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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Electronic Devices and Circuits / R2021041

Year / Semester: II/I Section: I A.Y: 2023-24

S NO	TOPIC	Date	Mode of delivery
UNIT-	I: Review of Semiconductor Physics		
COI:	Apply the basic concepts of semiconductor physics. Understand the form and how it can be used as a p-n junction as diode in different modes of o		n junction
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi	II, Second E	dition, 2007
1	Introduction		
2	Insulators, Semiconductors and Conductors		
3	Insulators, Semiconductors and Conductors: Energy Band Diagrams		
4	Charge carriers in a conductor material: covalent bond diagram		Lecture interspersed with discussions
5	Charge carriers in a semiconductor material: covalent bond diagram, concentration		
6	S.C in the presence of E-field: Drift velocity, Mobility, Conductivity, Current density		
7	Tutorial exercise: on drift velocity (v) and concentration of free electrons (n)		
8	Fermi Dirac function f(E), Fermi energy level (E _f), Example		
9	Density of states, Energy density function	1000	
10	Concentration of free electrons in the conduction band of pure S.C and holes in the valence band of a pure S.C, Fermi level in intrinsic Semiconductor,	From 02/08/23 To	
11	Intrinsic concentration, law of mass action	02/09/23	
12	Diffusion current density		
13	continuity equation		100
14	extrinsic Semiconductors: p-type and n-type		
15	Fermi level in extrinsic Semiconductor		
16	Hall effect		1 13
17	Tutorial exercise		7773
18	Junction Diode Characteristics: energy band diagram of PN junction Diode, Open circuited p-n junction, Biased p-n junction		
19	current components in PN junction Diode		

20	diode equation, law of junction		
21	Diode V-I Characteristics, temperature dependence on V-I characteristics, Diode resistance		
UNIT	II: Special Semiconductor Devices:		
CO2:	Know the construction, working principle of rectifiers with and without expressions and necessary comparisons.	t filters with	relevant
TB2:	Electronic Devices and Circuits -U.A. Bakshi, A.P. Godse, Technical I Reprint, 2015	Publications,	First Edition,
23	Zener Diode, Breakdown mechanisms, Zener diode applications		
24	LED, Varactor Diode	1	
25	Photo diode, Tunnel Diode		
26	UJT, PN-PN Diode (PIN Diode)		
27	SCR. Construction, operation and V-I characteristics.	7	
28	Rectifiers and Filters: Basic Rectifier setup, half wave rectifier	7	
29	full wave rectifier	From	Lecture interspersed with discussions
30	bridge rectifier	03/09/23	
31	Tutorial exercise	To	
32	derivations of characteristics of rectifiers	23/09/23	
33	rectifier circuits-operation: input and output waveforms	I CALCIOSIA	
34	Filters: Inductor filter (Series inductor)		
35	Capacitor filter (Stunt inductor)		
36	π- Filter	1	
37	Comparison of various filter circuits in terms of ripple factors.	1	
38	Tutorial exercise		
UNIT-	III: Transistor Characteristics:		
	Understand the construction, principle of operation of transistors, BJT	and FET with	
CO3:	characteristics in different configurations.	mu rei win	their V- I
CO3: TB1:	characteristics in different configurations.		
2005	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor		
TB1:	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor		
TB1:	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMe-GrawH		
TB1: 39 40	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components		
TB1: 39 40 41	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMe-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of		
TB1: 39 40 41 42	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMe-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and		
TB1: 39 40 41 42 43	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMe-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base		
TB1: 39 40 41 42 43 44	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMe-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations		
TB1: 39 40 41 42 43 44 45	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMe-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor	ill, Second E	Lecture
TB1: 39 40 41 42 43 44 45 46	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMe-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor punch through/reach through effect, Photo transistor	From 24/09/23	Lecture interspersed with
TB1: 39 40 41 42 43 44 45 46 47	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMe-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor punch through/reach through effect, Photo transistor Typical transistor junction voltage values.	From 24/09/23	Lecture interspersed
TB1: 39 40 41 42 43 44 45 46 47 48	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMe-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor punch through/reach through effect, Photo transistor	From 24/09/23	Lecture interspersed with

52	operation, characteristics		
53	Tutorial exercise		
UNIT	- IV: Transistor Biasing and Thermal Stabilization		
CO4:	Know the need of transistor biasing, various biasing techniques for BJ stabilization concepts with necessary expressions.	Γ and FET ar	ıd
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH	ill, Second E	dition, 2007
54	Need for biasing		
55	operating point		
56	load line analysis		11970
57	BJT biasing- methods: basic stability, fixed bias, collector to base bias, self-bias	From	Lecture
58	Stabilization against variations in VBE, lc and β	19/10/23	interspersed
59	Tutorial exercise	To	with discussions
60	Stability factors (S, S', S")	31/10/23	
61	Bias compensation		
62	Thermal runaway, Thermal stability.		
63	FET Biasing-methods and stabilization.		
64	Tutorial exercise		
CO5:	Perform the analysis of small-signal low-frequency transistor amplifier FET in different configurations		
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH	ill, Second E	dition, 2007
65	DIT: Two part patronels		
66	BJT: Two port network		
67	Transistor hybrid model		
	Transistor hybrid model determination of h-parameters		
68	Transistor hybrid model determination of h-parameters conversion of h-parameters		
69	Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters		
69 70	Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise		
69 70 71	Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB	From	Lecture
69 70 71 72	Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB Analysis of CE	01/11/23	Lecture
69 70 71	Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB Analysis of CE Analysis of CC amplifiers using exact and approximate analysis	The state of the s	
69 70 71 72 73 74	Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB Analysis of CE Analysis of CC amplifiers using exact and approximate analysis Comparison of transistor amplifiers. FET: Generalized analysis of small signal model	01/11/23 To	Lecture interspersed with
69 70 71 72 73 74 75	Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB Analysis of CE Analysis of CC amplifiers using exact and approximate analysis Comparison of transistor amplifiers. FET: Generalized analysis of	01/11/23 To	Lecture interspersed with
70 71 72 73 74 75 76	Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB Analysis of CE Analysis of CC amplifiers using exact and approximate analysis Comparison of transistor amplifiers. FET: Generalized analysis of small signal model Analysis of CG amplifier Analysis of CS amplifiers	01/11/23 To	Lecture interspersed with
70 71 72 73 74 75	Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB Analysis of CE Analysis of CC amplifiers using exact and approximate analysis Comparison of transistor amplifiers. FET: Generalized analysis of small signal model Analysis of CG amplifier	01/11/23 To	Lecture interspersed with

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Electronic Devices and Circuits / R2021041

Year / Semester: II/I Section: II A.Y: 2023-24

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7	Tutorial exercise: on drift velocity (v) and concentration of free electrons (n)		
8	Fermi Dirac function f(E), Fermi energy level (E _F), Example		
9	Density of states, Energy density function		
10	Concentration of free electrons in the conduction band of pure S.C and holes in the valence band of a pure S.C, Fermi level in intrinsic Semiconductor,	From 02/08/23 To	Lecture intersperse with
11	Intrinsic concentration, law of mass action	02/09/23	discussions
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13	continuity equation		
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UNIT	II: Special Semiconductor Devices:		-
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31	Tutorial exercise	To	with
32	derivations of characteristics of rectifiers	23/09/23	discussions
33	rectifier circuits-operation; input and output waveforms		STATE STATE OF A
34	Filters: Inductor filter (Series inductor)		
35	Capacitor filter (Stunt inductor)		
36	π- Filter		
37	Comparison of various filter circuits in terms of ripple factors.	-	110
38	Tutorial exercise		
UNIT-	III: Transistor Characteristics:		
CO3:	Understand the construction, principle of operation of transistors, BJT characteristics in different configurations.	and FET with	their V-1
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH	ill. Second F	dition, 2007
39	BJT: Junction transistor	T	2007
40	transistor current components	-	
40	manatator current components		
41	The state of the s		
	transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base		
41	transistor equation transistor configurations: transistor as an amplifier, characteristics of		
41 42	transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and		
41 42 43	transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base		
41 42 43 44	transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations	From	Lecture
41 42 43 44 45	transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor	From 24/09/23	Lecture interspersed
41 42 43 44 45 46	transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor punch through/reach through effect, Photo transistor	24/09/23 To	interspersed with
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52	operation, characteristics		
53	Tutorial exercise		
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59	Tutorial exercise	To	
60	Stability factors (S, S', S")	31/10/23	
61	Bias compensation		
62	Thermal runaway, Thermal stability.		
63	FET Biasing-methods and stabilization.		
	Tutorial exercise -V: Small Signal Low Frequency Transistor Amplifier Models -Perform the analysis of small-signal low-frequency transistor amplifier	circuits usin	g BJT and
UNIT- CO5:	V: Small Signal Low Frequency Transistor Amplifier Models Perform the analysis of small-signal low-frequency transistor amplifier FET in different configurations		
UNIT- CO5: TB1:	V: Small Signal Low Frequency Transistor Amplifier Models Perform the analysis of small-signal low-frequency transistor amplifier FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH		
UNIT- CO5: TB1: 65	V: Small Signal Low Frequency Transistor Amplifier Models Perform the analysis of small-signal low-frequency transistor amplifier FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Two port network		
UNIT- CO5: TB1: 65 66	V: Small Signal Low Frequency Transistor Amplifier Models Perform the analysis of small-signal low-frequency transistor amplifier FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Two port network Transistor hybrid model		
UNIT- CO5: TB1: 65	V: Small Signal Low Frequency Transistor Amplifier Models Perform the analysis of small-signal low-frequency transistor amplifier FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Two port network Transistor hybrid model determination of h-parameters		
UNIT- CO5: TB1: 65 66 67	V: Small Signal Low Frequency Transistor Amplifier Models Perform the analysis of small-signal low-frequency transistor amplifier FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Two port network Transistor hybrid model determination of h-parameters conversion of h-parameters		
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UNIT- CO5: TB1: 65 66 67 68 69 70 71	V: Small Signal Low Frequency Transistor Amplifier Models Perform the analysis of small-signal low-frequency transistor amplifier FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMe-GrawH BJT: Two port network Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB Analysis of CE	From 01/11/23	Lecture interspersed with
UNIT- CO5: TB1: 65 66 67 68 69 70 71 72	V: Small Signal Low Frequency Transistor Amplifier Models Perform the analysis of small-signal low-frequency transistor amplifier FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Two port network Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB	From 01/11/23	Lecture interspersed with
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Mathematics - III / R2021011

Year / Semester : 11/1

Section: 1

A.Y: 2023-24

No. of Periods	TOPIC	Date	Mode of Delivery
CO1: To In divergence.	ECTOR CALCULUS terpret the physical meaning of different operators Estimate the work done against a field, circulation terpret the work done against a field, circulation terpret Mathematics", Dr. T.K.V.Iyengar; S.Chand	and flux using vect-	url and
1	Vector Differentiation: Introduction		
2	Properties of vectors and scalars		
3	Derivative of vector – definition		
4	Vector differential operator		
5	Gradient of a vector		
6	Divergence of a vector		
7	Curl of a vector		Lecture interspersed with discussions
8	Properties of gradient		
9	Vector identities	From:	
10	Problems on application of gradient	07/08/2023	
11	Problems on divergence and curl	To	
12	Vector Integration: Introduction	25/08/2023	
13	Problems on line integral		
14	Problems on line integral		
15	Problems on surface integrals		
16	Problems on volume integrals		
17	Problems on Greens theorem		
18	Problems on Green theorem	_	
19	Problems on Gauss divergence theorem		
20	Problems on stokes theorem		
CO2: To ap	LAPLACE TRANSFORMS oply the Laplace transform for solving differential e eering Mathematics", Dr. T.K.V.lyengar; S.Chand	quations	
21	Laplace Transforms: Definitions, Existence	publications	
22	Laplace Transform of standard functions		
23	Linearity property; Shifting properties Change of scale property	From	Lecture
24	Laplace Transforms of derivatives; Integrals	26/08/2023	interspersed

25	$L(t^n f(t))$	To	with discussions
26	Laplace Transforms of division by t	15/09/2023	
27	Evaluation of integrals		
28	Laplace Transforms of periodic functions; unit step functions; Unit impulse functions		
29	Inverse Laplace Transforms: Finding L ⁻¹ using partial fractions		
30	Properties of inverse transform		
31	Convolution theorem		
32	Solutions of Difference Equations		

UNIT - III: FOURIER SERIES AND FOURIER TRANSFORMS

CO3: Find or compute the Fourier series of periodic signals. Know and be able to apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms.

TB:" Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications

33	Introduction		
34	Periodic functions		Lecture interspersed with discussions
35	Fourier series of periodic function		
36	Dirchlets conditions		
37	Even and odd functions	From	
38	Change of interval	16/09/2023	
39	Half range sine and cosine series	То	
40	Fourier transforms	23/09/2023	
41	Fourier integral theorem	å	
42	Fourier sine and cosine integrals	From	
43	Sine and cosine transforms	3/10/2023	
44	Properties	To	
45	Inverse transforms	12/10/2023	
46	Finite Fourier transforms		

UNIT - IV: PDE OF FIRST ORDER

CO4: To identify solution methods for partial differential equations that model physical process.

TB:" Engineering Mathematics", Dr. T.K.V.lyengar; S.Chand publications

47	Introduction		
48	Formation of PDE by climinating arbitrary constants		Lecture interspersed with discussions
49	Formation of PDE by eliminating arbitrary functions		
50	Solutions of PDE		
51	Method of grouping		
52	Method of multipliers		
53	Nonlinear PDE $f(p,q) = 0$	From	
54	Nonlinear PDE $f(p, q, z) = 0$	13/10/2023	
55	Nonlinear PDE $f(p,x) = g(q,y)$	To	
56	Clairaut's equation	28/10/2023	
57	PDE reducible to standard form		
58	$f(px^m,qy^n)=0$		

APPLICATI CO5: Identif proces	y solution methods for partial differential equations	that model physi	cal
60	Introduction; Homogeneous Linear P.D.E with constant coefficients; finding CF Finding PI: RHS term of the type $e^{(ax+by)}$	From	Lecture interspersed with discussions
61	$\sin(ax + by)$; $\cos(ax + by)$	30/10/2023 To	
62	x ^m y ⁿ	19/11/2023	
63	Method of separation of variables		
64	Solution of one dimensional wave equation		
65	Heat equation		1
66	Two dimensional Laplace equation		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Mathematics - III / R2021011

Year / Semester: II/I Section: II A.Y: 2023-24

Year / Seme	emester : II/I Section: II	A.Y: 2023-24	
No. of Periods	TOPIC	Date	Mode of Delivery
CO1: To Indivergence.	ECTOR CALCULUS terpret the physical meaning of different operators Estimate the work done against a field, circulation teering Mathematics", Dr. T.K.V.Iyengar; S.Chand	and flux using vect	url and
1	Vector Differentiation: Introduction	17-4	
2	Properties of vectors and scalars	2.0	
3	Derivative of vector – definition		
4	Vector differential operator		1
5	Gradient of a vector	100	
6	Divergence of a vector		
7	Curl of a vector	-5.0	Lecture interspersed with discussions
8	Properties of gradient		
9	Vector identities	From:	
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12	Vector Integration: Introduction	25/08/2023	
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15	Problems on surface integrals		
16	Problems on volume integrals	27.5	
17	Problems on Greens theorem	2 2 2 3 1	
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CO2: To ap	APLACE TRANSFORMS ply the Laplace transform for solving differential e ering Mathematics", Dr. T.K.V.Iyengar; S.Chand	quations publications	
21	Laplace Transforms; Definitions, Existence		
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26	Laplace Transforms of division by t	15/09/2023	discussions
27	Evaluation of integrals	TO THE PARTY OF TH	

28	Laplace Transforms of periodic functions; unit step functions; Unit impulse functions	
29	Inverse Laplace Transforms: Finding L ⁻¹ using partial fractions	
30	Properties of inverse transform	
31	Convolution theorem	
32	Solutions of Difference Equations	

UNIT - III: FOURIER SERIES AND FOURIER TRANSFORMS

CO3: Find or compute the Fourier series of periodic signals. Know and be able to apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms.

TB:" Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications

Introduction	•	
Periodic functions		Lecture interspersed with discussions
Fourier series of periodic function		
Dirchlets conditions		
Even and odd functions	From	
Change of interval	16/09/2023	
Half range sine and cosine series	To	
Fourier transforms	23/09/2023	
Fourier integral theorem	Æ	
Fourier sine and cosine integrals	From	
Sine and cosine transforms	3/10/2023	
Properties	То	
Inverse transforms	12/10/2023	131 155 15
Finite Fourier transforms		
	Introduction Periodic functions Fourier series of periodic function Direhlets conditions Even and odd functions Change of interval Half range sine and cosine series Fourier transforms Fourier integral theorem Fourier sine and cosine integrals Sine and cosine transforms Properties	Periodic functions Fourier series of periodic function Dirchlets conditions Even and odd functions Change of interval Half range sine and cosine series Fourier transforms Fourier integral theorem Fourier sine and cosine integrals Sine and cosine transforms Properties Inverse transforms Fourier series of periodic function From 16/09/2023 To From 3/10/2023 To 12/10/2023

UNIT - IV: PDE OF FIRST ORDER

CO4: To identify solution methods for partial differential equations that model physical process.

