

DIGITAL COMMUNICATION(ETEC-303) LECTURE PLAN			
FACULTY NAME: Dr. SANDEEP SHARMA		No. of Lectures	Duration
UNIT -1 INTRODUCTION TO DIGITAL COMMUNICATION:			
PART 1	LINE CODING: NRZ, RZ, Manchester encoding, differential Manchester encoding, AMI coding, high density bipolar code, binary with n-zero substitution codes,	04	12 hrs
PART 2	SAMPLING AND QUANTIZATION: Review of Sampling theorem, uniform and non-uniform quantization, companding , Mu-law and A-law compressor	04	
PART 3	PULSE SHAPING AND ANALYSIS: Concept and Analysis of PCM, DPCM, DM and ADM modulators and demodulators, M-arry , waveforms, S/N ratio for all modulation, probability of error for PCM in AWGN Channel and other modulation techniques, Duo Binary pulse.	04	
UNIT -2 RANDOM SIGNAL THEORY:			
PART 1	Probability, Concept of Random variable (Stationary, Non stationary, WSS, SSS), Random process, CDF, PDF, Joint CDF, Joint PDF, marginal PDF, Mean, Moments, Central Moment Autocorrelation & Cross-correlation, covariance functions,	04	11 hrs
PART 2	DISTRIBUTIONS: Gaussian distribution, Uniform distribution, Rayleigh distribution, Binomial distribution, Poission distribution, Weiner distribution	04	
PART 3	THEOREMS: Wiener-Khinchin theorem, Central limit theorem.	03	
UNIT -3 DESIGNING Of RECEIVER:			
PART 1	SIGNAL SPACE REPRESENTATION AND FILTER DESIGN.Orthogonal Signal, Gram-Schmidt Orthogonalization	04	10 hrs
PART 2	ANALYSIS OF RECEIVER: Prediction Filter, Design and Property of Matched filter, Correlator Receiver, Maximum likelihood receiver, Coherent receiver design	03	
PART 3	INTERFERENCE: Inter Symbol Interference, Eye Pattern.	03	
UNIT -4 DIGITAL MODULATION SCHEMES			
PART 1	REPRESENTATION Coherent Binary Schemes: ASK, FSK, PSK,QPSK, MSK, GMSK Coherent M ary Schemes, Incoherent Schemes (DPSK and DEPSK)	04	11 hrs
PART 2	ANALYSIS : Calculation of average probability of error for different modulation schemes, Power spectra of digitally modulated signals,	03	
PART 3	Performance comparison of different digital modulation schemes	04	

Lecture Plan

Programming in Java (CIC-212)

Sem-4th (CSE)

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3 1 4

S. No.	Topics	Required Lectures to Cover
1	Overview and characteristics of Java	1
2	Java program Compilation and Execution Process	1
3	Organization of the Java Virtual Machine, JVM as an interpreter and emulator	1
4	Instruction Set, class File Format	1
5	Verification, Class Area	1
6	Java Stack, Heap, Garbage Collection	1
7	Security Promises of the JVM, Security Architecture	1
8	Security Policy. Class loaders and security aspects	1
9	Sandbox model	1
10	Java Fundamentals	1
11	Data Types & Literals Variables	1
12	Wrapper Classes	1
13	Arrays	1
14	Arithmetic Operators, Logical Operators	1
15	Control of Flow, Classes and Instances	1
16	Class Member Modifiers	1
17	Anonymous Inner Class Interfaces and Abstract Classes	1
18	Inheritance	1
19	throw and throws clauses, user defined Exceptions	1
20	The String Buffer Class, tokenizer	1
21	applets, Life cycle of applet	1
22	Security concerns	1
23	Thread Priority , Blocked States	1
24	Extending Thread Class, Runnable Interface	1
25	Starting Threads, Thread Synchronization	1
26	Synchronize Threads, Sync Code Block	1
27	Overriding Synced Methods, Thread Communication, wait, notify and notify all	1
28	AWT Components, Component Class, Container Class, Layout Manager Interface Default Layouts	1
29	Insets and Dimensions, Border Layout, Flow Layout, Grid Layout	1
30	Card Layout Grid Bag Layout AWT Events, Event Models	1
31	Listeners, Class Listener, Adapters	1
32	Action Event Methods Focus Event Key Event	1
33	Mouse Events, Window Event	1
34	Input/Output Stream, Stream Filters, Buffered Streams	1
35	Data input and Output Stream, Print Stream Random Access File	1
36	JDBC (Database connectivity with MS-Access, Oracle, MS-SQL Server)	1
37	Object serialization, Sockets, development of client Server applications	1
38	design of multithreaded server. Remote Method invocation	1
39	Java Native interfaces, Development of a JNI based application.	1

