Scheme of Course Work
Submitted by Prof G T RAO for M. Tech I semester

SCHEME OF COURSE WORK

Course Details:

Course Title	**: Advanced Mobile Communications**		
Course Code	**: 13EC2101**	**L P C**	**: 4 0 3**
Program:	**: M. Tech**		
Specialization:	**: Communications and Signal Processing**		
Semester	**: I**		
Prerequisites	**: DATA COMMUNICATIONS**		
Courses to which it is a prerequisite	**: NOT APPLICABLE**		

Course Outcomes (COs):

1	Describe various transmission modes and Network topologies
2	Design Multiplexing techniques such as TDM and FDM
3	Explain switching systems for data transmission
4	Demonstrate Data communications protocols
5	Comprehend Line protocols and Congestion protocols

Assessment Methods:	Assignment / Quiz / Seminar / Case Study / Mid-Test / End Exam

Teaching-Learning and Evaluation

Week	TOPIC / CONTENTS	Course Outcomes	Sample questions	TEACHING-LEARNING STRATEGY	Assessment Method & Schedule
1	Data Communications Topologies	CO-1	1. Explain the necessity of Character synchronisation 2. What is network topology and brief notes on various topologies	▫ NPTEL VIDEO LECTURES ▫ PPT	
2	Configurations, 2- wire, 4- wire operations,	CO-1		▫ NPTEL VIDEO LECTURES PPT	Assignment 1 (Week 2 - 4)
3	Error detection and correction methods,	CO-1		▫ NPTEL VIDEO LECTURES ▫ PPT	
4	Character synchronisation	CO-1		▫ NPTEL VIDEO LECTURES ▫ PPT	
5	Switching Techniques: Circuit switching	CO-2	1. Compare the packet switching and circuit switching techniques for digital networks. 2. Explain in detail X.25 architecture	▫ NPTEL VIDEO LECTURES ▫ PPT	
6	Packet switching and Message switching, Virtual circuits,	CO-2		▫ NPTEL VIDEO LECTURES ▫ PPT	
7	X.25 Protocol	CO-2		▫ NPTEL VIDEO LECTURES PPT	

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8	REVISION			▫ EXAMPLES ▫ PROBLEM SOLVING	
9	**Mid-Test 1**				Mid-Test 1 (Week 9)
10	Digital Multiplexing: Multiplexers	CO-3	1. What is the necessity of Digital hierarchy? 2. Write notes on Frame synchronisation	▫ NPTEL VIDEO LECTURES ▫ PPT	
11	Communication processors, Hybrid Data	C0-3		▫ NPTEL VIDEO LECTURES ▫ PPT	Assignment 2 (Week 11 - 14)
12	TDM, Carrier Systems, Digital hierarchy	CO-3		▫ NPTEL VIDEO LECTURES ▫ PPT	
13	Line encoding, frame synchronisation	C0-3		▫ NPTEL VIDEO LECTURES ▫ PPT	
14	Protocols: Synchronous and asynchronous protocols, SDLC, HDLC	C0-4	1. What are protocols? Explain with an example. 2. Is ATM a switch or Protocol? Discuss.	▫ NPTEL VIDEO LECTURES PPT	
15	ATM, Flow control , Error Control	CO-4		▫ NPTEL VIDEO LECTURES ▫ PPT	Seminar (Week 15)
16	Line protocols and Congestion controls: Half duplex point to point, full duplex, polling, roll call and hub polling	CO-5	1. What are the criteria for Traffic management in wireless networks? 2. Compare the performances of ATM and Frame Relay.	▫ NPTEL VIDEO LECTURES ▫ PPT slides only	
17	Traffic management, congestion control in Packet switched networks, frame relay	CO-5		▫ EXAMPLES ▫ PROBLEM SOLVING	
18	**Mid-Test 2**				Mid-Test 2 (Week 15)
19/20	**END EXAM**				**END EXAM**

Program Outcomes (POs):

1) Able to apply the knowledge of Electronics and Communication Engineering fundamentals to solve complex problems in communications and signal processing.
2) Able to identify, formulate and analyze problems related to communications and signal processing area and substantiate the conclusions using the first principles of sciences and engineering.
3) Able to Design solutions for communications and signal processing problems and design system components and processes that meet the specified needs with appropriate consideration for public health and safety.
4) Able to perform analysis and interpretation of data by using research methods such as design of experiments to synthesize the information and to provide valid conclusions.
5) Able to select and apply appropriate techniques from the available resources and modern tools, and will be able to predict and model complex engineering activities with an understanding of the practical limitations.
6) Able to collaborate with engineers of other disciplines and work on projects which require multi-disciplinary skills.
7) Able to demonstrate knowledge and understanding of the engineering and management principles and apply the same while managing projects in multidisciplinary environments.
8) Able to communicate fluently on complex engineering activities with the engineering community and society, and will be able to prepare reports and make presentations effectively.

9) Engage them in independent and life-long learning in the broadest context of technological change while continuing professional practice in the Communication technologies.
10) Transform into responsible citizens by resorting to professional ethics and norms of the engineering practice.
11) Able to carry out tasks by working independently and also in a group of members.

Course Outcome versus **Program Outcomes:**

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO-1	S	M									S
CO-2	S	M	S	M			S				S
CO-3	S	M	S	M			S	S			S
CO-4	S	M	S	M			S				S
CO-5	S	M	S	M			S				S