TB:" Engineering Mathematics", Dr. T.K.V.lyengar; S.Chand publications

47	Introduction			
48	Formation of PDE by eliminating arbitrary constants		Lecture interspersed with discussions	
49	Formation of PDE by eliminating arbitrary functions			
50	Solutions of PDE			
51	Method of grouping			
52	Method of multipliers			
53	Nonlinear PDE $f(p,q) = 0$	From		
54	Nonlinear PDE $f(p,q,z) = 0$	13/10/2023		
55	Nonlinear PDE $f(p,x) = g(q,y)$	To		
56	Clairaut's equation	28/10/2023		
57	PDE reducible to standard form			
58	$f(px^m,qy^n)=0$			
59	$f(pz^m,qz^m)=0$			

UNIT - V: SECOND ORDER PARTIAL DIFFERENTIAL EQUATIONS AND APPLICATIONS

proces	y solution methods for partial differential equations ises. ering Mathematics", Dr. T.K.V.Iyengar; S.Chand pu	- 0.2	cal
60	Introduction; Homogeneous Linear P.D.E with constant coefficients; finding CF Finding PI: RHS term of the type $e^{(\alpha x + by)}$	From	Lecture
61	$\sin(ax + by)$; $\cos(ax + by)$	30/10/2023 To	interspersed with discussions
62	$x^m y^n$	19/11/2023	
63	Method of separation of variables		
64	Solution of one dimensional wave equation		
65	Heat equation		
66	Two dimensional Laplace equation		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Electronic Devices and Circuits / R2021041

Year / Semester: II/I Section: I A.Y: 2023-24

S NO	TOPIC	Date	Mode of delivery
UNIT-	1: Review of Semiconductor Physics		107
CO1:	Apply the basic concepts of semiconductor physics. Understand the form and how it can be used as a p-n junction as diode in different modes of o		n junction
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHil	II, Second E	dition, 2007
1	Introduction		
2	Insulators, Semiconductors and Conductors		
3	Insulators, Semiconductors and Conductors: Energy Band Diagrams		
4	Charge carriers in a conductor material: covalent bond diagram		
5	Charge carriers in a semiconductor material: covalent bond diagram, concentration		
6	S.C in the presence of E-field: Drift velocity, Mobility, Conductivity, Current density		Lecture interspersed with
7	Tutorial exercise: on drift velocity (v) and concentration of free electrons (n)		
8	Fermi Dirac function f(E), Fermi energy level (E _f), Example		
9	Density of states, Energy density function		
10	Concentration of free electrons in the conduction band of pure S.C and holes in the valence band of a pure S.C, Fermi level in intrinsic Semiconductor,	From 02/08/23 To	
11	Intrinsic concentration, law of mass action	02/09/23	discussion
12	Diffusion current density		0.00070000000000
13	continuity equation		
14	extrinsic Semiconductors: p-type and n-type		
15	Fermi level in extrinsic Semiconductor		
16	Hall effect		
17	Tutorial exercise		
18	Junction Diode Characteristics: energy band diagram of PN junction Diode, Open circuited p-n junction, Biased p-n junction		
19	current components in PN junction Diode		

20	diode equation, law of junction		
21	Diode V-I Characteristics, temperature dependence on V-I characteristics, Diode resistance		
UNIT	II: Special Semiconductor Devices:		
CO2:	Know the construction, working principle of rectifiers with and without expressions and necessary comparisons.	filters with	relevant
TB2:	Electronic Devices and Circuits -U.A. Bakshi, A.P. Godse, Technical P. Reprint, 2015	ublications,	First Edition,
23	Zener Diode, Breakdown mechanisms, Zener diode applications		Lecture interspersed with discussions
24	LED, Varactor Diode		
25	Photo diode, Tunnel Diode		
26	UJT, PN-PN Diode (PIN Diode)	1	
27	SCR. Construction, operation and V-I characteristics.		
28	Rectifiers and Filters: Basic Rectifier setup, half wave rectifier	1	
29	full wave rectifier	From	
30	bridge rectifier	03/09/23	
31	Tutorial exercise	To	
32	derivations of characteristics of rectifiers	23/09/23	
33	rectifier circuits-operation: input and output waveforms		
34	Filters: Inductor filter (Series inductor)		
35	Capacitor filter (Stunt inductor)		
36	π- Filter		
37	Comparison of various filter circuits in terms of ripple factors.	1	
38	Tutorial exercise	1	
	III: Transistor Characteristics:		
CO3:	Understand the construction, principle of operation of transistors, BJT a characteristics in different configurations.	and FET with	45 7 47 7
	enminerationes in mineration ecitifications.		their V- I
TB1:	- TOUR BENEFIT OF A THE SHOULD	ill, Second E	
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH	ill, Second E	
	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor	ill, Second E	
	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components	ill, Second E	
39 40	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor	ill, Second E	
39 40 41 42	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base	ill, Second E	
39 40 41 42 43	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and	ill, Second E	
39 40 41 42 43 44	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations	ill, Second E	
39 40 41 42 43 44 45	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise	ill, Second E	
39 40 41 42 43 44 45 46	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor		dition, 2007
39 40 41 42 43 44 45 46 47	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor punch through/reach through effect, Photo transistor	From 24/09/23 To	Lecture interspersed with
39 40 41 42 43 44 45 46 47 48	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor punch through/reach through effect, Photo transistor Typical transistor junction voltage values.	From 24/09/23	Lecture
39 40 41 42 43 44 45 46 47	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor punch through/reach through effect, Photo transistor	From 24/09/23 To	Lecture interspersed with

52	operation, characteristics		
53	Tutorial exercise		
UNIT	- IV: Transistor Biasing and Thermal Stabilization	211-2-211	
CO4:	Know the need of transistor biasing, various biasing techniques for BJT concepts with necessary expressions.	and FETano	Istabilization
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi	II, Second E	dition, 2007
54	Need for biasing		
55	operating point		
56	load line analysis		
57	BJT biasing- methods: basic stability, fixed bias, collector to base bias, self-bias	From 19/10/23	Lecture
58	Stabilization against variations in VBE, Ic and β		interspersed
59	Tutorial exercise	To	
60	Stability factors (S, S', S")	31/10/23	discussions
61	Bias compensation		and a standard for some sine
62	Thermal runaway, Thermal stability.		
63	FET Biasing-methods and stabilization.		
64	Tutorial exercise	1	
CO5:	Perform the analysis of small-signal low-frequency transistor amplifier	circuits usin	o BIT and
	Perform the analysis of small-signal low-frequency transistor amplifier FET in different configurations		#1500000C1109A
TB1:	FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi		#1500000C1109A
TB1:	FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi BJT: Two port network		#150404C4104V
TB1: 65 66	FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi BJT: Two port network Transistor hybrid model		#150404C4104V
TB1: 65 66 67	FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi BJT: Two port network Transistor hybrid model determination of h-parameters		TI SOSONE SAME
TB1: 65 66 67 68	FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi BJT: Two port network Transistor hybrid model determination of h-parameters conversion of h-parameters		TI SONO CANADA
TB1: 65 66 67 68 69	FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi BJT: Two port network Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters		TI SOSONE SAME
TB1: 65 66 67 68 69 70	FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi BJT: Two port network Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise		TI SOSONE SAME
TB1: 65 66 67 68 69 70 71	FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi BJT: Two port network Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB	From 01/11/23	Lecture Interspersed
TB1: 65 66 67 68 69 70 71 72	FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi BJT: Two port network Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB Analysis of CE	From 01/11/23	Lecture interspersed with
TB1: 65 66 67 68 69 70 71	FET in different configurations Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi BJT: Two port network Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB Analysis of CE Analysis of CC amplifiers using exact and approximate analysis Comparison of transistor amplifiers. FET: Generalized analysis of	From 01/11/23	Lecture interspersed with
TB1: 65 66 67 68 69 70 71 72 73	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi BJT: Two port network Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB Analysis of CE Analysis of CC amplifiers using exact and approximate analysis Comparison of transistor amplifiers. FET: Generalized analysis of small signal model	From 01/11/23	Lecture interspersed with
TB1: 65 66 67 68 69 70 71 72 73	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMe-GrawHi BJT: Two port network Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB Analysis of CE Analysis of CC amplifiers using exact and approximate analysis Comparison of transistor amplifiers. FET: Generalized analysis of small signal model Analysis of CG amplifier	From 01/11/23	Lecture interspersed with
TB1: 65 66 67 68 69 70 71 72 73 74	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi BJT: Two port network Transistor hybrid model determination of h-parameters conversion of h-parameters generalized analysis of transistor amplifier model using h-parameters Tutorial exercise Analysis of CB Analysis of CE Analysis of CC amplifiers using exact and approximate analysis Comparison of transistor amplifiers. FET: Generalized analysis of small signal model	From 01/11/23	Lecture Interspersed

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Electronic Devices and Circuits / R2021041

Year / Semester: II/I Section: II A.Y: 2023-24

s NO	TOPIC	Date	Mode of delivery
UNIT-	I: Review of Semiconductor Physics		
CO1:	Apply the basic concepts of semiconductor physics. Understand the form and how it can be used as a p-n junction as diode in different modes of or		n junction
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHi	II, Second F	dition, 2007
1	Introduction		
2	Insulators, Semiconductors and Conductors		Lecture interspersed with
3	Insulators, Semiconductors and Conductors: Energy Band Diagrams		
4	Charge carriers in a conductor material: covalent bond diagram		
5	Charge carriers in a semiconductor material: covalent bond diagram, concentration		
6	S.C in the presence of E-field: Drift velocity, Mobility, Conductivity, Current density		
7	Tutorial exercise: on drift velocity (v) and concentration of free electrons (n)		
8	Fermi Dirac function f(E), Fermi energy level (E _F), Example		
9	Density of states, Energy density function		
10	Concentration of free electrons in the conduction band of pure S.C and holes in the valence band of a pure S.C, Fermi level in intrinsic Semiconductor,	From 02/08/23 To	
11	Intrinsic concentration, law of mass action	02/09/23	discussions
12	Diffusion current density		
13	continuity equation		
14	extrinsic Semiconductors: p-type and n-type	1 20 1 1	
15	Fermi level in extrinsic Semiconductor		
16	Hall effect		
17	Tutorial exercise		
18	Junction Diode Characteristics: energy band diagram of PN junction Diode, Open circuited p-n junction, Biased p-n junction	1725/2011	
19	current components in PN junction Diode		

	diode equation, law of junction		
21	Diode V-I Characteristics, temperature dependence on V-I characteristics, Diode resistance		
UNIT	II: Special Semiconductor Devices:		
CO2:	Know the construction, working principle of rectifiers with and without expressions and necessary comparisons.	t filters with	relevant
TB2:	Electronic Devices and Circuits -U.A. Bakshi, A.P. Godse, Technical F Reprint, 2015	ublications,	First Edition,
23	Zener Diode, Breakdown mechanisms, Zener diode applications		
24	LED, Varactor Diode		
25	Photo diode, Tunnel Diode	7	
26	UJT, PN-PN Diode (PIN Diode)		
27	SCR. Construction, operation and V-I characteristics.		
28	Rectifiers and Filters: Basic Rectifier setup, half wave rectifier		
29	full wave rectifier	From	Lecture interspersed with discussions
30	bridge rectifier	03/09/23	
31	Tutorial exercise	To	
32	derivations of characteristics of rectifiers	23/09/23	
33	rectifier circuits-operation: input and output waveforms		
34	Filters: Inductor filter (Series inductor)		
35	Capacitor filter (Stunt inductor)		
36	π- Filter	1	
37	Comparison of various filter circuits in terms of ripple factors.	1	
38	Tutorial exercise	1	
UNIT	III: Transistor Characteristics:		
CO3:	Understand the construction, principle of operation of transistors, BJT	and FET with	their V- I
	characteristics in different configurations.		
TB1:	characteristics in different configurations. Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH	ill, Second E	
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor	ill, Second E	
	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH	ill, Second E	
39	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor	ill, Second E	
39 40	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components	ill, Second E	
39 40 41	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base	ill, Second E	
39 40 41 42	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and	ill, Second E	
39 40 41 42 43 44	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations	ill, Second E	
39 40 41 42 43	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise	ill, Second E	
39 40 41 42 43 44 45	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor		dition, 2007
39 40 41 42 43 44 45 46 47	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor punch through/reach through effect, Photo transistor	From 24/09/23	Lecture interspersed with
39 40 41 42 43 44 45 46 47 48	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor punch through/reach through effect, Photo transistor Typical transistor junction voltage values.	From 24/09/23	Lecture interspersed
39 40 41 42 43 44 45 46 47	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH BJT: Junction transistor transistor current components transistor equation transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base Common Emitter and Common Collector configurations Tutorial exercise Ebers-Moll model of a transistor punch through/reach through effect, Photo transistor	From 24/09/23	Lecture interspersed with

52	operation, characteristics		
53	Tutorial exercise		
UNIT	 IV: Transistor Biasing and Thermal Stabilization Know the need of transistor biasing, various biasing techniques for BJT concepts with necessary expressions. 	and FETano	dstabilization
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH	ill, Second E	dition, 2007
54	Need for biasing		Lecture interspersed with discussions
55	operating point		
56	load line analysis	From 19/10/23	
57	BJT biasing- methods: basic stability, fixed bias, collector to base bias, self-bias		
58	Stabilization against variations in VBE, Ic and β		
59	Tutorial exercise	To	
60	Stability factors (S, S', S")	31/10/23	
61	Bias compensation		
62	Thermal runaway, Thermal stability.		
63	FET Biasing-methods and stabilization.		
64	Tutorial exercise		
CO5:	Perform the analysis of small-signal low-frequency transistor amplifier FET in different configurations		
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawH	II, Second E	dition, 2007
65	BJT: Two port network		
66	Transistor hybrid model		
67	determination of h-parameters		
68	conversion of h-parameters	i sa T	
69	generalized analysis of transistor amplifier model using h-parameters		
70	Tutorial exercise	Post	=======================================
71	Analysis of CB	From 01/11/23	Lecture
72	Analysis of CE	To	interspersed with
73	Analysis of CC amplifiers using exact and approximate analysis	18/11/23	discussions
74	Comparison of transistor amplifiers. FET: Generalized analysis of small signal model		- 11 - 12 -
75	Analysis of CG amplifier		
76	Analysis of CS amplifiers		
		-	
77 78	Analysis of CD amplifiers		

78 Tutorial exercise

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

A.Y: 2023-24

TENTATIVE LESSON PLAN

Course/Code: Switching Theory and Logic Design / R2021042

Year / Semester : II/I Section: I & II

S. No.	TOPIC	Date	Mode of Delivery
UNIT-I OPERAT	REVIEW OF NUMBER SYSTEMS & CODES A FIONS:	ND BOOLEAN THEOREM	IS AND LOGIC
apply to	a ability to manipulate numeric information in difference generate various codes and analyze new error coding to the behavior of logic gates.		
TB1: Dig	ital Design, 5/e, M. Morris Mano, Michael D Ciletti,	PEA.	

1	Introduction		
2	Representation of Numbers of Different Radix		
3	Conversion from One Radix to Another Radix		
4	r-1's Compliments, r's Compliments of Signed Numbers		
5	Gray Code		
6	4 - Bit Codes		
7	BCD Codes and Arithmetic		Onboard Lecture interspersed with discussions
8	Excess – 3 Code and Arithmetic		
9.	2421, 84-2-1 codes	From: 7-8-2023	
10	Error Detection & Correction Codes: Parity Checking, Even Parity, Odd Parity	To: 2-9-2023	
11	Hamming code	2-7-2023	
12	Boolean Theorems and Logic Operations: Postulates of Boolean Algebra		
13	Principle of Complementation & Duality		
14	De-Morgan Theorems		



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15	Basic Logic Operations -NOT, OR, AND
16	Universal Logic operations, EX-OR, EX-NOR Operations
17	Standard SOP and POS Forms
18	NAND-NAND And NOR-NOR Realizations
19	Realization of three level logic circuits
20	Study the pin diagram and obtain truth table for the following relevant ICs 7400,7402,7404, 7408,7432,7486.
21	Tutorial

UNIT-II MINIMIZATION TECHNIQUES AND COMBINATIONAL LOGIC CIRCUITS DESIGN:

CO2: To optimize logic gates for digital circuits by evaluating functions using various types of minimizing algorithms like Boolean algebra, Karnaugh map or tabulation method.

TB1: Digital Design, 5/e, M. Morris Mano, Michael D Ciletti, PEA.

22	Minimization and realization of switching functions using Boolean theorems		
23	Problems on Minimization		
24	K-Map (up to 6 variables)		
25	Tabular Method (Quine-McCluskey Method) With Only Four Variables and single function.	From:	Onboard
26	Design of Half adder, full adder	4-9-2023	Lecture interspersed
27	Design of half subtractor, full subtractor	To: 20-9-2023	with discussions
28	Applications of Full Adders		
29	4-bit adder-subtractor circuit, BCD adder circuit		Appli 1
30	Excess 3 adder circuit and carry look-a-head adder circuit		
31	Design code converts using Karnaugh method and draw the complete circuit diagrams		
32	Tutorial		



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UNIT-III COMBINATIONAL LOGIC CIRCUITS DESIGN USING MSI &LSI AND INTRODUCTION OF PLD's:

CO3: To Understand the concept of combinational circuit and design different types of combinational logic circuits.

TB2: Digital Logic and Computer Design, M. Morris Mano, PEA.

33	Design of Encoder, Decoder		
34	Multiplexer and De-Multiplexers		Later to
35	Implementation of higher order circuits using lower order circuits		
36	Realization of Boolean functions using decoders and multiplexers		
37	Design of priority encoder	From: 21-9-2023	Onboard Lecture
38	4-bit digital comparator	100	interspersed with
39	Seven segment decoder	To: 16-10-2023	discussions
40	Study the relevant ICs pin diagrams and their functions 7442,7447,7485,74154		
41	PLDs: PROM, PAL, PLA -Basics structures		
42	Realization of Boolean functions		
43	Programming table.		
44	Tutorial		

UNIT-IV SEQUENTIAL CIRCUITS I:

CO4: To impart the concepts of sequencial circuits and apply knowledge of flipflops in designing of registers and counters.

TB2: Digital Logic and Computer Design, M. Morris Mano, PEA.

45	Classification of sequential circuits (synchronous and asynchronous)	
46	Operation of NAND & NOR Latches and flip-flops; truth tables and excitation tables of RS flip-flop	
47	JK flip-flop, T flip-flop, D flip-flop with reset and clear terminals	



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48	Conversion from one flip-flop to another flip-flop	113 3827	
49	Design of 5ripple counters	From:	Onboard
50	Design of synchronous counters, Johnson counter, ring counter	To: 7-11-2023	Lecture interspersed with discussions
51	Design of registers - Buffer register, control buffer register		
52	Shift register, Bi-Directional shift register		
53	Universal Shift Register		
54	Study the following relevant ICs and their relevant functions 7474,7475,7476,7490,7493,74121		
55	Tutorial		

UNIT-V SEQUENTIAL CIRCUITS II:

CO5: To understand the operation, design methodology and to analyze sequential systems in terms of statemachines.

TB2: Digital Logic and Computer Design, M. Morris Mano, PEA.

TB3:Switching Theor	and Logic	Design by	A.Anand Ku	mar, PHI Learning.
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56	Finite State Machine	Thinks to	
57	State Diagrams, State Tables		
58	Reduction of state tables	From: 8-11-2023 To: 18-11-2023	Onboard Lecture interspersed with discussions
59	Analysis of clocked sequential circuits Mealy to Moore conversion and vice-versa		
60	Realization of sequence generator		
61	Design of Clocked Sequential Circuit to detect the given sequence (with overlapping)		discussions
62	Design of Clocked Sequential Circuit to detect the given sequence (without overlapping)		
63	Tutorial		

TB1: Digital Design, 5/e, M. Morris Mano, Michael D Ciletti, PEA.

TB2: Digital Logic and Computer Design, M. Morris Mano, PEA.