40	Java Native interfaces, Development of a JNI based application.	1
41	Vector	1
42	Stack, Hashtable classes, enumerations	1
43	Set	1
44	List	1
45	Map, Iterators	1

Textbook(s):

1. Patrick Naughton and Herbertz Schidt, "Java-2 the Complete Reference",TMH
2. Kathy Sierra & Bert Bates, "Head First Java", O'Reilly.

Reference Books:

1. E. Balaguruswamy, "Programming with Java", TMH
2. Horstmann, "Computing Concepts with Java 2 Essentials", John Wiley.
3. Decker & Hirshfield, "Programming Java", Vikas Publication.

LECTURE PLAN- ANALOG ELECTRONICS-I		ECC-211
		TOTAL: 40
S.NO	TOPIC	DURATION (In Hr.)
UNIT-I		10
1	Forward and reverse biased diode, I-V characteristics of diode, Diode Equation,	2
2	Temperature dependence of diode. Breakdown phenomena, diffusion and transition capacitance of diode	2
3	Diode equivalent circuit, Ideal diode. Solar cell.	1
4	Diode circuits: half-wave, Full-wave rectifiers with capacitor filter	3
5	Clamping and clipping circuits Zener diodes as voltage regulator.	2
UNIT-II		10
6	Bipolar Junction transistor (BJT): Structure, modes of operation	1
7	BJT Configurations, I-V characteristics, early effect, junction voltages	1
8	Transistor Biasing: Need of biasing, load line concept, fixed bias, self-bias, collector to base bias, stability factors,	3
9	Current Mirrors; hybrid model of BJT amplifier, small signal analysis of CE BJT amplifier using h parameter	2
10	JFET: Physical structure, I-V characteristics	1
11	MOSFET: Depletion and enhancement types, Physical structure and I-V characteristics	1
12	FET small-signal model (low & high frequency); MOSFET as resistance and switch,	1
UNIT-III		11
13	Cascade amplifiers: Analysis of cascade amplifier (voltage gain, current gain, input and output impedances);	2
14	Darlington pair, Cascode amplifier; Types of coupling: DC, RC and Transformer;	2
15	RC coupled Amplifier and its frequency response;	1
16	Differential Amplifier: differential and Common mode operation, CMRR.	1
17	Power Amplifiers: Classification of output stages (Class A, B, C & AB)	1
18	Class A Amplifier, Transformer coupled class A amplifier, Push pull amplifiers:	2
19	Class A and Class B, Harmonic distortion, efficiency, crossover distortion, class AB operation, Class C amplifier.	2
UNIT-IV		9
20	Feedback Amplifiers: classification, Feedback concept,	2
21	Basic feedback topologies, Characteristics of Negative Feedback, Feedback and stability, gain margin, Noise margin,	3
22	Impedance considerations in different configurations.	1
23	Sinusoidal Oscillator, Barkhausen criterion, RC phase shift, LC (Colpitt's, Hartley, Clapp), Crystal Oscillator.	3
TEXT BOOKS		
1. J. Millman, C.C. Halkias and Satyabrata Jit, "Electronic Devices and Circuits", Tata McGraw Hill, 4th ed. , 1998		
2. R. L. Boylestad and N. Nashlesky, "Electronic Devices and Circuit Theory", Pearson Education, 11th Ed., 2014		
Reference Books:		
1. Adel S. Sedra and Kenneth C. Smith, "Micro Electronic Circuits Theory and Applications," 5th Edition , OUP, 2004.		
2. B. Kumar and S. B. Jain, "Electronic Devices and Circuits"", Prentice Hall of India, 2007		
3. S Salivahanan, and N. Suresh Kumar, "Electronic Devices and Circuits", McGraw Hill Education (India), 2018		
4. B.P. Singh and Rekha Singh, "Electronic Devices and Integrated Circuits", Pearson Education, 2009.		
5. J. J. Cathey, "Schaum's Outline of Theory and Problems in Electronic Devices and Circuits", McGraw Hill, 2002.		

