



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
20EC7E20	ADVANCED COMMUNICATION SYSTEMS	VII	ECE	5	2023-2024	5-06-2024

COURSE OUTCOMES

After completion of the course students can able to

1	Categorize different generation wireless technologies (K2)
2	Demonstrate encoding and decoding the transmitted data (K3)
3	Outline the characteristics of MIMO channel (K4)
4	List Multiple access Schemes (K3)

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
UNIT-1: INTRODUCTION TO WIRELESS COMMUNICATION						
I	CO 1: Recognize different generation wireless technologies (K4)	1.1	Introduction to modern wireless communication system	T1, T2	2	Chalk & Talk, PPT & Case Study
		1.2	Second generation wireless networks,	T1, T2	1	
		1.3	third generation wireless networks	T1, T2	1	
		1.4	fourth generation wireless technologies	T1, T2, R1	1	
		1.5	Wireless in local loop	T1, T2, R1	2	
		1.6	Blue tooth	T1, T2, R1, R2	1	
		1.7	personal area networks	T1, T2, R1, R2	1	
		1.8	overview of WIMAX Technologies	T1, T2, R1, R2	2	
		1.9	Architecture spectrum allocation	T1, T2	1	
					Total	12
UNIT – 2: CHANNEL CODING, TURBO CODES						
II	CO2: Demonstrate encoding and decoding	2.1	Channel coding	T1, T2, R1	2	Chalk & Talk,



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	the transmitted data (K3)	2.2	Overview of code design	T1,T2,R2	1	PPT Active Learning & Case Study
		2.3	Linear block codes	T1,T2,R1,R2	2	
		2.4	Cyclic Codes	T1,T2,R1,R2	1	
		2.5	Convolution codes.	T1,T2, R1,R2	1	
		2.6	Trellis diagram	T1,T1,R1	1	
		2.7	maximum likelihood decoding	T1,T2,R1,R2	1	
		2.8	Viterbi Algorithm	T1,T2,R1,R2	1	
		2.9	Concatenated codes	T1,T2,R1,R2	1	
		2.10	Turbocodes –Low density parity check codes	T1,T2,R1,R2	2	
Total					13	
III	CO3: Outline the characteristics of MIMO channel(K4)	UNIT – 3: MIMO				
		3.1	Multiple Antenna Communication	T1, T2.R1,R2	2	Chalk & Talk, PPT Tutorial
		3.2	Narrowband MIMO Model	T1, T2.R1,R2	2	
		3.3	Parallel decomposition of MIMO	T1, T2.R1,R2	1	
		3.4	MIMO channel capacity	T1, T2.R1,R2	2	
		3.5	static and fading channel	T1, T2.R1,R2	2	
		3.6	MIMO diversity gain	T1, T2.R1,R2	2	
		3.7	Diversity/Multiplexing trade-offs	T1, T2.R1,R2	1	
		3.8	Space time modulation and coding-Frequency selective MIMO channels	T1, T2.R1,R2	2	
Total					14	
IV	CO2: Demonstrate encoding and decoding the transmitted data (K3).	UNIT – 4: EQUALIZATION AND MULTI CARRIER MODULATION				
		4.1	Equalizer noise enhancement, equalizer types	T1, T2.R1,R2	2	Chalk & Talk,
		4.2	folded spectrum ISI-free transmission, linear equalizer.	T1, T2.R1,R2	2	
		4.3	Multicarrier modulation: Data	T1, T2.R1,R2	2	



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			transmission using multiple carriers			PPT Tutorial
		4.4	Multi carrier modulation with overlapping sub-channels.	T1, T2,R1,R2	2	
Total					8	
		UNIT – 5 : MULTIPLE ACCESS SCHEMES:				
V	CO4:List the Multiple Explain Multiple access Schemes (K3)	5.1	Introduction to multiple access	T1, T2,R1,R2	2	Chalk & Talk, PPT Tutorial
		5.2	Frequency Division Multiple Access (FDMA)	T1, T2,T3,R1	2	
		5.3	Time Division Multiple Access	T1,T2,R1,R2	2	
		5.4	OFDM Spread Spectrum Multiple Access	T1, T2,R1,R2	2	
		5.5	Space Division Multiple Access	T1, T2,R1,R2	2	
		5.6	Overview of GSM, GPRS, EDGE, UMTS,CDMA 2000	T1, T2,R1,R2	2	
Content beyond Syllabus (if needed)		5.7	HSDPA and LTE	T2,R2	1	
Total					13	
CUMULATIVE PROPOSED PERIODS					60	
Text Books:						
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
1.	Robert.W. HEATHJR." Foundations of MIMO Communications", 1st edition, Cambridge University press, 2018.					
2.	Simon Haykin, Michal Mohar," Modern wireless communications" 1st edition, Pearson education, 2011.					
Reference Books:						
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
1.	Brijesh Verma, "Advanced Communication Systems", 2nd edition, S.K. Kataria & sons, 2022.					
2.	Iti Saha Mishra, "wireless communications and networks", 2nd edition, McGrawHill, (2015).					



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Web Details	
1.	www.nptel.com
2.	www.thelearningpoint.net

	Name	Signature with Date
i.	Faculty	Dr Y.S.V.Raman
ii.	Course Coordinator	Dr Y.S.V.Raman
iii.	Module Coordinator	Dr Y.S.V.Raman
iv.	Programme Coordinator	Dr.B.S.Rao


Principal
Dr. S.Suresh Kumar