TB3:Switching Theory and Logic Design by A.Anand Kumar, PHI Learning.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Signals and Systems / R2021043

Year / Semester: 11/1 Section: 1 & 11 A.Y: 2023-24

S. No.	TOPIC	Date	Mode of Delivery
	INTRODUCTION nalyze the characteristics of signals, systems and principles of signals and Systems by A. Anand Kumar, PHI	vector space.	
1	Introduction, Definition of Signals and Systems		
2	Classification of Signals, problems on classification		
3	Basic Elementary Signals		
4	Operations on signals: on time and amplitude	From: 7-8-2023 To: 2-9-2023	Onboard Lecture interspersed with discussions
5	Problems on time scaling and amplitude scaling		
6	Problems on time scaling and amplitude scaling		
7	Orthogonal signal space ,signal approximation using orthogonal functions		
8	Mean Square Error, Closed or complete set of orthogonal functions		
9	Orthogonality in complex functions		
10	Related problems		
11	Tutorial		
Transfor	amine Continues time signals and continues time systems using	g Fourier series a	and Fourier
12	Fourier Series Representation of CT signals, Dirichlet's conditions		
13	Trigonometric Fourier Series		



31

32

Distortion less Transmission Through a System

Signal band-with, System band-width, Ideal

LPF,HPF,BPF &BRF Characteristic

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100	DEPARTMENT OF ELECTRONICS AND CON	IMUNICATION E	NGINEERING
14	Exponential Fourier Series		
15	Relation between TFS and EFS		
16	Complex Fourier Spectrum		
17	Properties of Fourier Series		
18	Related Problems	From: 4-9-2023	Onboard
19	Fourier Transform from Fourier Series		Lecture
20	Fourier Transform for standard signals	To: 20-9-2023	with discussions
21	Properties of Fourier Transforms		
22	Inverse Fourier Transform and related problems		
23	Fourier Transform for periodic signals	1	
24	Fourier Transform Involving impulse function and signum function		
25	Introduction to Hilbert Transform, Related problems		
TB1: Si		ion, correlation En	ergy and Power
26	Unit.3 Introduction, linear systems, Impulse response of linear systems		
27	LTI and LTV systems		
28	Concept of convolution in time and frequency domain	From:	
29	Transfer function of LTI system, Related problem	21-9-2023 To:	Onboard Lecture
30	Filter Characteristics of Linear System		interspersed
	Jacin Diatin	16 10 2022	with

16-10-2023

discussions



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33	Causality and poly-Winer criterianfor physically realization	- 1119	
34	Relationship between rise time and bandwidth ,problems		
35	Convolution by graphical method		
36	Problems		
37	Tutorial		
38	Problems	150	
ΓB1: Si	gnals and Systems by A. Anand Kumar, PHI	I systems.	
39	Auto and Cross Correlation function		
40	Properties of Correlation function		Onboard Lecture interspersed with discussions
41	Problems		
42	Energy density Spectrum, Parsevals theorem		
43	Power density spectrum, relation between auto and cross		
44	Detection of periodic signals in noise	From: 17-10-2023	
45	Extraction of signals from noise by filtering		
46	Introduction to sampling theorem	To: 7-11-2023	
47	Effect of under sampling ,BP sampling		
48	Related problems		
49	Tutorial		
UNIT-V CO5: A FB1: Si	LAPLACE TRANSFORMS AND Z – TRANSFORMS pply Laplace Transform and z-transforms to analyze continues gnals and Systems by A. Anand Kumar, PHI	and discrete time	signals .
50	Introduction to LT		



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52	Properties of Laplace Transform		
53	Inverse Laplace Transform		
54	Relation between L.T and F.T		
55	L.T using wave form synthesis		
56	Concept of Z-transforms	From:	Onboard
57	Region of convergence	8-11-2023	Lecture interspersed
58	Relation between L.T and F.T	To: 18-11-2023	with discussions
59	L.T using wave form synthesis		
60	Concept of Z-transforms		
61	Inverse Z-transforms		
62	Properties of Z-transforms		
63	Distribution between L.T,Z.T and F.T		
64	Problems		

TB1: Signals and Systems by A. Anand Kumar, PHI

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S. Sri Gown



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variable, Problems

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Random Variables and Stochastic Processes / R2021044

Non-monotonic transformations of continuous random

Year / S	Semester: 11/1 Section:	I A.Y:	2023-24
S.No	TOPIC	Date	Mode of Delivery
CO1: E distribu TB: Pr	I THE RANDOM VARIABLE Describe the concept of Random Variable tion and density functions. Tobability, Random Variables & Random S tion, 2001.	ignal Principles, Peyton Z. Peel	
1	Introduction, Definition of a Random Varia a Function to be a Random Variable.		
2	Discrete, Continuous and Mixed random va	riable	
3	Density Function, Properties	From:	
4	Distribution function, Properties	07/08/2023	Lecture interspersed with discussions
5	Binomial, Poisson density functions	V/100/2023	
6	Uniform, Gaussian Density functions	To:	
7	Exponential, Rayleigh Density functions	26/08/2023	
8	Conditional distribution and properties, con	ditional density	
9	Related problems.		
10	Tutorial		
CO2: 1 ransfor TB : Pro th Edit	I OPERATION ON ONE RANDOM VAR Determine the expected value, momen mations. bability, Random Variables & Random Signion, 2001.	nts on one random variable gnal Principles, Peyton Z.Peeble	
11	Introduction, Expected value of a Random \	Variable, Functions	1
12	Moments about the origin, Central moments		
13	Central moments ,Variance and skew		
14	Characteristic function	From:	
15	Moment generation function	28/08/2023	Lecture
16	Chebychev's Inequality		interspersed
17	Transformations of a random variable: Mone transformations for a continuous random vari	otonic To: 16/09/2023	with discussions

UNIT -III MULTIPLE RANDOM VARIABLES

CO3: Illustrate the concepts of joint distribution and density functions on multiple random variables and their transformations.

TB: Probability, Random Variables & Random Signal Principles, Peyton Z. Peebles, TMH, 4 th Edition, 2001.

19	Vector Random Variables		Lecture interspersed with discussions
20	Joint Distribution Function, Properties of Joint Distribution	1	
21	Marginal distribution function	1	
22	Conditional distribution and density functions	1	
23	Statistical independence, sum of two random variables		
24	Central limit theorem: Unequal distribution, Equal distribution		
25	Problems	1	
26	Revision	From: 18/09/2023	
-	OPERATIONS ON MULTIPLE RANDOM VARIABLES		
27	Joint moments about the origin		
28	joint central moments	To: 16/10/2023	
29	Joint characteristic function	16/10/2023	
30	Jointly Gaussian Random Variables, N Random Variable		
31	Transformations of multiple random variables		
32	Problems on moments, Linear Transformations of Gaussian		
33	Jointly moment generating function	1	
34	Problems		
35	Tutorial		

UNIT -IV RANDOM PROCESSES - TEMPORAL CHARACTERISTICS

CO4: Analyse the statistical characteristics of stochastic processes like auto correlation and cross correlation functions.

TB: Probability, Random Variables & Random Signal Principles, Peyton Z.Peebles, TMH, 4th Edition, 2001.

36	Random process concept		
37	Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions	From:	
38	Statistically independent process		Lecture interspersed with discussions
39	Stationary processes-First order, 2nd order, Wide-sense, strict- sense stationary	17/10/2023 To:	
40	Time averages, Ergodicity	02/11/2023	
41	Autocorrelation Function and properties		
42	Cross-correlation function & properties, Covariance functions		
43	Gaussian random process, Poisson random process, problems		

UNIT - V RANDOM PROCESSES- SPECTRAL CHARACTERISTICS

CO5: Derive the Power Density Spectrum and Cross Power Density Spectrum of signals.

TB:: Probability, Random Variables & Random Signal Principles, Peyton Z. Peebles, TMH, 4th Edition, 2001.

44	The power spectrum: properties, Relationship between Power Spectrum and Autocorrelation Function	
45	The Cross Power Density Spectrum	

	Relationship between Cross power spectrum and cross correlation function	From:	Lecture interspersed with discussions
46	Linear systems with Random inputs	03/11/2023	
47	Random signal response of linear system	201101010101010101010101010101010101010	
48	Auto correlation and cross correlation	To:	
49	Mean and mean- squared value of system response	18/11/2023	
50	Cross power density spectra of input and output		
51	Narrow band processes, properties, Problems		

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14

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Characteristic function

Chebychev's Inequality

variable, Problems

Moment generation function

Transformations of a random variable: Monotonic

transformations for a continuous random variable

Non-monotonic transformations of continuous random

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Random Variables and Stochastic Processes / R2021044

Year / S	emester : II/I Section: II	A.Y:	2023-24
S.No	TOPIC	Date	Mode of Delivery
CO1: D distribu TB: Pr	THE RANDOM VARIABLE Describe the concept of Random Variable, functions based tion and density functions. Tobability, Random Variables & Random Signal Principles, Petion, 2001.		
1	Introduction, Definition of a Random Variable, Conditions for a Function to be a Random Variable.		
2	Discrete, Continuous and Mixed random variable		Lecture followed by problem solving
3	Density Function, Properties	From:	
4	Distribution function, Properties	07/08/2023	
5	Binomial, Poisson density functions	10 11 10 10 10 10 10 10 10 10 10 10 10 1	
6	Uniform, Gaussian Density functions	To:	
7	Exponential, Rayleigh Density functions	26/08/2023	
8	Conditional distribution and properties, conditional density	and the same of th	
9	Related problems.		
10	Tutorial		
CO2:	II OPERATION ON ONE RANDOM VARIABLE- EXPECT. Determine the expected value, moments on one rand mations. obability, Random Variables & Random Signal Principles, Pey	dom variable	
	Introduction, Expected value of a Random Variable, Functions Moments about the origin, Central moments		

From:

28/08/2023

To:

16/09/2023

Lecture

followed by

problem

solving

CO3: variab TB: Pr	-III MULTIPLE RANDOM VARIABLES Illustrate the concepts of joint distribution and density func- les and their transformations. obability, Random Variables & Random Signal Principles, Pey- lition, 2001.		-
19	Vector Random Variables		
20	Joint Distribution Function, Properties of Joint Distribution		
21	Marginal distribution function		
22	Conditional distribution and density functions		
23	Statistical independence, sum of two random variables		
24	Central limit theorem: Unequal distribution, Equal distribution	1	
25	Problems		
26	Revision	From: 18/09/2023	Lecture
	OPERATIONS ON MULTIPLE RANDOM VARIABLES	18/09/2023	
27	Joint moments about the origin	To:	followed by problem solving
28	joint central moments	16/10/2023	
29	Joint characteristic function	10/10/2023	
30	Jointly Gaussian Random Variables, N Random Variable	1	
31	Transformations of multiple random variables		
32	Problems on moments, Linear Transformations of Gaussian	1	
33	Jointly moment generating function	1	
-		1	
34	Problems		
35 UNIT -	-IV RANDOM PROCESSES - TEMPORAL CHARACTERIS	ncs	
JS UNIT - CO4: A cross of TB: P 4 th Ed JS	Tutorial IV RANDOM PROCESSES – TEMPORAL CHARACTERIST Analyse the statistical characteristics of stochastic processes or relation functions. robability, Random Variables & Random Signal Principles, Peylition, 2001. Random process concept Classification of process, Deterministic and Non- deterministic	like auto cor	
UNIT - CO4: cross co TB:P 4 th Ed 36	Tutorial IV RANDOM PROCESSES – TEMPORAL CHARACTERIST Analyse the statistical characteristics of stochastic processes or relation functions, robability, Random Variables & Random Signal Principles, Peglition, 2001. Random process concept Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions	like auto cor	s, TMH,
JS UNIT - CO4: A cross of TB: P 4 th Ed JS	Tutorial IV RANDOM PROCESSES – TEMPORAL CHARACTERIST Analyse the statistical characteristics of stochastic processes or relation functions, robability, Random Variables & Random Signal Principles, Peglition, 2001. Random process concept Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions Statistically independent process	like auto con ton Z.Peeble	Lecture followed by
UNIT - CO4: cross co TB:P 4 th Ed 36	Tutorial IV RANDOM PROCESSES – TEMPORAL CHARACTERIST Analyse the statistical characteristics of stochastic processes or relation functions. robability, Random Variables & Random Signal Principles, Peylition, 2001. Random process concept Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions Statistically independent process Stationary processes-First order, 2nd order, Wide-sense, strict-sense stationary	ton Z.Peeble From: 17/10/2023	s, TMH,
35 UNIT - CO4: cross co TB : P 4 th Ed 36 37 38	Tutorial IV RANDOM PROCESSES – TEMPORAL CHARACTERIS Analyse the statistical characteristics of stochastic processes or relation functions. robability, Random Variables & Random Signal Principles, Perition, 2001. Random process concept Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions Statistically independent process Stationary processes-First order, 2nd order, Wide-sense, strict-	ton Z.Peeble	Lecture followed by problem
35 UNIT - CO4: cross co TB : P 4 th Ed 36 37 38 39	Tutorial IV RANDOM PROCESSES – TEMPORAL CHARACTERIS Analyse the statistical characteristics of stochastic processes or relation functions. robability, Random Variables & Random Signal Principles, Pegition, 2001. Random process concept Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions Statistically independent process Stationary processes-First order, 2nd order, Wide-sense, strict-sense stationary Time averages, Ergodicity	ton Z.Peeble From: 17/10/2023 To:	Lecture followed by problem
35 UNIT - CO4: cross co TB : P 4 th Ed 36 37 38 39 40	Tutorial IV RANDOM PROCESSES – TEMPORAL CHARACTERIST Analyse the statistical characteristics of stochastic processes or relation functions. robability, Random Variables & Random Signal Principles, Peylition, 2001. Random process concept Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions Statistically independent process Stationary processes-First order, 2nd order, Wide-sense, strict-sense stationary	ton Z.Peeble From: 17/10/2023 To:	Lecture followed by problem

TB: Probability, Random Variables & Random Signal Principles, Peyton Z. Peebles, TMH, 4th Edition, 2001.

44	The power spectrum: properties, Relationship between Power Spectrum and Autocorrelation Function	
45	The Cross Power Density Spectrum	

	Relationship between Cross power spectrum and cross correlation function	From:	Lecture
46	Linear systems with Random inputs	03/11/2023	interspersed with discussions
47	Random signal response of linear system		
48	Auto correlation and cross correlation	To:	
49	Mean and mean- squared value of system response	18/11/2023	
50	Cross power density spectra of input and output	Complete Management	
51	Narrow band processes, properties, Problems		

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30.

Log Amplifiers

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Analog IC Applications / R2031041

Year / Semester 3II/I Section: I A.Y: 2023-24 No. of TOPIC Date Mode of Periods Delivery UNIT-I INTRODUCTION TO OPERATIONAL AMPLIFIER CO 1: Student will be able to analyze different issues related to the differential Amplifiers and Operational Amplifier T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHL T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International. 1. Introduction 2. Op amp block diagram Characteristics of Op-Amp 3. Ideal and Practical Op-Amp specifications 4. DC Characteristics- Input and Output Off-set voltages DC Characteristics- Input Off-set voltages 5. DC Characteristics- Input Off-set currents 6. 7. DC Characteristics- Output Off-set currents 8. AC Characteristics-Frequency Response, Stability AC Characteristics-Frequency Response, Stability From: 9. Lecture 17-07-2023 interspersed 10. AC Characteristics-Frequency Compensation with 11. Tutorial To discussions 12. Measurements of Op-Amp Parameters 09-08-2023 13. AC Characteristics 14. Slew Rate 15. CMRR 16. PSRR 17. Current Booster 18. Three-Terminal Voltage Regulators 78xx& 79xx Series Adjustable voltage Regulator 19. 20. Dual Power Supply with 78xx &79xx 21. Problems UNIT-II OP-AMP APPLICATIONS CO 2: Student can understand how to use op amp in real time applications. T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHL T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International. 22. Introduction 23. Basic Op-Amp Applications 24. Instrumentation amplifier 25. AC amplifier 26. V to I converter 27. I to V converter 28. Sample and Hold Circuit 29. Tutorial

31. 32.			
3.2	Anti log Amplifiers	From: 10-08-2023	
240	Multiplier and Divider		
33.	Integrator		2- 00
34.	Differentiator		Lecture
35.	Comparators And Waveform Generators	-	intersperse
36.	Square Wave Generators- Comparator	To:	with
37.	Schmitt Trigger	31-08-2023	discussions
38.	Astable Multivibrator	-	
39.	Monostable Multivibrator	-	
40.	Triangular Wave Generator	-	
41.	Sine Wave Generators-RC Phase Shift Oscillator	-	
42.	Sine Wave Generators- Wein Bridge Oscillator	-	
43.	Tutorial	-	
	ACTIVE FILTERS	_	
T1: OP-AN	ty to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain,		tional
	Design & Analysis of active filters		
45.	1st order LPF		
46.	2nd order LPF		
47.	1st order HPF filters	Parame	Lecture
48.	2nd order HPF	From: 02-09-2023	interspersed
49.	Tutorial	- Carrier (2) (2) (2) (2) (2) (2) (2)	with
50.	Narrow Band Pass Filter	To: 29-09-2023	discussions
51.	Wide Band Pass Filter	29-09-2023	uiscussions
52,	Narrow Band Reject Filter		
53.	Wide Band Reject Filter		
54.	All Pass filters		
CO 4: Able F2: Linear	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, 1	as PLL, Timer. New Age Interna	tional.
55.	Introduction to 555 timer		
56.	Functional Diagram		
	Monostable operation		
57.	A C. C. ST. C.	-	
58.	Applications of Monostable multivibrator		
58. 59.	Ramp generator		
58. 59. 60.	Ramp generator Frequency divider and multiplier		02.05000000
58. 59. 60. 61.	Ramp generator Frequency divider and multiplier Astable operation	From:	Lecture
58. 59. 60. 61.	Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode	From: 30-9-2023	interspersed
58. 59. 60. 61. 62. 63.	Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic	30-9-2023	interspersed with
58. 59. 60. 61. 62. 63. 64.	Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks	30-9-2023 To:	interspersed with
58. 59. 60. 61. 62. 63. 64.	Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL	30-9-2023	interspersed with
58. 59. 60. 61. 62. 63. 64. 65.	Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication	30-9-2023 To:	interspersed with
58. 59. 60. 61. 62. 63. 64. 65. 66.	Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication Frequency translation	30-9-2023 To:	interspersed
58. 59. 60. 61. 62. 63. 64. 65. 66.	Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication Frequency translation AM and FM demodulators	30-9-2023 To:	interspersed with
58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69.	Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication Frequency translation AM and FM demodulators Tutorial	30-9-2023 To:	interspersed with
58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69.	Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication Frequency translation AM and FM demodulators Tutorial FSK demodulators	30-9-2023 To: 18-10-2023	interspersed with discussions
58. 59. 60, 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. JNIT - V I	Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication Frequency translation AM and FM demodulators Tutorial	To: 18-10-2023	interspersed with discussions

72.	Basic DAC techniques - Weighted resistor DAC		Lecture interspersed with discussions
73.	Weighted resistor DAC		
74.	Tutorial		
75.	R-2R ladder DAC		
76.	Inverted R-2R DAC	From:	
77.	Tutorial	19-10-2023	
78.	DAC Specifications		
79.	ADCs - Parallel Comparator ADC	To:	
80.	Counter type ADC	11-11-2023	
81.	Successive Approximation ADC		
82.	Dual slope ADC		
83.	ADC Specifications		
84.	Problems		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Analog IC Applications / R2031041

Log Amplifiers

Anti log Amplifiers

30.