S.No.	TOPICS	T/L
	UNIT-I:Introduction:Uses of Computer Networks,Physical Layer	
1,2	Introduction to Computer Networks, Network Hardware,Network Software,Protocol Layering	2
3,4	Reference Models(OSI& TCP/IP),Network Standardization.	2
5	The Physical Layer:Introduction,Transmission Media:Guided Media	1
6	Unguided Transmission Media	1
7	Switching(Circuit,Packet)	1
8	Multiplexing(FDM,WDM,TDM)	1
9	Overview of PSTN,ISDN and ATM	2
	Unit 2: The Data	
10,1	Introduction:Data Link Layer Design Issues,Error Detection and Correction Techniques,Framing	3
1	Elementary Data Link Protocols:Stop and Wait,Sliding Window Protocols	
12	Other Data Link Protocols(HDLC and PPP)	2
13	The Medium Access Sublayer: Introduction,MAC and LLC Sublayers, The Channel Allocation	2
14	IEEE Standard 802.3 & 802.11 for LANs and WLANs	2
15	Network Devices:Repeaters,Hubs,Bridge,Switches and Routers.	1
	FIRST TERM EXAM/ REVISION	1
	UNIT – III: The Network Layer	
16	Introduction:Network Layer Design Issues, Introduction to Routers	1
17	Routing Algorithms:Static and Dynamic Routing	2
18	Congestion Control Algorithms,Quality of Service.	2
19	Introduction to PDH,SONET and DWDM Networks	1
20,2	Introduction to IPV4 Addressing: IP Addresses,Network Addresses,IP Frame Header	2
1	Subnet Mask	2
22	Subnetworks and Subnetting	2
23	Forwarding of IP Packets,IPV4 vs IPV6	1
24	Congestion Control Algorithms	2
25	ATM and Packet Switched Networks	1
26	Delay Models in Data Networks: Queueing Models,Queueing System,M/M/m/m and Markov	1
27	Questions on Subnetting	1
	Unit -IV: The Transport Layer	
28	Introduction	1
29	Duties and Services provided by Transport Layer	1
30	Elements of Transport Protocols:Error Control,Sequencing and Flow Control	1
31	Connection Oriented Service:Connection Establishment, 3 Way handshaking,Connection	1
32	The Internet Transport Protocols(TCP and UDP):Features, Header Format	2
33	Difference between TCP and UDP	1
	SECOND TERM EXAM/ REVISION	1

Text Books:

[T1]Dimitri Bertsekas and Robert Gallagr,"Data Networks",PHI

[T2] Behrouz A.Forouzan ,'Data Communication and Networking',5E,Tata McGraw Hill,2013

Reference Books:

[R1] Uyles Black,"Computer Networks-Protocols,Standards and Interfaces",2nd Edition,PHI,1996New Delhi

[R2] A.Tannenbaum,"Computer Networks",5th Edition,Pearson

(2000).

