
		1.1	Evolution of Mobile Communications	T1,T2,R1	1	Chalk & Talk, PPT & Tutorial.
		1.2	Mobile Radio Systems around the world	T1,T2,R1	1	
		1.3	First, Second, Third Generation Wireless Networks	T1,T2,R1	1	
		1.4	Wireless Local Loop(WLL)	T1,T2,R1	1	
		1.5	Wireless LANs	T1,T2,R1	1	
		1.6	Bluetooth	T1,T2,R1	1	
		1.7	Personal Area Networks(PANs)	T1,T2,R1	1	
		1.8	Examples of Wireless Communication Systems	T1,T2,R1	1	
		1.9	A Simplified Reference Model	T1,T2,R1	1	
		1.10	Applications	T1,T2,R1	1	
	Problems	T1,T2,R1	1			
		TOTAL		10		



SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY

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)

2	CO1: Design Hexagonal shaped cells and how these are implemented in real world.(K1,K2,K3)	ELEMENTS OF CELLULAR RADIO SYSTEM DESIGN			Chalk & Talk, PPT & Tutorial	
		2.1	General description of the problem	T1,R1,R2		1
		2.2	Concept of frequency channels	T1,R1,R2		1
		2.3	Co-channel Interference Reduction Factor	T1,R1,R2		1
		2.4	Problems	T1,R1,R2		1
		2.5	Desired C/I from a normal case in a Omni directional Antenna system	T1,R1,R2		1
		2.6	Problems	T1,R1,R2		1
		2.7	Cell splitting	T1,R1,R2		1
		2.8	Consideration of the components of Cellular system	T1,R1,R2		1
		2.9	Problems	T1,R1,R2		1
			TOTAL	9		
3	CO2: Explain different types of antenna systems in mobile communication. (K2,K3,K4)	THE CELLULAR CONCEPT			Chalk & Talk, PPT & Tutorial	
		3.1	Introduction, Frequency reuse, Handoff strategies	T1,R1,R4		1
		3.2	Interference and System Capacity: Co- Channel Interference	T1,R1,R4		1
		3.3	Channel Planning	T1,R1,R4		1
		3.4	Adjacent Channel Interference	T1,R1,R4		1
		3.5	Power control for reducing interference	T1,R1,R4		1
		3.6	Trunking and Grade of Service	T1,R1,R4		1
		3.7	Cell Splitting	T1,R1,R4		1
		3.8	Sectoring	T1,R1,R4		1
		3.9	Repeaters for Range extension	T1,R1,R4		1
		3.10	A microcell zone concept	T1,R1,R4		1
		3.11	Problems	T1,R1,R4		1
		3.12	CELL SIZE ANTENNAS AND MOBILE ANTENNAS: Characteristics	T1,R1,R4		1
		3.13	Antennas at Cell site	T1,R1,R4		1
		3.14	Mobile Antennas	T1,R1,R4		1
3.15	Problems	T1,R1,R4	1			
			TOTAL	15		



SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY

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, Kakinda
 SEETHARAMPURAM, W.G.DT., NARSAPUR-534280, (Andhra Pradesh)

4	CO3: Analyze Handoffs and different types of handoffs and Dropped call rates and their evaluation.(K1,K2,K4)	MOBILE RADIO PROPAGATION			Chalk & Talk, PPT & Tutorial	
		4.1	Introduction, Free space propagation model	T1,T2,R1		1
		4.2	The three basic propagation models- Reflection	T1,T2,R1		1
		4.3	Diffraction and Scattering	T1,T2,R1		1
		4.4	Two-ray model	T1,T2,R1		1
		4.5	Outdoor propagation models	T1,T2,R1		1
		4.6	Indoor propagation models	T1,T2,R1		1
		4.7	Problems	T1,T2,R1		1
		4.8	Signal Penetration into building	T1,T2,R1		1
		4.9	Small scale multipath Propagation	T1,T2,R1		1
		4.10	Parameters of Mobile multipath channels	T1,T2,R1		1
		4.11	Types of small scale fading	T1,T2,R1		1
		4.12	Problems	T1,T2,R1		1
TOTAL			12			
5	CO3: Analyze Handoffs and different types of handoffs and Dropped call rates and their evaluation. (K2,K3,K4).	FREQUENCY MANAGEMENT AND CHANNEL ASSIGNMENT			Chalk & Talk, PPT & Tutorial	
		5.1	Numbering and grouping	T1,R1,R3		1
		5.2	Setup access	T1,R1,R3		1
		5.3	paging channels	T1,R1,R3		1
		5.4	channel assignments to cell sites	T1,R1,R3		1
		5.5	channel assignments to mobile units	T1,R1,R3		1
		5.6	Channel sharing and borrowing	T1,R1,R3		1
		5.7	Sectorization	T1,R1,R3		1
		5.8	Overlaid cells	T1,R1,R3		1
		5.9	Non fixed channel assignment	T1,R1,R3		1
TOTAL			9			
6	CO4: Describe applications of GSM Architecture and GSM channels, multiple access schemes, TDMA, CDMA. (K1,K2,K4)	DIGITAL CELLULAR NETWORKS			Chalk & Talk, PPT & Tutorial	
		6.1	GSM architecture	T1,R1,R4		1
		6.2	GSM channels	T1,R1,R4		1
		6.3	Multiple access scheme	T1,R1,R4		1
		6.4	TDMA	T1,R1,R4		1
		6.5	CDMA	T1,R1,R4		1
TOTAL			5			
TOTAL NO. OF CLASSES PROPOSED PER PERIOD'S				60		



SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY

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)

Text Books:

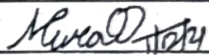
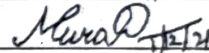

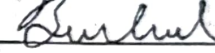
S.No.	AUTHORS/BOOK TITLE/EDITION(latest)/PUBLISHER/YEAR OF PUBLICATION
1	Gottapu Sasibhushana Rao, Mobile Cellular Communication, 1 st Edition, Pearson International, 2012.
2	W.C.Y. Lee, Mobile Cellular Telecommunications, 2 nd Edition, Tata McGraw Hill, 2006.

Reference Books:

S.No.	AUTHORS/BOOK TITLE/EDITION(latest)/PUBLISHER/YEAR OF PUBLICATION
1	Theodore Rappaport, Wireless Communications, 2 nd Edition, Principles and Practice, 2010
2	W.C.Y. Lee, Wireless and Mobile Communications, 3 rd Edition, McGraw Hill, 2006.

Web Details

1	www.nptel.ac.in
2	www.slideshare.net
3	https://youtu.be/Z-Hw3CpPVj0

NO		Name	Signature with Date
i.	Faculty	Mr. M.MURALI	
ii.	Course Coordinator	Mr. M.MURALI	
iii.	Module Coordinator	Dr. B.SADASIVA RAO	
iv.	Programme Coordinator	Dr.B.S.RAO	


Principal