31.

	ster III/I Section: II		A.Y: 2023-2
No. of Periods	TOPIC	Date	Mode of Delivery
UNIT -I	INTRODUCTION TO OPERATIONAL AMPLIFIER	t	
Operationa T1: OP-AM	ent will be able to analyze different issues related to the of Amplifier IPS and Linear Integrated Circuits, Ramakanth A Gaya Integrated Circuits, D. Roy Choudary, Sahil B jain, New	kwad, PHI.	57 37
1.	Introduction		
2.	Op amp block diagram Characteristics of Op-Amp	Jan 195	
3.	Ideal and Practical Op-Amp specifications		
4.	DC Characteristics- Input and Output Off-set voltages		
5.	DC Characteristics- Input Off-set voltages		
6.	DC Characteristics- Input Off-set currents		
7.	DC Characteristics- Output Off-set currents		
8.	AC Characteristics-Frequency Response, Stability		
9.	AC Characteristics-Frequency Response, Stability	From:	Lecture
10.	AC Characteristics-Frequency Compensation	17-07-2023	interspersed with discussions
11.	Tutorial		
12.	Measurements of Op-Amp Parameters	То	
13.	AC Characteristics	10-08-2023	
14.	Slew Rate		
15.	CMRR		
16.	PSRR		
17.	Current Booster		
18.	Three-Terminal Voltage Regulators 78xx& 79xx Series		
19.	Adjustable voltage Regulator	100	
20.	Dual Power Supply with 78xx &79xx		
21.	Problems		
Γ1: OP-AM	OP-AMP APPLICATIONS ent can understand how to use op amp in real time appli IPS and Linear Integrated Circuits, Ramakanth A Gaya Integrated Circuits, D. Roy Choudary, Sahil B jain, New	kwad, PHI.	ional.
22.	Introduction		
23.	Basic Op-Amp Applications		
24.	Instrumentation amplifier		
25.	AC amplifier	110012	
26.	V to I converter		
27.	I to V converter		
28.	Sample and Hold Circuit		

32.	Multiplier and Divider		
33.	Integrator	From:	555
34.	Differentiator	14-08-2023	Lecture
35.	Comparators And Waveform Generators		interspersed
36.	Square Wave Generators- Comparator	To:	with
37.	Schmitt Trigger	31-08-2023	discussions
38.	Astable Multivibrator		
39.	Monostable Multivibrator		
40.	Triangular Wave Generator		
41.	Sine Wave Generators-RC Phase Shift Oscillator		
42.	Sine Wave Generators- Wein Bridge Oscillator		
43.	Tutorial		
UNIT - III	ACTIVE FILTERS		
CO3: Abili	ty to use OP Amp as Filter.		
	IPS and Linear Integrated Circuits, Ramakanth A G	ayakwad, PHL	
	Integrated Circuits, D. Roy Choudary, Sahil B jain,		tional
44.	Design & Analysis of active filters		
45.	1st order LPF		
46.	2nd order LPF		
47.	1st order HPF filters		9.0.5
48.	2nd order HPF	From:	Lecture
49.	Tutorial	02-09-2023	interspersed
50.	Narrow Band Pass Filter	To:	with discussions
51.	Wide Band Pass Filter	29-09-2023	discussions
52.	Narrow Band Reject Filter		
53.	Wide Band Reject Filter		
	and the state of t	_	
54.	All Pass filters		
54. UNIT - IV	All Pass filters TIMERS AND PLL		
UNIT - IV	TIMERS AND PLL	l as PLL, Timer.	
UNIT - IV CO 4: Able	TIMERS AND PLL to use OP Amp to generate different waveforms and		
UNIT - IV CO 4: Able	TIMERS AND PLL		
JNIT - IV CO 4: Able T2: Linear	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain,		
UNIT - IV CO 4: Able F2: Linear 55.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer		
JNIT - IV CO 4: Able 72: Linear 55. 56.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram		
UNIT - IV CO 4: Able F2: Linear 55. 56. 57.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation		
UNIT - IV CO 4: Able F2: Linear 55. 56. 57. 58.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator	New Age Interna	
JNIT - IV CO 4: Able 72: Linear 55. 56. 57, 58. 59.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator	New Age Interna	Lecture
JNIT - IV CO 4: Able 72: Linear 55. 56. 57. 58. 59. 60.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation	New Age Interna	Lecture interspersed
JNIT - IV CO 4: Able 72: Linear 55. 56. 57. 58. 59. 60.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier	From: 30-9-2023	Lecture interspersed with
JNIT - IV CO 4: Able 72: Linear 55. 56. 57, 58. 59. 60. 61.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic	From: 30-9-2023	Lecture interspersed
JNIT - IV CO 4: Able 72: Linear 55. 56. 57. 58. 59. 60. 61. 62. 63.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode	From: 30-9-2023	Lecture interspersed with
JNIT - IV CO 4: Able 72: Linear 55. 56. 57. 58. 59. 60. 61. 62. 63.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks	From: 30-9-2023	Lecture interspersed with
JNIT - IV CO 4: Able 72: Linear 55. 56. 57, 58. 59. 60. 61. 62. 63. 64.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL	From: 30-9-2023	Lecture interspersed with
JNIT - IV CO 4: Able 2: Linear 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication	From: 30-9-2023	Lecture interspersed with
JNIT - IV CO 4: Able 72: Linear 55. 56. 57, 58. 59. 60. 61. 62. 63. 64. 65. 66.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication Frequency translation	From: 30-9-2023	Lecture interspersed with
UNIT - IV CO 4: Able F2: Linear 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication Frequency translation AM and FM demodulators	From: 30-9-2023	Lecture interspersed with
UNIT - IV CO 4: Able F2: Linear 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication Frequency translation AM and FM demodulators Tutorial FSK demodulators	From: 30-9-2023 To: 20-10-2023	Lecture interspersed with discussions
UNIT - IV CO 4: Able F2: Linear 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70.	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication Frequency translation AM and FM demodulators Tutorial	From: 30-9-2023 To: 20-10-2023	Lecture interspersed with discussions
UNIT - IV CO 4: Able F2: Linear 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. UNIT - V	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication Frequency translation AM and FM demodulators Tutorial FSK demodulators DIGITAL TO ANALOG AND ANALOG TO DIGITAL DIGITAL TO ANALOG AND ANALOG TO DIGITAL	From: 30-9-2023 To: 20-10-2023	Lecture interspersed with discussions
UNIT - IV CO 4: Able F2: Linear 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. UNIT - V	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication Frequency translation AM and FM demodulators Tutorial FSK demodulators DIGITAL TO ANALOG AND ANALOG TO DIGIT to use OP Amp to as analog to digital and digital to IPS and Linear Integrated Circuits, Ramakanth A G Introduction	From: 30-9-2023 To: 20-10-2023	Lecture interspersed with discussions
UNIT - IV CO 4: Able F2: Linear 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. UNIT - V CO 5: Able F1: OP-AN	TIMERS AND PLL to use OP Amp to generate different waveforms and Integrated Circuits, D. Roy Choudary, Sahil B jain, Introduction to 555 timer Functional Diagram Monostable operation Applications of Monostable multivibrator Ramp generator Frequency divider and multiplier Astable operation Applications of Astable mode PLL - Introduction, block schematic Principles and description of individual blocks 565 PLL Applications of PLL - frequency multiplication Frequency translation AM and FM demodulators Tutorial FSK demodulators DIGITAL TO ANALOG AND ANALOG TO DIGIT to use OP Amp to as analog to digital and digital to IPS and Linear Integrated Circuits, Ramakanth A G	From: 30-9-2023 To: 20-10-2023	Lecture interspersed with discussions

74.	Tutorial		Lecture interspersed with discussions
75.	R-2R ladder DAC		
76.	Inverted R-2R DAC	From:	
77.	Tutorial	21-10-2023	
78.	DAC Specifications		
79.	ADCs - Parallel Comparator ADC	To:	
80.	Counter type ADC	11-11-2023	
81.	Successive Approximation ADC		
82.	Dual slope ADC		
83.	ADC Specifications		
84.	Problems		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Essence of Indian Traditional Knowledge

Year / Semester: III/I Section: I A.Y: 2023-24

250000			2023-24
S.No	TOPIC	Date	Mode of Delivery
CO1: U	I Intoduction to Traditional Knowledge inderstand the concept of Traditional Knowledege and its imp raditional Knowledge System in India, by Amit jha,2009	ortance	
1	Define Tradional knowledge, Scope and importance	Total Control of the	
2	Kinds of Traditional Knowledge	From: 10/08/2023	Lecture interspersed with discussions
3	The physical and social contexts in which traditional knowledge develop		
4	The historical impact of social change on Traditional knowledge system	To: 24/08/2023	
5	Indigenous knowledge (Ik)		
6	AstadashVidya- 4	and the second	Lecture
7	Upaved (Ayurved, Dhanurved, Gandharva Ved & Sthapthya Adi)	From:	
8	6vedanga(Shisha, Kalppa, Nirukha, Vykaran, Jyothisha & Chand)	25/08/2023	interspersed
9	upanga(Dharmashastra, Meemamsa, purana & Tharka Shastra).	To: 20/09/2023	with
10	structure of Indian Knowledge System	20/09/2023	discussions
CO3: Co TB: . Siv	III Modern Science and Indian Knowledge System-		
11	impare Modern Science with Indian Traditional Knowledge system. aramakrishnan (Ed.), Cultural Heritage of India-course material, Bharat	yaVidya	
12	impare Modern Science with Indian Traditional Knowledge system. aramakrishnan (Ed.), Cultural Heritage of India-course material, Bharat -Indigenous Knowledge,	yaVidya From:	
	empare Modern Science with Indian Traditional Knowledge system. aramakrishnan (Ed.), Cultural Heritage of India-course material, Bharat -Indigenous Knowledge, Characteristics- Yoga and Holistic Health care-cases studies.		Lecture
13	impare Modern Science with Indian Traditional Knowledge system. aramakrishnan (Ed.), Cultural Heritage of India-course material, Bharat -Indigenous Knowledge, Characteristics- Yoga and Holistic Health care-cases studies. Importance of Health care	From: 20/09/2023 To:	interspersed
13	empare Modern Science with Indian Traditional Knowledge system. aramakrishnan (Ed.), Cultural Heritage of India-course material, Bharat -Indigenous Knowledge, Characteristics- Yoga and Holistic Health care-cases studies.	From: 20/09/2023	

CO4: A	 IV Protection of Traditional Knowledge nalyze the role of Government in protecting the Traditional Knowle oga Sutra of Patanjali, Ramakrishna Mission, Kolkata. 	dge	
16	The need for protecting traditional knowledge -	4200000	Lecture
17	Significance of Traditional knowledge	From: 17/10/2023	interspersed with
18	Protection-Role of government to harness Traditional Knowledge	To: 01/11/2023	discussions
CO5: U TB : Pr	Impact of Traditions Inderstand the impact of Philosophical tradition on Indian Knowledgemod Chandra, India Arts, Howard Univ. Press, 1983.		
CO5: U TB : Pr	nderstand the impact of Philosophical tradition on Indian Knowledg amod Chandra, India Arts, Howard Univ. Press, 1983. Philosophical Tradition (Sarvadarshan) Nyaya	From:	
CO5: U TB : Pra 19 20	nderstand the impact of Philosophical tradition on Indian Knowledg amod Chandra, India Arts, Howard Univ. Press, 1983.		Lecture
CO5: U TB : Pr	nderstand the impact of Philosophical tradition on Indian Knowledg amod Chandra, India Arts, Howard Univ. Press, 1983. Philosophical Tradition (Sarvadarshan) Nyaya	From:	Lecture

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TENTATIVE LESSON PLAN

Course/Code: Essence of Indian Traditional Knowledge

Year / Semester: III/I Section: II A.Y: 2023-24

rear / c	SCHOOL II		2023-24
S.No	TOPIC	Date	Mode of Delivery
CO1: U	I Intoduction to Traditional Knowledge inderstand the concept of Traditional Knowledege and its imp raditional Knowledge System in India, by Amit jha,2009	ortance	
1	Define Tradional knowledge, Scope and importance		
2	Kinds of Traditional Knowledge	From: 12/08/2023	Lecture interspersed with
3	The physical and social contexts in which traditional knowledge develop		
4	The historical impact of social change on Traditional knowledge system	To: 22/08/2023	discussions
5	Indigenous knowledge (lk)		
6	AstadashVidya- 4	ALL POWER VIEW	
7	Upaved (Ayurved, Dhanurved, Gandharva Ved & Sthapthya Adi)	From:	Lecture
8	6vedanga(Shisha, Kalppa, Nirukha, Vykaran, Jyothisha&Chand)	22/08/2023	interspersed
9	upanga(Dharmashastra, Meemamsa, purana & Tharka Shastra).	To: 18/09/2023	with discussions
10	structure of Indian Knowledge System	18/09/2023	discussions
CO3: Co TB: . Siv	III Modern Science and Indian Knowledge System- ompare Modern Science with Indian Traditional Knowledge system. aramakrishnan (Ed.), Cultural Heritage of India-course material, Bharat	iyaVidya	
11	-Indigenous Knowledge,	From:	
12	Characteristics- Yoga and Holistic Health care-cases studies.	18/09/2023	Lecture
13	Importance of Health care	To:	interspersed
14	Cultural heritage of India	20/10/2023	with
15	Modern Science with Traditional Knowledge		discussions

UNIT -IV Protection of Traditional Knowledge CO4: Analyze the role of Government in protecting the Traditional Knowledge TB: Yoga Sutra of Patanjali, Ramakrishna Mission, Kolkata. The need for protecting traditional knowledge -Lecture From: interspersed Significance of Traditional knowledge 17 20/10/2023 with To: discussions Protection-Role of government to harness Traditional 01/11/2023 18

UNIT - Impact of Traditions

Knowledge

CO5: Understand the impact of Philosophical tradition on Indian Knowledge System.

TB: Pramod Chandra, India Arts, Howard Univ. Press, 1983.

19	Philosophical Tradition (Sarvadarshan) Nyaya	From:	
20	Vyshepec, Sankhya, Yog, Meemamsa,	01/11/2023	Lecture
21	Vedantha, Chavanka, Jain & Boudh	235	interspersed
22	Indian Artistic Tradition - Chitrakala,	To: 15/11/2023	with discussions

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Electro Magnetic Waves and Transmission Lines / R2031042

Year / Semester : III/I

Section: 1

A.Y: 2023-24

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I	TRANSMISSION LINES-I		1
smith cha	emonstrate and compute various parameters in art or classical theory. Tements of Electromagnetics", Matthew N.O. S		
2001.		anna, Oxiora Ciliv. I	ress, ora ec
1	Types, Parameters		
2	T & π equivalent circuits		
3	Transmission Line Equations		
4	Primary & Secondary Constants		
5	Expression for Characteristic Impedance	1000 9000 9000 9000 P	
6	Propagation Constant	From: 27.07.2023	On Black Board
7	Phase & group Velocities		
8	Infinite Line Concepts		
9	Lossless lines/Low Loss Characterization	To: 07.08.2023	
10	Distortion – Condition for Distortion less lines and Minimum Attenuation		
- 11	Loading - Types of Loading		
12	Illustrative Problems		
TB: " Elei 2001.	TRANSMISSION LINES-II ferentiate matching networks for loaded transments of Electromagnetics", Matthew N.O. Sa	nission lines for OC an idiku, Oxford Univ. P	d SC. ress, 3rd ed
13	Input Impedance Relations, SC and OC Lines		
14	Reflection Coefficient, VSWR		
15	Low loss radio frequency lines		
16	UHF Transmission lines	From: 08.08.2023	On Black
17	λ/4, λ/2, λ/8 Lines – Impedance Transformations		Board
18	Smith Chart - Construction and Applications		
19	Smith Chart - Construction and Applications	LIMIN	

20	Quarter wave transformer	Grand Street	
21	Single and Double Stub Matching	To: 02.09.2023	
22	Illustrative Problems		
UNIT-II	I ELECTROSTATICS etermine E using various laws and applications	of electro static fields	
TB: " E	ements of Electromagnetics", Matthew N.O. Sa	diku, Oxford Univ. Pr	ess, 3rd ed.,
23	Review of Coordinate System		
24	Coulomb's Law		
25	Electric Field Intensity, Electric Flux Density		
26	Gauss Law and Applications		
27	Electric Potential, Maxwell's Two Equations for ESF		
28	Energy Density, Illustrative Problems	From: 04.09.2023	
29	Convection and Conduction Currents		On Black
30	Dielectric Constant, Continuity Equation, Relaxation Time	To: 05.10.2023	Board
31	Poisson's and Laplace's Equations		
32	Capacitance: Parallel Plate, Coaxial capacitors		
33	Illustrative Problems		
2.4	Table 100 Million and the control of		
O4: Det	Illustrative Problems / MAGNETOSTATICS & MAXWELL EQUATION ermine H using various laws and applications		
UNIT-IV O4: Det Maxwell	MAGNETOSTATICS & MAXWELL EQUATER IT Using various laws and applications Equations in Time Varying Fields.	of magneto static fie	lds & Derive
UNIT-IV O4: Det Maxwell IB: " El 2001.	MAGNETOSTATICS & MAXWELL EQUATER MAGNETOSTATICS & MAXWELL EQUATER MAGNETOS TO MAKE A STATE OF THE PROPERTY OF	of magneto static fie	lds & Derive
UNIT-IV O4: Det Maxwell IB: " El	MAGNETOSTATICS & MAXWELL EQUATE ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications	of magneto static fie	lds & Derive
UNIT-IV O4: Det Maxwell IB: " El 2001. 35	MAGNETOSTATICS & MAXWELL EQUATER	of magneto static fie	lds & Derive
UNIT-IV O4: Det Maxwell IB: " EI 2001. 35 36	MAGNETOSTATICS & MAXWELL EQUATER MAGNETOSTATICS & MAXWELL EQUATIONS MAGNETOSTATICS & MAXWELL EQUATIONS MAGNETOSTATICS & MAXWELL EQUATIONS	of magneto static fie	lds & Derive
UNIT-IV O4: Det Maxwell IB: " EI 2001. 35 36 37 38	MAGNETOSTATICS & MAXWELL EQUATE ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF	of magneto static fie	lds & Derive
UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36	MAGNETOSTATICS & MAXWELL EQUATE remine H using various laws and applications Equations in Time Varying Fields. cements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy	of magneto static fie	lds & Derive
UNIT-IV O4: Det Maxwell IB: " E1 2001. 35 36 37 38	MAGNETOSTATICS & MAXWELL EQUATE ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic	of magneto static fie	lds & Derive
UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36 37 38 39	MAGNETOSTATICS & MAXWELL EQUATE remine H using various laws and applications Equations in Time Varying Fields. cements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy	of magneto static fie adiku, Oxford Univ. P	lds & Derive
UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36 37 38 39 40 41 42	MAGNETOSTATICS & MAXWELL EQUATE ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy Illustrative Problems	of magneto static fie	lds & Derive
UNIT-IV CO4: Det Maxwell TB: " El 2001. 35 36 37 38 39 40 41	MAGNETOSTATICS & MAXWELL EQUATIONS remine H using various laws and applications Equations in Time Varying Fields. rements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy Illustrative Problems Faraday's Law and Transformer emf Inconsistency of Ampere's Law	of magneto static fie adiku, Oxford Univ. P	lds & Derive
UNIT-IN CO4: Det Maxwell IB: " El 2001. 35 36 37 38 39 40 41 42	MAGNETOSTATICS & MAXWELL EQUATE remine H using various laws and applications Equations in Time Varying Fields. cements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy Illustrative Problems Faraday's Law and Transformer emf	of magneto static fie adiku, Oxford Univ. P	lds & Derive
UNIT-IN O4: Det Maxwell IB: " El 2001. 35 36 37 38 39 40 41 42 43	MAGNETOSTATICS & MAXWELL EQUATE remine H using various laws and applications Equations in Time Varying Fields. cements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy Illustrative Problems Faraday's Law and Transformer emf Inconsistency of Ampere's Law Displacement Current Density Maxwell's Equations in Different Final	of magneto static fie adiku, Oxford Univ. P	lds & Derive

UNIT-V EM WAVE CHARACTERISTICS

CO5: Demonstrate the reflection and refraction of waves at boundaries & interpret the effects of lossy and low loss dielectrics and conductors upon the propagation of electromagnetic waves, and predict this process in specific applications.

TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001.

2001.			
47	Wave Equations for Conducting and Dielectric Media		
48	Wave Equations Dielectric Media		
49	Uniform Plane Waves – Definition, All Relations Between E & H, Sinusoidal Variations		
50	Wave Propagation in Lossy and Lossless Dielectrics		
51	Wave Propagation in free space		
52	Wave Propagation in good conductors	200 022000000	On Black Board
53	Skin depth, Polarization & Types	From: 25.10.2023	
54	Illustrative Problems		
55	Reflection and Refraction of Plane Waves	To: 10.11.2023	
56	Normal and Oblique Incidences for both Perfect Conductor and Perfect Dielectrics		
57	Brewster Angle, Critical Angle, Total Reflection		
58	Surface Impedance		
59	Poynting Vector , Poynting Theorem – Applications		
60	Power Loss in a Plane Conductor	1	
61	Illustrative Problems		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Electro Magnetic Waves and Transmission Lines / R2031042

Year / Semester : III/I

Section: II

A.Y: 2023-24

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I	TRANSMISSION LINES-I		Denvery
CO1 : Do smith cha	emonstrate and compute various parameters for classical theory. ements of Electromagnetics", Matthew N.O. S		
1	Types, Parameters		
2	T & π equivalent circuits		
3	Transmission Line Equations		
4	Primary & Secondary Constants		
5	Expression for Characteristic Impedance	WED THE THE THE THE	
6	Propagation Constant	From: 27.07.2023	On Black Board
7	Phase & group Velocities		
8	Infinite Line Concepts	T 07.00.000	
9	Lossless lines/Low Loss Characterization	To: 07.08.2023	
10	Distortion – Condition for Distortion less lines and Minimum Attenuation		
11	Loading - Types of Loading		
12	Illustrative Problems		
UNIT-II	TRANSMISSION LINES-II		
	erentiate matching networks for loaded transiments of Electromagnetics", Matthew N.O. Sciences		
13	Input Impedance Relations, SC and OC Lines		
14	Reflection Coefficient, VSWR		
15	Low loss radio frequency lines		
16	UHF Transmission lines	From: 07.08.2023	On Black
17	λ/4, λ/2, λ/8 Lines – Impedance Transformations		Board
18	Smith Chart - Construction and Applications		
19	Smith Chart - Construction and Applications		

20	Quarter wave transformer		
21	Single and Double Stub Matching	To: 02.09.2023	
22	Illustrative Problems		
UNIT-II	I ELECTROSTATICS		-
CO3: De TB: " El 2001	etermine E using various laws and applications lements of Electromagnetics", Matthew N.O. Sa	of electro static fields. diku, Oxford Univ. Pro	ess, 3rd ed.,
23	Review of Coordinate System		
24	Coulomb's Law		
25	Electric Field Intensity, Electric Flux Density		
26	Gauss Law and Applications		1
27	Electric Potential, Maxwell's Two Equations for ESF		
28	Energy Density, Illustrative Problems	From: 04.09.2023	
29	Convection and Conduction Currents		On Black
30	Dielectric Constant, Continuity Equation, Relaxation Time	To: 05.10.2023	Board
31	Poisson's and Laplace's Equations		
32	Capacitance: Parallel Plate, Coaxial capacitors		
33	Illustrative Problems		
	thushanve i robients		
34 UNIT-IV O4: Det	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATION ermine H using various laws and applications		
34 UNIT-IV O4: Det Maxwell	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATIONS ermine H using various laws and applications Equations in Time Varying Fields.	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATION ermine H using various laws and applications	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " El	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATIONS ermine H using various laws and applications Equations in Time Varying Fields.	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell FB: " El 2001.	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Serments of Electromagnetics and Applications	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " E1 2001. 35	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Selectromagnetics and Electromagnetics a	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " El 2001.	Illustrative Problems / MAGNETOSTATICS & MAXWELL EQUATION AND ADDRESS AND ASSESSION OF THE PROBLEM OF THE PROB	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " E1 2001. 35	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sements of Electromagnetics", Matthew N.O. Sements of Electromagnetics and Applications Magnetic Flux Density, Maxwell Equations for MSF	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Service Ser	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36 37 38	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sements of Electromagnetics", Matthew N.O. Sements of Electromagnetics and Applications Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic	s of magneto static fiel	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36 37 38 39	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sements of Electromagnetics", Matthew N.O. Sements of Electromagnetics and Applications Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy Illustrative Problems	of magneto static fiel adiku, Oxford Univ. P	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36 37 38 39	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sements of Electromagnetics", Matthew N.O. Sements of Electromagnetics, Matthew N.O. Sements of Electro	s of magneto static fiel	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36 37 38 39 40 41	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sements of Electromagnetics, Matthew N.O. Sements of Electromagnetics, Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy Illustrative Problems Faraday's Law and Transformer emf Inconsistency of Ampere's Law	of magneto static fiel adiku, Oxford Univ. P	lds & Deriv
34 UNIT-IV CO4: Det Maxwell TB: " El 2001. 35 36 37 38 39 40 41 42	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sements of Electromagnetics", Matthew N.O. Sements of Electromagnetics, Matthew N.O. Sements of Electro	of magneto static fiel adiku, Oxford Univ. P	lds & Deriv
34 UNIT-IV CO4: Det Maxwell IB: " El 2001. 35 36 37 38 39 40 41 42 43	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Serments of Electromagnetics, Matthew N.O. Serments of El	of magneto static fiel adiku, Oxford Univ. P	lds & Deriv

UNIT-V EM WAVE CHARACTERISTICS

CO5: Demonstrate the reflection and refraction of waves at boundaries & interpret the effects of lossy and low loss dielectrics and conductors upon the propagation of electromagnetic waves, and predict this process in specific applications.

TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001.

wu.			
47	Wave Equations for Conducting and Dielectric Media		
48	Wave Equations Dielectric Media		On Black Board
49	Uniform Plane Waves – Definition, All Relations Between E & H, Sinusoidal Variations		
50	Wave Propagation in Lossy and Lossless Dielectrics		
51	Wave Propagation in free space		
52	Wave Propagation in good conductors		
53	Skin depth, Polarization & Types	From: 25.10.2023	
54	Illustrative Problems	T	
55	Reflection and Refraction of Plane Waves	To: 10.11.2023	
56	Normal and Oblique Incidences for both Perfect Conductor and Perfect Dielectrics		
57	Brewster Angle, Critical Angle, Total Reflection		
58	Surface Impedance		
59	Poynting Vector , Poynting Theorem – Applications		0, ==
60	Power Loss in a Plane Conductor	1	
61	Illustrative Problems	1	

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Digital Communications / R2031043

Year / Semester: III/1

Section: 1

A.Y: 2023-24

No. of Period	TOPIC	Date	Mode of Delivery
CO1: Explair Communicat TB: 1. Comm	Pulse Digital Modulation in the working of pulse digital modulation systems so ion Systems. nunication Systems - Simon Haykin, John Wiley, 3/6 nmunications - Simon Haykin, John Wiley, 2005		PCM and DM.
1.	Elements of digital communication systems		
2.	Advantages of digital communication systems		Lecture interspersed with discussions
3.	Elements of PCM: Sampling		
4.	Quantization and coding		
5.	Quantization error	From:	
6.	Companding in PCM systems	24.07.2023	
7.	Differential PCM	To: 18.08,2023	
8.	Delta Modulation and its drawbacks	10.00.2023	
9.	Adaptive Delta Modulation		
10.	Adaptive Delta Modulation		
11.	Comparison of PCM and DM systems		
12.	Noise in PCM and DM systems		
UNIT -II	Digital Modulation Techniques		

CO2 Learn various digital passband modulations techniques such as ASK, FSK, PSK, QPSK, DPSK and M-ary modulation techniques.

TB: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.

2. Digital communications - Simon Haykin, John Wiley, 2005.

3. Communication Systems-Analog & Digital - Singh & Sapre, TMH, 2004.

13.	Introduction		
14.	Introduction		Lecture interspersed with discussions
15.	ASK		
16.	FSK	From:	
17.	PSK	19.08.2023	
18.	DPSK	To: 31.08.2023	
19.	DEPSK	20 Million 40	
20.	QPSK		
21.	M-ary PSK		



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VARININA	DEPARTMENT OF ELECTRONICS AND	LOMMUNICATION	LNGINEERING
22.	M-ary ASK		
23.	M-ary FSK		
24.	Similarity of BFSK and BPSK		
error. TB: 1. Com 2. Digital con	Data Transmission re the performance of various Digital Modulati munication Systems - Simon Haykin, John Wiley nmunications - Simon Haykin, John Wiley, 2005	, 3/e.	ns of probability
25.	Baseband signal receiver		
26.	Probability of error		
27.	The optimum filter		
28.	Matched filter		
29.	Matched filter		
30.	Probability of error using Matched filter	From: 1.09.2023	Lecture interspersed wit discussions
31.	Coherent reception	To:	
32.	Non-coherent detection of FSK	23.09.2023	
33.	Calculation of error probability of ASK	- 128	
34.	Calculation of error probability of BPSK		
35.	Calculation of error probability of BFSK		
36.	Calculation of error probability of QPSK		
	tand the concepts of Information Theory and the nunication Systems - Simon Haykin, John Wiley, Discrete messages		oding.
38.	Concept of amount of information and its properties		
39.	Average Information	From:	
40.	Average Information	25.09.2023	Lecture interspersed with
41.	Entropy and its properties	To: 19.10.2023	discussions
42.	Information rate		
43.	Mutual Information and its properties		
44.	Mutual Information and its properties		
CO5: Learn perform the e	Source Coding the theorems governing the transmission of in fficiency calculations. unication Systems - Simon Haykin, John Wiley, Introduction, Advantages		noisy channel an
1.00	The second of th		



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46.	Shannon's Theorem		
47.	Shannon-Fano Coding		
48.	Huffman Coding		
49.	Efficiency calculations	1	
50.	Channel capacity of discrete and analog channels	1	
51.	Capacity of a Gaussian channel		
52,	Bandwidth-S/N trade-off	1	
53.	Introduction to Linear Block Codes	1	
54,	Matrix description of linear block codes		
55.	Error detection and correction capabilities of LBC		
56.	Hamming codes	From: 20,10,2023	Lecture
57.	Revision	To:	interspersed with discussions
58.	Binary cyclic codes	9.11.2023	
59.	Classification cyclic codes		
60.	Algebraic structure		8
61.	Encoding	1	
62.	Syndrome Calculation		
63.	BCH codes		
64.	Introduction to Convolution Codes		
65.	Encoding of convolution codes		
66.	Time-domain approach		
67.	Tutorial		
68.	Transform-domain approach		
69.	Graphical approach: State diagram		
70.	Graphical approach: State diagram		
71.	Tree and Trellis decoding using Viterbi Algorithm		
72.	Tutorial		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Digital Communications / R2031043

Year / Semester: III/I

QPSK

20.

Section: II

A.Y: 2023-24

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I CO1: Exp Commun TB: 1. Co 2. Digital	Pulse Digital Modulation plain the working of pulse digital modulation syste- ication Systems. Immunication Systems - Simon Haykin, John Wile Communications - Simon Haykin, John Wiley, 20	ry, 3/e.	l and DM.
1.	Elements of digital communication systems		
2.	Advantages of digital communication systems		
3.	Elements of PCM: Sampling		
4.	Quantization and coding		
5.	Quantization error	From:	
6.	Companding in PCM systems	24.07.2023 To:	Lecture interspersed with discussion
7.	Differential PCM	10.08.2023	
8.	Delta Modulation and its drawbacks		
9.	Adaptive Delta Modulation		
10.	Adaptive Delta Modulation		
11.	Comparison of PCM and DM systems		
12.	Noise in PCM and DM systems		
nd M-ar fB: 1. Co . Digital . Commu	rn various digital passband modulations techniques y modulation techniques. mmunication Systems - Simon Haykin, John Wile communications - Simon Haykin, John Wiley, 200 unication Systems-Analog & Digital – Singh & Sa	y, 3/e. 05.	SK, QPSK, DPSK
13.	Introduction		
14.	Introduction		
15.	ASK		
16.	FSK	From:	Lecture
17.	PSK	11.08.2023 To:	interspersed with discussions
18.	DPSK	26.08.2023	
19.	DEPSK		



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

	137 237		-
21.	M-ary PSK		
22.	M-ary ASK		
23.	M-ary FSK		
24.	Similarity of BFSK and BPSK		
error. TB : 1. C 2. Digital	communication Systems - Simon Haykin, John Wiley, 3/6 communications - Simon Haykin, John Wiley, 2005		of probability
25.	Baseband signal receiver		
26.	Probability of error		1
27.	The optimum filter		
28.	Matched filter		
29.	Matched filter		Lecture interspersed with discussion
30.	Probability of error using Matched filter	From: 28.09.2023	
31.	Coherent reception	To:	
32.	Non-coherent detection of FSK	25.09.2023	
33.	Calculation of error probability of ASK		
34.	Calculation of error probability of BPSK		
35.	Calculation of error probability of BFSK		
36.	Calculation of error probability of QPSK		
	derstand the concepts of Information Theory and the ne ommunication Systems - Simon Haykin, John Wiley, 3/e. Discrete messages		ng.
38.	Concept of amount of information and its properties		
39.	Average Information	Patricia	
40.	Average Information	From: 26.09.2023	Lecture
41.	Entropy and its properties	To:	interspersed with discussion
42.	Information rate	20.10.2023	with discussion
43.	Mutual Information and its properties		
44.	Mutual Information and its properties		
perform t	Source Coding arn the theorems governing the transmission of info the efficiency calculations. mmunication Systems - Simon Haykin, John Wiley, 3/e. Introduction, Advantages		oisy channel and
4.5	minoracion, Auvanages		



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

46.	Shannon's Theorem		
47.	Huffman Coding	From: 21.10.2023 To: 10.11.2023	
48.	Efficiency calculations		
49.	Channel capacity of discrete and analog channels		
50.	Capacity of a Gaussian channel		
51.	Bandwidth-S/N trade-off		
52.	Introduction to Linear Block Codes		
53.	Matrix description of linear block codes		Lecture interspersed with discussions
54.	Error detection and correction capabilities of LBC		
55.	Hamming codes		
56.	Binary cyclic codes		
57.	Classification cyclic codes		
58.	Algebraic structure		
59.	Encoding		
60.	Syndrome Calculation		
61.	BCH codes		
62.	Introduction to Convolution Codes		
63.	Encoding of convolution codes		
64.	Time-domain approach		
65.	Transform-domain approach		
66.	Graphical approach: State diagram		
67.	Tree diagram and Trellis decoding using Viterbi Algorithm		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Electronic Measurements and Instrumentation /R203104B

Year / Semester: III/I Section: I A.Y: 2023 - 24

No. of Period	TOPIC	Date	Mode of Delivery
- WI. CH	Performance characteristics of instruments. alyzing the performance of various measuring systems and tronic instrumentation, second edition - H.S.Kalsi, Tata	d metries.	
	Performance characteristics of instruments	a McGraw H	ill, 2004.
2.	Static characteristics Accuracy, Resolution, Precision		The state of the s
3.	Expected value, Error, Sensitivity		
4.	Dynamic Characteristics-speed of response		a stranger
5.	Fidelity, Lag and Dynamic error.		
6.	Types of errors in measurements and their analysis.	From: 17.7.2023 To: 31.07.2023	
7.	DC Voltmeters- Multi-range		Marie San
8.	Range extension/Solid state and differential		Lecture
0	voluneters		interspersed
9.	AC voltmeters- multi range, range extension		discussions
10.	Thermo couple type RF Ammeter		
11.	Aryton shunt		
12,	Ohmmeters series type, shunt typeusing D'arsonval movement.		
13.	Multimeters for Voltage, Current and resistance elements		
14.	True RMS meter.		
15.	Tutorial		
NIT_III	Specifications and designing aspects of Signal generator		111000
orking of	signal analyzers.	e on principl	e of operation,
16.	Signal Generator- fixed and variable		2004.
16. 17.	Signal Generator- fixed and variable AF oscillators, AF sing years in the sing years of the year		2004.
16. 17. 18.	AF oscillators, AF sine wave signal		2004.
17.	AF oscillators, AF sine wave signal generators AF square wave signal generators		2004.
17.	AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random points		2004.
17. 18. 19. 20.	AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator	From:	
17, 18, 19, 20, 21,	AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator Arbitrary waveform generator	From: 1.08.2023	Lecture
17, 18, 19, 20, 21, 22,	AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator Arbitrary waveform generator Wave Analyzers	From: 1.08.2023 To:	Lecture interspersed
17. 18. 19. 20. 21. 22. 23.	AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator Arbitrary waveform generator Wave Analyzers Harmonic Distortion Analyzers	From: 1.08.2023	Lecture interspersed with
17. 18. 19. 20. 21. 22. 23. 24.	AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator Arbitrary waveform generator Wave Analyzers Harmonic Distortion Analyzers Spectrum Analyzers	From: 1.08.2023 To:	Lecture interspersed
17. 18. 19. 20. 21. 22. 23. 24. 25.	AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator Arbitrary waveform generator Wave Analyzers Harmonic Distortion Analyzers	From: 1.08.2023 To:	Lecture interspersed with

CO3: Designing of Oscilloscopes for different applications.

