



# 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)

## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

### TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Period /Week	Academic Year	Semester commencement date
19EC5004	Mobile Communication & Application(R-19)	V	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 the parameters of Mobile multipath channels, Types of small scale fading. (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)	<b>CELLULAR &amp; MOBILE COMMUNICATIONS</b>				
		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	
		1.11	Problems	T1,T2,R1	1	
<b>TOTAL</b>				11		



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2	CO1: Design Hexagonal shaped cells and how these are implemented in real world.(K1,K2)	<b>ELEMENTS OF CELLULAR RADIO SYSTEM DESIGN</b>			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	Problems	T1,R1,R2		1
		2.9	Consideration of the components of Cellular system	T1,R1,R2		1
		2.10	Problems	T1,R1,R2		1
<b>TOTAL</b>			<b>10</b>			
3	CO2: Explain different types of antenna systems in mobile communication. (K2,K3,K4)	<b>THE CELLULAR CONCEPT</b>			Chalk & Talk, PPT & Tutorial	
		3.1	Introduction, Frequency reuse, Handoff strategies	T1,R1,R4		1
		3.2	Interference and System Capacity	T1,R1,R4		1
		3.3	Co- Channel Interference			1
		3.4	Channel Planning	T1,R1,R4		1
		3.5	Problems	T1,R1,R4		1
		3.6	Adjacent Channel Interference	T1,R1,R4		1
		3.7	Power control for reducing interference	T1,R1,R4		1
		3.8	Trunking and Grade of Service	T1,R1,R4		1
		3.9	Problems	T1,R1,R4		1
		3.10	Cell Splitting	T1,R1,R4		1
		3.11	Sectoring	T1,R1,R4		1
		3.12	Repeaters for Range extension	T1,R1,R4		1
		3.13	A microcell zone concept	T1,R1,R4		1
		3.14	Problems	T1,R1,R4		1
<b>TOTAL</b>			<b>14</b>			



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4	CO3: Analyze Handoffs and different types of handoffs and Dropped call rates and their evaluation.(K1,K2,K4)	<b>MOBILE RADIO PROPAGATION</b>			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	T1,T2,R1		1
		4.4	Scattering	T1,T2,R1		1
		4.5	Two-ray model	T1,T2,R1		1
		4.6	Outdoor propagation models	T1,T2,R1		1
		4.7	Indoor propagation models	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	Problems	T1,T2,R1		1
		4.11	Parameters of Mobile multipath channels	T1,T2,R1		1
		4.12	Types of small scale fading	T1,T2,R1		1
		4.13	Problems	T1,T2,R1		1
<b>TOTAL</b>			<b>13</b>			
5	CO3: Analyze Handoffs and different types of handoffs and Dropped call rates and their evaluation.(K2,K3,K4).	<b>FREQUENCY MANAGEMENT AND CHANNEL ASSIGNMENT</b>			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	Problems	T1,R1,R3		1
		5.7	Channel sharing	T1,R1,R3		1
		5.8	Channel borrowing	T1,R1,R3		1
		5.9	Sectorization	T1,R1,R3		1
		5.10	Overlaid cells	T1,R1,R3		1
		5.11	Non fixed channel assignment	T1,R1,R3		1
		5.12	Problems	T1,R1,R3		1
<b>TOTAL</b>			<b>12</b>			
<b>TOTAL NO. OF CLASSES PROPOSED PER PERIOD'S</b>				<b>60</b>		





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## Text Books:

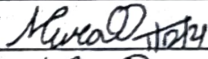
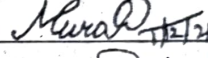
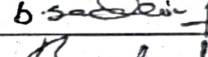
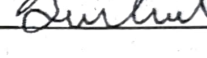
S.No.	AUTHORS/BOOK TITLE/EDITION(latest)/PUBLISHER/YEAR OF PUBLICATION
1	Gottapu Sasibhushana Rao, Mobile Cellular Communication, 1 <sup>st</sup> Edition, Pearson International, 2012.
2	W.C.Y. Lee, Mobile Cellular Telecommunications, 2 <sup>nd</sup> Edition, Tata McGraw Hill, 2006.

## Reference Books:

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

## Web Details

1	<a href="http://www.nptel.ac.in">www.nptel.ac.in</a>
2	<a href="http://www.slideshare.net">www.slideshare.net</a>
3	<a href="https://youtu.be/Z-Hw3CpPVj0">https://youtu.be/Z-Hw3CpPVj0</a>

S.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