DIGITAL COMMUNICATION(ECC-212) LECTURE PLAN			
	FACULTY NAME: Dr. SANDEEP SHARMA	No. of Lectures	Duration
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PART 1	REPRESENTATION Coherent Binary Schemes: ASK, FSK, PSK,QPSK, MSK, GMSK Coherent M ary Schemes, Incoherent Schemes (DPSK and DEPSK)	03	09 hrs
PART 2	ANALYSIS : Calculation of average probability of error for different modulation schemes, Power spectra of digitally modulated signals,	03	
PART 3	Performance comparison of different digital modulation schemes	03	
	UNIT -3 DESIGNING Of RECEIVER:		
PART 1	Band Limited Channels: Error rate due to channel noise in a matched filer receiver, Intersymbol Interference, Signal Design for Zero ISI,	03	09 hrs
PART 2	Adaptive equalization, signalling over multiple baseband channel, Fading Channels: Propagation effects, Jakes Model, Statistical Characteristics of wideband wireless channel,	03	
PART 3	Diversity techniques, MIMO, MIMO Capacity for channel known at receiver, OFDM, Spread-spectrum signals.	03	
	UNIT -4 DIGITAL MODULATION SCHEMES		
PART 1	Information Theory: Entropy, Source Coding Theorem, Lossless data compression, Discrete Memoryless channel, Mutual Information, Channel Capacity, Channel Coding Theorem	02	08 hrs
PART 2	Differential Entropy and Mutual Information for Continuous Random Ensembles, Information Capacity Law,	02	
PART 3	Error Control Coding: Introduction, Error Control using forward correction, Linear Block Code, Cyclic Codes, Convolutional Codes.	04	

Spoken Tutorial

S.No.	Organiser/ Coordinator	Invigilator/ Speaker	Class	Semester/Year	Participants	Online Course/Workshop	Date of Foss Online Test
1	Ms.Vishakha Sehdev	Ms.Kritika	CSE-C	1st Sem/1st Year	63	C	20-11-2023
2	Ms.Kritika	Mr.Prashant Nigam	FDP	All Branches	33	FDP: Moodle Test for Teachers Training	18-08-2023
3	Prof. Achal Kaushik	Ms Tanisha	CSE C	4th Sem/ 2nd Year	59	PHP & My SQL	28-06-2023
4	Dr.Palak	Ms.Kritika	CSE-A	6th Sem/ 3rd Year	65	gedit Text Editor	08-06-2023
5	Dr.Muskan	Ms.Kritika	CSE-B	3rd Sem/ 2nd Year	24	Scilab	08-05-2023
6	Dr.Muskan	Ms.Kritika	CSE-A	4th Sem/ 2nd Year	33	Scilab	09-05-2023
7	Ms Kritika	Ms Tanisha	CSE A	6th Sem/ 3rd Year	46	Python 3.4.3	03-05-2023
8	Dr.Himani	Ms.Kritika	CSE-C	6th Sem/ 3rd Year	53	gedit Text Editor	03-05-2023
9	Dr.Preeti	Ms.Kritika	CSE-B	6th Sem/ 3rd Year	46	gedit Text Editor	02-05-2023
	Ms.Ankita (Training Manager)	Ms.Kritika	Faculty Program	All Branches	66	Induction Program	31-03-2023
10	Dr.Vishal	Ms.Kritika	CSE-C	4th Sem/ 2nd Year	60	JAVA	06-12-2022
11	Dr.Preeti	Ms.Kritika	CSE-B	5th Sem/ 3rd Year	60	PHP & My SQL	06-11-2022
12	Dr.Himani	Ms.Kritika	CSE-A	3rd Sem/ 2nd Year	39	Advance C++	06-11-2022
13	Ms.Nikita Nijhawan	Ms.Kritika	CSE-C	3rd Sem/ 2nd Year	46	Advance C++	17-11-2023
14	Ms.Nikita Nijhawan	Ms.Kritika	CSE-C	3rd Sem/ 2nd Year	46	Advance C++	17-11-2023
15	Ms. Deepti Jain	Ms.Kritika	CSE-C	4th Sem/ 2nd Year	63	JAVA	14-11-2022
16	Ms.Kritika	Ms.Ankita Singh (Training Manager)	CSE, IT, ECE, EEE	Faculty Workshop	30	Workshop: Introductory Session on Spoken Tutorial Software courses	27-09-2022