TB: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004.

38.	Tutorial Bridge Circuits		
37.	Digital storage oscilloscope		Lecture interspersed with discussions
36.	Analog storage oscilloscope		
35.	Sampling oscilloscope		
34.	Probes for CRO- Active & Passive, attenuator type	i i i i i i i i i i i i i i i i i i i	
33.	Lissajous method of frequency measurement	30.09.2023	
32.	Dual beam CRO ,Dual trace oscilloscope	16.08.2023 To:	
31.	Triggered sweep CRO		
30.	Simple CRO	From:	
29.	Sweep, trigger pulse, delay line		
28.	Horizontal deflection system		
27,	Oscilloscopes CRT features ,vertical amplifiers		

UNIT-IV Bridge Circuits

CO4: Compare various measuring bridges and their balancing conditions.

TB1: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004.

TB2: Electronic Measurements & Instrumentations by K. Lal Kishore, Pearson Education

Bridge circuits- Wheat stone bridge		
Measurement of very low resistance		Lecture interspersed with discussions
AC Bridges Measurement of inductance-		
Anderson bridge		
Measurement of capacitance -Shearing Bridge	- (45)	
Wien's Bridge	From: 1.10.2023	
Errors and precautions in using bridges		
Q-meter principle of operation	To:	
Measurement methods and sources of errors	21.10.2023	
Counters : principle of operation	L Market Line	
Modes of operation- totalizing mode		
Frequency mode and time period mode- sources of errors.		
Tutorial		
	Maxwell's bridge. Anderson bridge. Measurement of capacitance -Shearing Bridge Wien's Bridge Errors and precautions in using bridges Q-meter principle of operation Measurement methods and sources of errors. Counters: principle of operation Modes of operation- totalizing mode, Frequency mode and time period mode- sources of errors.	Measurement of very low resistance AC Bridges Measurement of inductance- Maxwell's bridge. Anderson bridge. Measurement of capacitance -Shearing Bridge Wien's Bridge Errors and precautions in using bridges Q-meter principle of operation Measurement methods and sources of errors. Counters: principle of operation Modes of operation- totalizing mode, Frequency mode and time period mode- sources of errors.

CO5: Interpret various measuring techniques for measurement of physical parameters using

TB1: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004.

TB2: Electronic Measurements & Instrumentations by K. Lal Kishore, Pearson

No. of Periods	TOPIC	DATE	Mode of
52.	active & passive transducers		Delivery
53.	Resistance, Capacitance,	From:	Lecture interspersed with discussions
54.	Inductance		
55.	Strain gauges		
56.	LVDT		
57.	Piezo Electric transducers		
58.	Measurement of physical parameters, temperature	23.10.2023	
59.	Measurement of pressure	To:	
60.	Measurement of velocity	9.11.2023	
61.	Measurement of displacement		
62.	Measurement of force		
63,	Measurement of acceleration		
64.	Tutorial		



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Electronic Measurements and Instrumentation /R203104B

Year / Semester: 111/1 Section: 11 A.Y: 2023 - 24

No. of Periods	TOPIC	Date	Mode of Delivery
The second secon	Performance characteristics of instruments. yzing the performance of various measuring systems and onic instrumentation, second edition - H.S.Kalsi, Tata		2004.
1.	Performance characteristics of instruments	-	T
2.	Static characteristics Accuracy, Resolution, Precision		
3.	Expected value, Error, Sensitivity		
4.	Dynamic Characteristics-speed of response		
5.	Fidelity, Lag and Dynamic error.		
6.	Types of errors in measurements and their analysis.		ten windana
7.	DC Voltmeters- Multi-range	From:	Lecture
8.	Range extension/Solid state and differential voltmeters	17.7.2023 To:	interspersed with discussions
9,	AC voltmeters- multi range, range extension	31.07.2023	
10.	Thermo couple type RF Ammeter		
11.	Aryton shunt		
12.	Ohmmeters series type, shunt typeusing D'arsonval movement.		
13.	Multimeters for Voltage, Current and resistance elements		
14.	True RMS meter.		
15.	Tutorial		
CO2:Reco	pecifications and designing aspects of Signal generators gnize various signal generators and acquire knowled signal analyzers. onic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable	ge on principle	
17.	AF oscillators, AF sine wave signal generators		
18.	AF square wave signal generators		
19.	Function Generators Square pulse, Random noise	From:	
20.	Sweepgenerator	1.08,2023	Lecture
21.	Arbitrary waveformgenerator	To:	interspersed
22.	Wave Analyzers	14.08.2023	with
	Harmonic Distortion Analyzers		discussions
23.			
23. 24.	Spectrum Analyzers		
	The second contract of		

CO3:Designing of Oscilloscopes for different applications.

TB:Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004.

27.	Oscilloscopes CRT features ,vertical amplifiers		
28.	Horizontal deflection system		
29.	Sweep, trigger pulse, delay line		
30.	Simple CRO	From:	Lecture interspersed with discussions
31.	Triggered sweep CRO	16.08,2023	
32.	Dual beam CRO ,Dual trace oscilloscope	To: 30.09.2023	
33.	Lissajous method of frequency measurement		
34.	Probes for CRO- Active & Passive, attenuator type		
35.	Sampling oscilloscope		
36.	Analog storage oscilloscope		
37.	Digital storage oscilloscope		
38.	Tutorial		

UNIT-IVBridge Circuits

CO4: Compare various measuring bridges and their balancing conditions.

TB1: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004.

TB2:Electronic Measurements & Instrumentations by K. Lal Kishore, Pearson Education 2005.

Bridge circuits- Wheat stone bridge	1	
Measurement of very low resistance		Lecture interspersed with discussions
AC Bridges Measurement of inductance- Maxwell's bridge.		
Anderson bridge.		
Measurement of capacitance -Shearing Bridge		
Wien's Bridge	2012/10/2012	
Errors and precautions in using bridges	2000	
Q-meter principle of operation	A CONTRACT OF THE PARTY OF THE	
Measurement methods and sources of errors.	21.10.2023	
Counters : principle of operation		
Modes of operation- totalizing mode,		
Frequency mode and time period mode- sources of errors.		
Tutorial		
	Measurement of very low resistance AC Bridges Measurement of inductance- Maxwell's bridge. Anderson bridge. Measurement of capacitance -Shearing Bridge Wien's Bridge Errors and precautions in using bridges Q-meter principle of operation Measurement methods and sources of errors. Counters: principle of operation Modes of operation- totalizing mode, Frequency mode and time period mode- sources of errors.	Measurement of very low resistance AC Bridges Measurement of inductance- Maxwell's bridge. Anderson bridge. Measurement of capacitance -Shearing Bridge Wien's Bridge Errors and precautions in using bridges Q-meter principle of operation Measurement methods and sources of errors. Counters: principle of operation Modes of operation- totalizing mode, Frequency mode and time period mode- sources of errors.

UNIT - V Transducers

CO5:Interpret various measuring techniques for measurement of physical parameters using transducers.

TB1:Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004. TB2:Electronic Measurements & Instrumentations by K. Lal Kishore, Pearson

Education2005.

No. of Periods	TOPIC	DATE	Mode of Delivery		
52.	active & passive transducers	3-115			
53.	Resistance, Capacitance,		Lecture interspersed with discussions		
54.	Inductance				
55.	Strain gauges				
56.	LVDT				
57.	Piezo Electric transducers	From:			
58.	Measurement of physical parameters, temperature	23.10.2023			
59.	Measurement of pressure	To:			
60.	Measurement of velocity	9.11.2023			
61.	Measurement of displacement				
62.	Measurement of force				
63.	Measurement of acceleration	S Comme			
64.	Tutorial				

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Computer Organization & Architecture / R203105K

Year / Semester: III/I Section: 1 A.Y: 2023-24

Mode of Delivery: Onboard

Tutorial

No. of Periods	ТОРІС	Date	Mode of Delivery
AND LO CO1: De Postulate	NUMBER SYSTEM AND DATA REPRESENT. OGIC GATES emonstrate an understanding of the different es of Boolean algebra and minimize combinationa tal Logic and Computer Design, Moriss Mano, 1	number system	ns, codes and Relate
1	Introduction		
2	Numbering Systems		
3	Decimal to Binary Conversion		
4	Binary Coded Decimal Numbers		Lecture interspersed with discussions
5	Error Detecting Codes	From:	
6	Error Correcting Codes	24.07.2023	
7	Hamming Code for Error Correction		
8	Karnaugh map representation	To:	
9	minimization of Boolean functions using K- maps up to 4-variable	18.08.2023	
10	Don't care conditions		
11	Digital Logic gates		
12	Two-level realizations using gates		
13	AND-OR, OR-AND, NAND-NAND and NOR- NOR		

UNIT-II COMBINATIONAL LOGIC CIRCUITS-I, SEQUENTIAL CIRCUITS I

CO2: Evaluate and learn different combinational circuits, sequential circuits and able to design them.

TB: Digital Logic and Computer Design, Moriss Mano, 11th Edition, Pearson Education.

15	Design of Half adder	From:	Lecture interspersed with discussions
16	Full adder	19.08.2023	
17	Half subtractor		
18	Full subtractor	To:	
19	Design of decoder	31.08.2023	
20	De-multiplexer		

No. of Periods	торіс	Date	Mode of Delivery
21	Encoder		Lecture interspersed with discussions
22	Multiplexer		
23	Classification of sequential circuits (synchronous and asynchronous)	From: 19.08.2023	
24	Basic flip-flops		
25	Truth tables	To:	
26	Excitation tables (NAND RS latch, NOR RS latch, RS flip-flop, JK flip-flop, T flip-flop, D flip-flop with reset and clear terminals)	31.08.2023	
27	Tutorial		

UNIT-III BASIC STRUCTURE OF COMPUTERS, REGISTER TRANSFER LANGUAGE AND MICRO-OPERATIONS

CO3: Organize, Determine and learns basic structure of components register through language, micro operations and able to write micro programs.

TB: Computer Organization, 5thed., Hamacher, Vranesicand Zaky, TMH, 2002.

28	Computer Types		
29	Functional unit		
30	Basic Operational concepts		
31	Bus structures		
32	Software		
33	Performance		
34	Multiprocessors and multi computers	From:	Lecture interspersed with discussions
35	Register Transfer language	1.09.2023	
36	Register Transfer Bus and memory transfers	To:	
37	Arithmetic Micro-operations	23.09.2023	
38	Logic micro operations		
39	Shift micro operations	7	
40	Instruction codes		
41	Computer registers		
42	Computer instructions		
43	Instruction cycle		
44	Tutorial		

UNIT-IV MICRO PROGRAMMED CONTROL, CENTRAL PROCESSING UNIT

CO4: Determine and able to write data transfer and manipulators program and students able to learn micro programme control and central processing unit.

TB: Computer System Architecture, 3/e, MorisMano, Pearson/PHI.

45	Control memory	From: 25.09.2023 To: 19.10.2023	Lecture interspersed with discussions
46	Address sequencing		
47	micro program example		
48	design of control unit		
49	General Register Organization	19.10.2023	

No. of Periods	торіс	Date	Mode of Delivery
50	Instruction Formats		Lecture interspersed with discussions
51	Addressing modes	From: 25.09.2023	
52	Data Transfer and Manipulation		
53	Program Control	To: 19.10.2023	
54	Tutorial		

UNIT-V MEMORY ORGANIZATION, INPUT -OUTPUT ORGANIZATION

CO5: Able to learns the internal organization of computers and able to evaluate performance of them.

TB: Computer System Architecture, 3/e, MorisMano, Pearson/PHL

55	Memory Hierarchy		
56	Main Memory		Lecture interspersed with discussions
57	Auxiliary memory		
58	Associate Memory		
59	Cache Memory		
60	Virtual memories	From: 20.10.2023	
61	Introduction to Shift registers and RAID		
62	Input-Output Interface		
63	Asynchronous data transfer	To: 9.11.2023	
64	Modes of Transfer		
65	Priority Interrupts		
66	DMA		
67	Input Output Processor		
68	Serial Communication		
69	Tutorial		

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Accredited with NAAC 'A' grade

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Computer Organization & Architecture / R203105K

Year / Semester: III/I Section: II A.Y: 2023-24

Mode of Delivery: Onboard

No. of Periods	TOPIC	Date	Mode of Delivery
AND LO CO1: De Postulate	NUMBER SYSTEM AND DATA REPRESENT. OGIC GATES emonstrate an understanding of the different es of Boolean algebra and minimize combinationa tal Logic and Computer Design, Moriss Mano, 1	number system	ns, codes and Relat
1	Introduction		1 3 5 5 E
2	Numbering Systems		
3	Decimal to Binary Conversion		
4	Binary Coded Decimal Numbers		
5	Error Detecting Codes	From:	
6	Error Correcting Codes	24.07.2023	Lecture intersperse with discussions
7	Hamming Code for Error Correction		
8	Karnaugh map representation	To:	
9	minimization of Boolean functions using K- maps up to 4-variable	10.08.2023	
10	Don't care conditions		
11	Digital Logic gates		
12	Two-level realizations using gates		
13	AND-OR, OR-AND, NAND-NAND and NOR- NOR	LERE	
14	Tutorial		
CO2: Ev	COMBINATIONAL LOGIC CIRCUITS-I, SEC aluate and learn different combinational circuits, tal Logic and Computer Design, Moriss Mano, 1	sequential circ	uits and able to design
15	Design of Half adder	From:	
16	Full adder	To: 26.08.2023	
17	Half subtractor		Lecture interspersed
18	Full subtractor		with discussions
19	Design of decoder		
20	De-multiplexer		

No. of Periods	TOPIC	Date	Mode of Delivery
21	Encoder	From: 11.08.2023	Lecture interspersed with discussions
22	Multiplexer		
23	Classification of sequential circuits (synchronous and asynchronous)		
24	Basic flip-flops		
25	Truth tables	To:	
26	Excitation tables (NAND RS latch, NOR RS latch, RS flip-flop, JK flip-flop, T flip-flop, D flip-flop with reset and clear terminals)	26.08.2023	
27	Tutorial		

UNIT-III BASIC STRUCTURE OF COMPUTERS, REGISTER TRANSFER LANGUAGE AND MICRO-OPERATIONS

CO3: Organize, Determine and learns basic structure of components register through language, micro operations and able to write micro programs.

TB: Computer Organization, 5thed., Hamacher, Vranesicand Zaky, TMH, 2002.

28	Computer Types	T	
29	Functional unit		
30	Basic Operational concepts		
31	Bus structures		
32	Software		
33	Performance		
34	Multiprocessors and multi computers	From:	
35	Register Transfer language	28.09.2023	
36	Register Transfer Bus and memory transfers	To:	Lecture interspersed
37	Arithmetic Micro-operations	25.09.2023	with discussions
38	Logic micro operations		
39	Shift micro operations		
40	Instruction codes	7	1
41	Computer registers		
42	Computer instructions	1	
43	Instruction cycle	1	
44	Tutorial		

UNIT-IV MICRO PROGRAMMED CONTROL, CENTRAL PROCESSING UNIT

CO4: Determine and able to write data transfer and manipulators program and students able to learn micro programme control and central processing unit.

TB: Computer System Architecture, 3/e, MorisMano, Pearson/PHL

45	Control memory		
46	Address sequencing	From: 26.09.2023	1000 1000
47	micro program example		Lecture interspersed with discussions
48	design of control unit	To: 20,10,2023	with discussions
49	General Register Organization	20.10.2023	

No. of Periods	TOPIC	Date	Mode of Delivery	
50	Instruction Formats			
51	Addressing modes	From: 26.09.2023	0.2000.0000.0000.0000	
52	Data Transfer and Manipulation		Lecture interspersed with discussions	
53	Program Control	To: 20,10,2023		
54	Tutorial	20.10.2023		
55	Memory Hierarchy Main Memory Auxilians memors			
of them.	ble to learns the internal organization of com nputer System Architecture, 3/e, MorisMano,	ec 26000	evanuate periormane	
56				
57	Auxiliary memory			
58	Associate Memory			
59	Cache Memory			
60	Virtual memories			
61	Introduction to Shift registers and RAID	From: 21,10,2023	Name to the section of the reservoir or other	
62	Input-Output Interface		Lecture interspersed with discussions	
63	Asynchronous data transfer	To: 10,11,2023	This discussions	
64	Modes of Transfer	10.11.2023		
65	Priority Interrupts			
66	DMA			
00	TOO TO S			
67	Input Output Processor			

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Tutorial

69

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: C	ptical Communication	R204104A
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Year / Semester: IV/I

Section: 1

A.Y: 2023-24

Periods	TOPIC	Date	Mode of Delivery
A 200 1157	Demonstrate the necessity of components required in m and analyze the step and graded index fibers tical Fiber Communications – Gerd Keiser, Mc Graw-		communicati
1.	Overview of optical fiber communication- Historical development	1	
2.	The general system,advantages of optical fiber communications	From:	
J.	Optical fiber waveguides- Introduction,Ray theory transmission	17-07-2023	Lecture intersperse with
4.	Total Internal Reflection, Acceptance angle		discussion
5.	Numerical Aperture, skew rays	1	discussion
6.	Cylindrical fibers, modes ,v-number	To:	
7.	Mode coupling, Step Index fibers	1	
8,	Graded Index fibers, Single mode fibers	+	
9.	Cut off wavelength, Mode Field Diameter	08-08-2023	
10.	Effective Refractive Index, Related problems.		
11.	Tutorial	-	
berrat 5	sterpret the properties of optical fiber and the amount system, dispersion of optical fibers, lical Fiber Communications – Gerd Keiser, Mc Graw-		
B: Op	lical Fiber Communications - Gerd Keiser, Mc Graw- 2000.		
B: Op	Fiber materials:- Glass, Halide, Active glass		
B: Op dition, 12.	Fiber Communications – Gerd Keiser, Mc Graw- 2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers-	Hill Internation	
B: Op dition, 12. 13.	Fiber Communications – Gerd Keiser, Mc Graw- 2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers- Attenuation, Absorption		nal edition, 31
B: Op dition, 12.	Fiber Communications – Gerd Keiser, Mc Graw- 2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers- Attenuation, Absorption Scattering and Bending losses Core and Cladding losses, Information capacity	Hill Internation	Lecture interspersed
B: Op dition, 12. 13. 14.	Fiber Communications – Gerd Keiser, Mc Graw- 2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers- Attenuation, Absorption Scattering and Bending losses Core and Cladding losses, Information capacity determination	Hill Internation	nal edition, 31
B: Op dition, 12. 13. 14. 15.	Fiber Communications – Gerd Keiser, Mc Graw- 2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers- Attenuation, Absorption Scattering and Bending losses Core and Cladding losses, Information capacity determination Group delay, Types of Dispersion:- Material dispersion	From:	Lecture interspersed with
B: Op dition, 12. 13. 14. 15. 16. 17. 18.	Fiber Communications – Gerd Keiser, Mc Graw- 2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers- Attenuation, Absorption Scattering and Bending losses Core and Cladding losses, Information capacity determination	From:	Lecture interspersed with
B: Op. dition, 12. 13. 14. 15. 16. 17. 19.	Fiber Communications – Gerd Keiser, Mc Graw- 2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers- Attenuation, Absorption Scattering and Bending losses Core and Cladding losses, Information capacity determination Group delay, Types of Dispersion:- Material dispersion Wave-guide dispersion, Polarization-Mode dispersion Intermodal dispersion, Pulse broadening in Graded index Related problems	From: 09-08-2023	Lecture interspersed with
B: Op. dition, 12. 13. 14. 15. 16. 17. 19. 20. NIT -1. D3:: A:	Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers Signal distortion in optical fibers Signal distortion in optical fibers- Attenuation, Absorption Scattering and Bending losses Core and Cladding losses, Information capacity determination Group delay, Types of Dispersion:- Material dispersion Wave-guide dispersion, Polarization-Mode dispersion Intermodal dispersion, Pulse broadening in Graded index Related problems Related problems Index Communications - Gerd Keiser, Mc Graw-H	From: 09-08-2023 To: 21-08-2023	Lecture interspersed with discussions

22.	Fiber Splicing- Splicing techniques		
23,	Splicing single mode fibers, Fiber alignment & joint loss	node fiber joints. To:	Lecture interspersed with
24.	Multimode fiber joints, singlemode fiber joints.		
25.	Tutorial	23-09-2023	discussions
26.	Revision	1	

UNIT-IV

CO4:: Analyze different types of optical sources to analyze optical fiber and light wave systems.

TB1: Optical Fiber Communications - Gerd Keiser, Mc Graw-Hill International edition, 3rd Edition, 2000.

TB2: Optical Fiber Communications - John M. Senior, PHI, 2nd Edition, 2002.

27.	Optical sources- LEDs, Structures		12
28.	Materials, Types of LED	From:	Lecture interspersed with discussions
29.	Quantum efficiency		
30.	Power, Modulation, Power bandwidth product	25-09-2023	
31.	Injection Laser Diodes-Modes, Resonant frequencies	A SEMANDER MASS	
32.	Threshold conditions, External quantum efficiency	7	
33.	Laser diode rate equations	To:	
34.	Optical detectors- Physical principles of PIN	13-10-2023	
35.	APD, Detector response time, Temperature effect on Avalanche gain, Comparison of Photo detectors,		
36.	Related problems		

UNIT-V

CO5 :: Design Optical System Design And Analyze The Source To Fiber Power Launching Techniques

TB1: Optical Fiber Communications - Gerd Keiser, Mc Graw-Hill International edition,

3rd Edition, 2000.

No. of Periods	TOPIC	DATE	Mode of Delivery
37.	Source to fiber power launching - Output patterns		Lecture interspersed with discussions
38.	Power coupling, Power launching]	
39.	Equilibrium Numerical Aperture, Laser diode to fiber coupling		
40.	Optical receiver operation- Fundamental receiver operation	From: 14-10-2023	
41.	Digital signal transmission, error sources	52 54,5550	
42.	Receiver configuration, Digital receiver performance Quantum limit, Analog receivers	To:	
43.	Optical system design - Point-to- point links, Component choice and considerations	11-11- 2023	
44.	Link power budget with examples		
45.	Rise time budget with examples	1	
46.	Line coding in Optical links, WDM		
47.	Measurement of Attenuation and Dispersion,		
48.	Eye Pattern	1	

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21.

Optical fiber Connectors-Connector types

Single mode fiber connectors, Connector return loss

SRK INSTITUTE OF TECHNOLOGY, ENIKEPADU, VIJAYAWADA -521108

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: O	ptical	Communication /	R204104A
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Year / Semester: IV/I

Section: II

A.Y: 2023-24

Period	TOPIC	Date	Mode of Delivery
UNIT - CO1 ::	Demonstrate the necessity of components required in a	nodern Optical	
	orieal Fiber Communications - Gerd Keiser, Mc Graw-		
1.	Overview of optical fiber communication- Historical development		Lecture
2.	The general system, advantages of optical fiber communications	From:	
3.	Optical fiber waveguides- Introduction, Ray theory transmission	17-07-2023	
4.	Total Internal Reflection, Acceptance angle		discussion
5.	Numerical Aperture, skew rays		G136433101
6.	Cylindrical fibers, modes ,v-number	To:	
7.	Mode coupling, Step Index fibers	1 0000	
8.	Graded Index fibers, Single mode fibers		
9.	Cut off wavelength, Mode Field Diameter	04-08-2023	
	officertian Defending to the territory		
10.	Effective Refractive Index, Related problems.		
11. NIT – 1 O2:: In	I utorial It is a second to a second the amount of the second the	of light lost go	ing through :
II. NIT - I O2:: In Optical s B: Optical,	Hutorial Herpret the properties of optical fiber and the amount system, dispersion of optical fibers. Heal Fiber Communications – Gerd Keiser, Mc Graw-		
NIT - I O2:: In Optical s B: Opt	terpret the properties of optical fiber and the amount system, dispersion of optical fibers. Seal Fiber Communications – Gerd Keiser, Mc Gray.		
II. NIT - I O2:: In Optical s B: Optical,	Hutorial Herpret the properties of optical fiber and the amount system, dispersion of optical fibers. Heal Fiber Communications – Gerd Keiser, Mc Graw-2000. Fiber materials:- Glass, Halide, Active glass		
11. NIT - 1 O2:: In Optical s B: Optical s 12. 13.	Iterpret the properties of optical fiber and the amount system, dispersion of optical fibers. Iteral Fiber Communications – Gerd Keiser, Mc Graw- 2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers-	Hill Internation	
11. NIT - 1 O2:: In Optical s B: Opti dition, 12.	Iterpret the properties of optical fiber and the amount stem, dispersion of optical fibers. Iteal Fiber Communications – Gerd Keiser, Mc Graw-2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers-Attenuation, Absorption		nal edition, 3
11. NIT - 1 O2:: In Optical s B: Optical s 12. 13.	Iterpret the properties of optical fiber and the amount system, dispersion of optical fibers. Iteral Fiber Communications – Gerd Keiser, Mc Graw- 2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers-	Hill Internation	Lecture interspersed
11. NIT - 1 O2:: In Optical s B: Optical s 12. 13. 14. 15.	Interpret the properties of optical fiber and the amount system, dispersion of optical fibers. Iteal Fiber Communications – Gerd Keiser, Mc Graw-1000, Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers- Attenuation, Absorption Scattering and Bending losses Core and Cladding losses, Information capacity determination	Hill Internation	Lecture interspersed with
11. (NIT - 1) (O2:: In Optical s B: Optical s 12. 13. 14.	Interpret the properties of optical fiber and the amount system, dispersion of optical fibers. Iteal Fiber Communications – Gerd Keiser, Mc Graw-2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers- Attenuation, Absorption Scattering and Bending losses Core and Cladding losses, Information capacity determination Group delay, Types of Dispersion:- Material dispersion	From: 05-08-2023	Lecture interspersed
11. NIT - 1 O2:: In Optical s B: Optical s 12.	Interpret the properties of optical fiber and the amount system, dispersion of optical fibers. Iteal Fiber Communications – Gerd Keiser, Mc Graw-1000, Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers- Attenuation, Absorption Scattering and Bending losses Core and Cladding losses, Information capacity determination	From: 05-08-2023	Lecture interspersed with
11. NIT - 1 O2:: In Optical s B: Optical s 12. 13. 14. 15. 16. 17. 18.	Interpret the properties of optical fiber and the amount system, dispersion of optical fibers. Iteal Fiber Communications – Gerd Keiser, Mc Graw-2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers- Attenuation, Absorption Scattering and Bending losses Core and Cladding losses, Information capacity determination Group delay, Types of Dispersion:- Material dispersion Wave-guide dispersion, Polarization-Mode dispersion Intermodal dispersion, Pulse broadening in Graded index	From: 05-08-2023 To:	Lecture interspersed with
11. NIT - 1 O2:: In Optical s B: Optical s 12. 13. 14. 15. 16. 17. 18. 19.	literpret the properties of optical fiber and the amount stem, dispersion of optical fibers. Ical Fiber Communications – Gerd Keiser, Mc Graw-2000. Fiber materials:- Glass, Halide, Active glass Chalgenide glass, Plastic optical fibers Signal distortion in optical fibers- Attenuation, Absorption Scattering and Bending losses Core and Cladding losses, Information capacity determination Group delay, Types of Dispersion:- Material dispersion Wave-guide dispersion, Polarization-Mode dispersion Intermodal dispersion, Pulse broadening in Graded index Related problems	From: 05-08-2023 To:	Lecture interspersed with

From:

Lecture

interspersed

23.	Fiber Splicing- Splicing techniques	22-08-2023	
24.	Splicing single mode fibers, Fiber alignment & joint loss	To:	with discussions
25.	Multimode fiber joints, singlemode fiber joints.	- 1	
26.	Tutorial	23-09-2023	
27.	Revision		

UNIT-IV

CO4:: Analyze different types of optical sources to analyze optical fiber and light wave systems.

TB1: Optical Fiber Communications - Gerd Keiser, Mc Graw-Hill International edition, 3rd Edition, 2000.

TB2 : Optical Fiber Communications - John M. Senior, PHI, 2nd Edition, 2002.

28.	Optical sources- LEDs, Structures	Luition, 200	4.
29.	Materials, Types of LED	From:	Lecture interspersed with discussions
30.	Quantum efficiency		
31.	Power, Modulation, Power bandwidth product	25-09-2023	
32.	Injection Laser Diodes-Modes, Resonant frequencies	25-07-2025	
33.	Threshold conditions, External quantum efficiency	1 1	
34.	Laser diode rate equations	To:	
35.	Optical detectors- Physical principles of PIN	10-10-2023	
36.	APD, Detector response time, Temperature effect on Avalanche gain, Comparison of Photo detectors,		
37.	Related problems	1 1	
1 1 1 1 1 1			

UNIT-1

CO5 :: Design Optical System Design And Analyze The Source To Fiber Power Launching Techniques

TB1: Optical Fiber Communications - Gerd Keiser, Mc Graw-Hill International edition, 3rd Edition, 2000.

No. of Periods	TOPIC	DATE	Mode of Delivery
38.	Source to fiber power launching - Output patterns		Lecture interspersed with discussions
39.	Power coupling, Power launching		
40.	Equilibrium Numerical Aperture, Laser diode to fiber	From: 11-10-2023 To: 11-11-2023	
41.	Optical receiver operation- Fundamental receiver operation		
42.	Digital signal transmission, error sources		
43.	Receiver configuration, Digital receiver performance Quantum limit, Analog receivers		
44.	Optical system design - Point-to- point links, Component choice and considerations		
45.	Link power budget with examples		
46,	Rise time budget with examples		
47.	Line coding in Optical links, WDM		
48.	Measurement of Attenuation and Dispersion,		
49.	Eye Pattern		

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20.

Tutorial

SRK INSTITUTE OF TECHNOLOGY

Enikepadu, Vijayawada -521108

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course /Code: Satellite Communications/ R204104D

Year / Semester : IV/I

Section: A

A. Y: 2023-24

discussions

19-08-2023

No. of Periods	TOPIC	Date	Mode of Delivery
T1: Satellite Wiley P T2: Satellite	INTRODUCTION, ORBITAL MECHANICS AND Ident can understand the basic concepts of tion. Communications – Timothy Pratt, Charles Bostian and ublications, 2 nd Edition, 2003. Communications Engineering – Wilbur L. Pritchard, Ferhoud, 2 nd Edition, Pearson Publications, 2003.	orbital mechani	WSE,
1.	Origin of Satellite Communications		
2.	Historical Back-ground		
3.	Basic Concepts of Satellite Communications		Lecture interspersed with discussions
4.	Frequency allocations for Satellite services		
5.	Applications		
6.	Future Trends of Satellite Communications		
7.	Tutorial	FROM	
8.	Orbital Mechanics	17-07-2023	
9.	Look Angle determination	то	
10.	Orbital perturbations	05-08-2023	
11.	Orbit determination		
12.	launches and launch vehicles		
13.	Orbital effects in communication systems performance		
14.	Tutorial		
T1: Satellite Wiley F	SATELLITE SUBSYSTEMS ent can understand various satellite subsystems and e Communications – Timothy Pratt, Charles Bostian an Publications, 2 nd Edition, 2003.		
15.	Attitude and orbit control system		
16.	Telemetry, Tracking, Command and monitoring	NO.	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
17.	power systems	FROM	Lecture
18.	communication subsystems	07-08-2023 TO	interspersed
19.	Satellite antennas		with

Equipment reliability and Space qualification

UNIT - III SATELLITE LINK DESIGN

CO 3: Student can understand the concept of satellite link design and calculation of C/N ratio.

T1: Satellite Communications – Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003.

22.	Basic transmission theory		Lecture interspersed with discussions
23.	system noise temperature and G/T ratio	FROM 21-08-2023 TO 23-09-2023	
24.	Design of down links		
25.	Design of down links		
26.	up link design		
27.	up link design		
28.	Design of satellite links for specified C/N		
29.	Tutorial		
30.	System design example		
31.	System design example		

UNIT - IV MULTIPLE ACCESS & EARTH STATION TECHNOLOGY.

CO 4: Student can understand the concepts of multiple access techniques applied in satellite systems and Earth Station Technology

T1: Satellite Communications - Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE,

Wiley Publications, 2nd Edition, 2003.

50.	Tutorial		
49.	Terrestrial interface		Lecture interspersed with discussions
48.	Tracking systems		
47.	Antennas		
46.	Receivers		
45.	Transmitters		
44.	Introduction		
43.	Spread spectrum transmission and reception	14-10-2023	
42.	Code Division Multiple access (CDMA)	TO 14-10-2023	
41.	Tutorial	25-09-2023	
40.	DAMA	FROM	
39.	Onboard processing		
38.	Satellite Switched TDMA		
37.	Examples		
36.	Frame structure		
35.	Time division Multiple Access (TDMA)		
34.	Calculation of C/N		
33.	Intermodulation		
32.	Frequency division multiple access (FDMA)		

UNIT – V LOW EARTH ORBIT AND GEO-STATIONARY SATELLITE SYSTEMS & SATELLITE NAVIGATION & THE GLOBAL POSITIONING SYSTEM

CO 5: Student can understand the concepts of Low Earth Orbit and Geo-Stationary satellite systems & satellite navigation, architecture and applications

T1: Satellite Communications – Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003.

T2: Satellite Communications Engineering – Wilbur L. Pritchard, Robert A Nelson and Henri G.Suyderhoud, 2nd Edition, Pearson Publications, 2003.

Orbit consideration

52.	coverage and frequency considerations	FROM 16-10-2023 TO 11-14-2023	Lecture interspersed with discussions
53.	Delay & Throughput considerations		
54.	Delay & Throughput considerations		
55.	System considerations		
56.	Operational NGSO constellation Designs		
57.	Tutorial		
58.	Radio and Satellite Navigation		
59.	GPS Position Location principles		
60.	GPS Receivers and codes		
61.	Satellite signal acquisition, GPS Navigation Message		
62.	GPS signal levels, GPS receiver operation		
63.	GPS C/A code accuracy, Differential GPS		

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Signature of the HOD



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course /Code: Satellite Communications/ R204104D

Year / Semester : IV/I Section: B A. Y: 2023-24

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I	INTRODUCTION, ORBITAL MECHANICS ANI	LAUNCHERS	
CO 1: St	udent can understand the basic concepts of	orbital mechani	es of satellit
communica	tion.		
	Communications - Timothy Pratt, Charles Bostian and	Jeremy Allnutt, \	WSE,
	rublications, 2nd Edition, 2003.		
T2: Satellite	Communications Engineering - Wilbur L. Pritchard, F	Robert A Nelson as	nd Henri
G.Suyde	erhoud, 2nd Edition, Pearson Publications, 2003.		
1.	Origin of Satellite Communications		
2.	Historical Back-ground		
3.	Basic Concepts of Satellite Communications		Lecture interspersed with discussions
4.	Frequency allocations for Satellite services		
5.	Applications		
6.	Future Trends of Satellite Communications		
7.	Tutorial	FROM	
8.	Orbital Mechanics	17-07-2023	
9.	Look Angle determination	то	
10.	Orbital perturbations	05-08-2023	
11.	Orbit determination		
12.	launches and launch vehicles		
13.	Orbital effects in communication systems		
	performance		
14.	Tutorial		
UNIT -II	SATELLITE SUBSYSTEMS		
CO 2: Stude	ent can understand various satellite subsystems and	its functionality.	
T1: Satellite	Communications - Timothy Pratt, Charles Bostian and	d Jeremy Allnutt,	WSE.
Wiley F	Publications, 2 nd Edition, 2003.		
15.	Attitude and orbit control system		Lecture
16.	Telemetry, Tracking, Command and monitoring		
17.	power systems	FROM 07-08-2023 TO 19-08-2023	
18.	communication subsystems		interspersed
19.	Satellite antennas		with
20.	Equipment reliability and Space qualification		discussions
21.	Tutorial		

UNIT - III SATELLITE LINK DESIGN

CO 3: Student can understand the concept of satellite link design and calculation of C/N ratio.

T1: Satellite Communications - Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003.

22.	Basic transmission theory		
23.	system noise temperature and G/T ratio		Lecture interspersed with discussions
24.	Design of down links	The second second	
25.	Design of down links	FROM	
26.	up link design	21-08-2023	
27.	up link design	то	
28.	Design of satellite links for specified C/N	23-09-2023	
29.	Tutorial		
30.	System design example		
31.	System design example		

UNIT - IV MULTIPLE ACCESS & EARTH STATION TECHNOLOGY.

CO 4: Student can understand the concepts of multiple access techniques applied in satellite systems and Earth Station Technology

T1: Satellite Communications – Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003.

32.	Frequency division multiple access (FDMA)		
33.	Intermodulation		Lecture interspersed with discussions
34.	Calculation of C/N		
35.	Time division Multiple Access (TDMA)		
36.	Frame structure		
37.	Examples	- 1	
38.	Satellite Switched TDMA		
39.	Onboard processing		
40.	DAMA	FROM	
41.	Tutorial	25-09-2023	
42.	Code Division Multiple access (CDMA)	TO 14-10-2023	
43.	Spread spectrum transmission and reception	14-10-2023	
44.	Introduction		
45.	Transmitters		
46.	Receivers		
47.	Antennas		
48.	Tracking systems		
49.	Terrestrial interface		
50.	Tutorial		

UNIT – V LOW EARTH ORBIT AND GEO-STATIONARY SATELLITE SYSTEMS & SATELLITE NAVIGATION & THE GLOBAL POSITIONING SYSTEM

CO 5: Student can understand the concepts of Low Earth Orbit and Geo-Stationary satellite systems & satellite navigation, architecture and applications

T1: Satellite Communications - Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003.

T2: Satellite Communications Engineering - Wilbur L. Pritchard, Robert A Nelson and Henri G.Suyderhoud, 2nd Edition, Pearson Publications, 2003.

51. Orbit consideration

52.	coverage and frequency considerations		Lecture interspersed with discussions
53.	Delay & Throughput considerations		
54.	Delay & Throughput considerations	FROM	
55.	System considerations	16-10-2023	
56.	Operational NGSO constellation Designs	то	
57.	Tutorial	11-11-2023	
58.	Radio and Satellite Navigation		
59.	GPS Position Location principles		
60.	GPS Receivers and codes		
61,	Satellite signal acquisition, GPS Navigation Message		
62.	GPS signal levels, GPS receiver operation		
63.	GPS C/A code accuracy, Differential GPS		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: INTERNET OF THINGS (R204104I)

Year / Semester: IV/I Section: 1 A.Y: 2023-24

UNIT -I Introduction to IoT

CO1: Describing the architecture of IoT, cloud service models and M2M

TB1: Raj kamal, "Internet of Things : Architecture and Design principles" 1st edition MC

graw Hill

S.No	TOPIC	Date	Mode of Delivery
1.	Introduction to IoT	From: 17-07-2023 To: 10-08-2023	
2.	Architectural Overview, Design principles and needed capabilities		
3.	Basics of Networking		
4.	M2M and IoT Technology		
5.	Devices and gateways, Data management		
6.	Business processes in IoT		
7.	Everything as a Service (XaaS)		
8.	Role of Cloud in IoT		Lecture interspersed
9.	Security aspects inIoT		with discussions
10.	Tutorial		

UNIT-II Elements of IoT

CO2: Understanding Arduino , Raspberry pi and ARM processors

TB3: The definitive guide to ARM cortex M0 by joseph Yiu

S.No	TOPIC	Date	Mode of Delivery
11.	Hardware Component	From: 14-08-2023 To: 31-08-2023	
12.	Arduino, Raspberry PI		Lecture interspersed
13.	ARM Cortex-A class processor		with discussions
14.	ARM Cortex-M class processor		
15.	Arm Cortex-M0 Processor Architecture, Block Diagram of cortex m0		
16.	Cortex-M0 Processor Instruction Set, ARM and Thumb Instruction Set		
17	Tutorial		

UNIT-III IoT Application Development

CO3: Acquiring knowledge on various protocols for IoT

TB2: Vijay Madisetti, Internet of things ,"A ahands on approach ", university press.

S.No	TOPIC	Date	Mode of Delivery
18.	Communication, IoT Applications		
19.	Sensing, Actuation, I/O interfaces	From: 01-09-2023	
20.	Software Components		
21,	Programming API's (using Python/Node.js/Arduino)		Lecture interspersed with discussions

22.	MQTT, ZigBee	To:
23.	CoAP, UDP	26-09-2023
4.	TCP, Bluetooth	
5.	Bluetooth overview, Bluetooth Key Versions	
6.	Bluetooth Low Energy (BLE) Protocol,	
	Bluetooth Low Energy Architecture	
27.	PSoC4 BLE architecture and Component	1
	Overview	
28.	Tutorial	1

UNIT - IV Solution framework for IoT applications

CO4: Discribing the design principles for IoT Applications

TB1: Raj kamal, "Internet of Things : Architecture and Design principles" 1st edition MC graw Hill

S.No	TOPIC	Date	Mode of Delivery
29.	Implementation of Device integration	From: 27-09-2023	Lecture interspersed with discussions
30.	Data acquisition and integration		
31.	Device data storage		
32.	Unstructured data storage on cloud/local server		
33.	Authentication	25-10-2023	
34.	authorization of devices		
35.	Implementation of Device integration		
36.	Tutorial		

UNIT -V IoT Case Studies

CO5: Implement the case studies on real time applications for IoT and understand cloud TB2: Vijay Madisetti, Internet of things ,"A ahands on approach ", university press.

S.No	TOPIC	Date	Mode of Delivery
37.	IoT case studies		
38.	mini projects based on Industrial automation		
39.	Transportation		
40.	Agriculture		
41.	Healthcare		
42.	Home Automation		Lecture interspersed with discussions
43.	Cloud Analytics for IoT Application: Introduction to cloud computing	From:	
44.	Difference between Cloud Computing and Fog Computing: The Next Evolution of Cloud Computing		
45.	Role of Cloud Computing in IoT	26-10-2023	
46.	Connecting IoT to cloud	To: 25-11-2023	
47.	Cloud Storage for IoT Challenge in integration of IoT with Cloud		
48.	Tutorial		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: INTERNET OF THINGS (R204104I)

Year / Semester: IV/I Section: II A.Y: 2023-24

UNIT -1 Introduction to IoT

CO1: Describing the architecture of IoT, cloud service models and M2M

TB1: Raj kamal, "Internet of Things : Architecture and Design principles" 1st edition MC

graw Hill

S.No	TOPIC	Date	Mode of Delivery
1.	Introduction to IoT	From: 17-07-2023 To: 10-08-2023	17-07-2023
2.	Architectural Overview, Design principles and needed capabilities		
3.	Basics of Networking		
4.	M2M and IoT Technology		
5.	Devices and gateways, Data management		
6.	Business processes in IoT		
7.	Everything as a Service (XaaS)		
8.	Role of Cloud in IoT		Lecture interspersed
9.	Security aspects inIoT		with discussions
10.	Tutorial		

UNIT-II Elements of IoT

CO2: Understanding Arduino , Raspberry pi and ARM processors

TB3: The definitive guide to ARM cortex M0 by joseph Yiu

S.No	TOPIC	Date	Mode of Delivery
11.	Hardware Component	From: 14-08-2023 To: 31-08-2023	
12.	Arduino, Raspberry PI		Lecture interspersed
13.	ARM Cortex-A class processor		with discussions
14.	ARM Cortex-M class processor		
15.	Arm Cortex-M0 Processor Architecture, Block Diagram of cortex m0		
16.	Cortex-M0 Processor Instruction Set, ARM and Thumb Instruction Set		
17	Tutorial		

UNIT-III IoT Application Development

CO3: Acquiring knowledge on various protocols for IoT

TB2: Vijay Madisetti, Internet of things ,"A ahands on approach ", university press.

S.No	TOPIC	Date	Mode of Delivery
18.	Communication, IoT Applications	From: 01-09-2023	
19.	Sensing, Actuation, I/O interfaces		
20.	Software Components		
21.	Programming API's (using Python/Node.js/Arduino)		Lecture interspersed with discussions

22.	MQTT, ZigBee	To: 26-09-2023	
23.	CoAP, UDP		26-09-2023
24.	TCP, Bluetooth		
25.	Bluetooth overview, Bluetooth Key Versions		
26.	Bluetooth Low Energy (BLE) Protocol, Bluetooth Low Energy Architecture		
27.	PSoC4 BLE architecture and Component Overview		
28.	Tutorial		

UNIT - IV Solution framework for IoT applications

CO4: Discribing the design principles for IoT Applications

TB1: Raj kamal, "Internet of Things : Architecture and Design principles" 1st edition MC graw Hill

S.No	TOPIC	Date	Mode of Delivery
29.	Implementation of Device integration	From: 27-09-2023	Lecture interspersed
30.	Data acquisition and integration		
31.	Device data storage		
32.	Unstructured data storage on cloud/local server		
33.	Authentication	25-10-2023	
34.	authorization of devices		with discussions
35.	Implementation of Device integration		Accesses with the control of the con
36.	Tutorial		

UNIT -V IoT Case Studies

CO5: Implement the case studies on real time applications for IoT and understand cloud TB2: Vijay Madisetti, Internet of things, "A ahands on approach ", university press,

S.No	TOPIC	Date	Mode of Delivery
37.	IoT case studies		
38.	mini projects based on Industrial automation		
39.	Transportation		
40.	Agriculture		
41.	Healthcare		Lecture interspersed with discussions
42.	Home Automation		
43.	Cloud Analytics for IoT Application: Introduction to cloud computing	From:	
44.	Difference between Cloud Computing and Fog Computing: The Next Evolution of Cloud Computing		
45.	Role of Cloud Computing in IoT	26-10-2023	
46.	Connecting IoT to cloud	To: 25-11-2023	
47.	Cloud Storage for IoT Challenge in integration of IoT with Cloud		
48.	Tutorial		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Cyber Security (R204105S)

Year / Semester: IV/I

Section: I

A.Y: 2023-24

UNIT-I: Introduction to Cybercrime

CO1: Describing Cyber Security architecture principles and System and application security threats and vulnerabilities

TB1: Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives,

Nina Godbole, Sunit Belapure, Wiley.

S. No	TOPIC	Date	Mode of Delivery
1	Introduction, Cybercrime: Definition and Origins of the Word		
2	Cybercrime and Information Security		
3	Cybercriminals, Classification of Cybercrimes		
4	Cybercrime: The Legal Perspectives	From:	
5	Cybercrimes: An Indian Perspective	17-07-2023	Lecture interspersed with discussions
6	Cybercrime and the Indian ITA 2000		
7	A Global Perspective on Cybercrimes,		
8	Cybercrime Era: Survival Mantra for the Netizens		
9	Planning of Offenses by Cyber Criminals— Introduction, Planning attacks by criminals	12224	
10	Social Engineering	To:	
11	Cyber stalking	10-08-2023	
12	Cyber cafe and Cybercrimes		
13	Botnets: The Fuelfor Cybercrime		
14	Attack Vector		
15	Cloud Computing		

UNIT-II: Cybercrime Mobile and Wireless Devices

CO2: Illustrate different classes of attacks on mobile and wireless devices

TB1: Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Nina Godbole, Sunit Belapure, Wiley.

S. No	TOPIC	Date	Mode of Delivery
16	Introduction	From: 14-08-2023	Lecture interspersed with discussions
17	Proliferation of Mobile and Wireless Devices		
18	Trends in Mobility		

19	Credit Card Frauds in Mobile and Wireless Computing Era		Lecture interspersed with discussions
20	Security Challenges Posed by Mobile Devices		
21	Registry Settings for Mobile Devices		
22	Authentication Service Security		
23	Attacks on Mobile/Cell Phones	To:	
24	Mobile Devices: Security Implications for Organizations	31-08-2023	
25	Organizational Measures for Handling Mobile		
26	Organizational Security Policies and Measures in Mobile Computing Era		
27	Laptops		

UNIT-III: Tools and Methods used in Cybercrime

CO3: Analyzing various Cyber Security attack incidents, apply appropriate tools and methods for analysis

TB1: Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Nina Godbole, Sunit Belapure, Wiley.

28	Introduction		
29	Proxy Servers and Anonymizers		
30	Phishing		
31	Password Cracking		
32	Key loggers and Spywares		
33	Virus and Worms	From:	Lecture interspersed with discussions
34	Trojan Horses and Backdoors	01-09-2023	
35	Steganography	-	
36	DoS and DDoS Attacks	To:	
37	SQL Injection	26-09-2023	
38	Buffer Overflow		
39	Attacks on Wireless Networks		
40	Phishing and Identity Theft: Introduction Phishing		
41	Identity Theft		

UNIT-IV: Cybercrimes and Cyber Security

CO4: Describing risk management processes and practices using cyber laws

TB1: Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Nina Godbole, Sunit Belapure, Wiley.

S. No	TOPIC	Date	Mode of Delivery
42	Need for Cyber laws: The Indian Context		
43	The Indian IT Act		
44	Challenges to Indian Law and Cybercrime		

	Scenario in India	From:	Lecture interspersed with discussions
45	Consequences of Not Addressing the Weakness in Information Technology Act	27-09-2023	
46	Digital Signatures and the Indian IT Act	To: 25-10-2023	
47	Information Security Planning and Governance	25-10-2023	
48	Information Security Policy Standards, Practices		
49	The information Security Blueprint		
50	Security education		
51	Training and awareness program		
52	Continuing Strategies		

UNIT-V: Understanding Computer Forensics

CO5: Analyze various computer forensics systems, and tools for data recovery, and data seizure

TB1: Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives,

Nina Godbole, Sunit Belapure, Wiley.

S. No	TOPIC	Date	Mode of Delivery
53	Introduction		-0.11
54	Historical Background of Cyber forensics		
55	Digital Forensics Science		
56	The Need for Computer Forensics		
57	Cyber forensics and Digital Evidence		
58	Forensics Analysis of E-Mail		
59	Digital Forensics Life Cycle		Lecture interspersed with discussions
60	Chain of Custody Concept	F	
61	Network Forensics	From:	
62	Approaching a Computer Forensics Investigation	26-10-2023	
63	Computer Forensics and Steganography		
64	Relevance of the OSI 7 Layer Model to Computer Forensics		
65	Forensics and Social Networking Sites: The Security/Privacy Threats		
66	Computer Forensics from Compliance Perspective		
67	Challenges in Computer Forensics		Landanian States
68	Special Tools and Techniques	To: 25-11-2023	Lecture interspersed
69	Forensics Auditing		with discussions
70	Antiforensics		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Cyber Security (R204105S)

Year / Semester: IV/I Section: II A.Y: 2023-24

UNIT-I: Introduction to Cybercrime

CO1: Describing Cyber Security architecture principles and System and application security threats and vulnerabilities

TB1: Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives,

Nina Godbole, Sunit Belapure, Wiley.

S. No	TOPIC	Date	Mode of Delivery
1	Introduction, Cybercrime: Definition and Origins of the Word		
2	Cybercrime and Information Security		
3	Cybercriminals, Classification of Cybercrimes		
4	Cybercrime: The Legal Perspectives	From:	
5	Cybercrimes: An Indian Perspective	17-07-2023	Lecture interspersed with discussions
6	Cybercrime and the Indian ITA 2000		
7	A Global Perspective on Cybercrimes,		
8	Cybercrime Era: Survival Mantra for the Netizens	-	
9	Planning of Offenses by Cyber Criminals— Introduction, Planning attacks by criminals	To: 10-08-2023	
10	Social Engineering		
11	Cyber stalking		
12	Cyber cafe and Cybercrimes		
13	Botnets: The Fuelfor Cybercrime		
14	Attack Vector		
15	Cloud Computing		

UNIT-II: Cybercrime Mobile and Wireless Devices

CO2: Illustrate different classes of attacks on mobile and wireless devices

TB1: Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives,

Nina Godbole, Sunit Belapure, Wiley.

S. No	TOPIC	Date	Mode of Delivery
16	Introduction		Lecture interspersed with discussions
17	Proliferation of Mobile and Wireless Devices	From: 14-08-2023	
18	Trends in Mobility		

19	Credit Card Frauds in Mobile and Wireless Computing Era		
20	Security Challenges Posed by Mobile Devices		Lecture interspersed with discussions
21	Registry Settings for Mobile Devices		
22	Authentication Service Security	1000000	
23	Attacks on Mobile/Cell Phones	To:	
24	Mobile Devices: Security Implications for Organizations	31-08-2023	
25	Organizational Measures for Handling Mobile		
26	Organizational Security Policies and Measures in Mobile Computing Era		
27	Laptops		

UNIT-III: Tools and Methods used in Cybercrime

CO3: analyzing various Cyber Security attack incidents, apply appropriate tools and methods for analysis

TB1: Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives,

Nina Godbole, Sunit Belapure, Wiley.

28	Introduction		
29	Proxy Servers and Anonymizers		Lecture interspersed with discussions
30	Phishing		
31	Password Cracking		
32	Key loggers and Spywares		
33	Virus and Worms	From:	
34	Trojan Horses and Backdoors	01-09-2023	
35	Steganography	-	
36	DoS and DDoS Attacks	To:	
37	SQL Injection	26-09-2023	
38	Buffer Overflow,		
39	Attacks on Wireless Networks,		
40	Phishing and Identity Theft: Introduction, Phishing		
41	Identity Theft		

UNIT-IV: Cybercrimes and Cyber Security

CO4: Describing risk management processes and practices using cyber laws

TB1: Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Nina Godbole, Sunit Belapure, Wiley.

S. No	TOPIC	Date	Mode of Delivery
42	Need for Cyber laws: The Indian Context		
43	The Indian IT Act		
44	Challenges to Indian Law and Cybercrime Scenario in India		

45	Consequences of Not Addressing the Weakness in Information Technology Act	From:	The sales
46	Digital Signatures and the Indian IT Act	To: 25-10-2023	Lecture interspersed with discussions
47	Information Security Planning and Governance		
48	Information Security Policy Standards, Practices		
49	The information Security Blueprint	<u> </u>	
50	Security education		
51	Training and awareness program		
52	Continuing Strategies		
		-	

UNIT-V: Understanding Computer Forensics

CO5: Analyze various computer forensics systems, and tools for data recovery, and data seizure

TB1: Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives,

Nina Godbole, Sunit Belapure, Wiley.

S. No	TOPIC	Date	Mode of Delivery	
53	Introduction			
54	Historical Background of Cyber forensics			
55	Digital Forensics Science			
56	The Need for Computer Forensics			
57	Cyber forensics and Digital Evidence		Lecture interspersed with discussions	
58	Forensics Analysis of E-Mail			
59	Digital Forensics Life Cycle			
60	Chain of Custody Concept			
61	Network Forensics	From:		
62	Approaching a Computer Forensics Investigation	26-10-2023		
63	Computer Forensics and Steganography			
64	Relevance of the OSI 7 Layer Model to Computer Forensics			
65	Forensics and Social Networking Sites: The Security/Privacy Threats			
66	Computer Forensics from Compliance Perspective			
67	Challenges in Computer Forensics			
68	Special Tools and Techniques	To:	Lecture interspersed	
69	Forensics Auditing	25-11-2023	with discussions	
70	Antiforensics		The state of the s	

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Cloud Computing with AWS / R204105W

Year / Semester: IV/I Section: I A.Y: 2023-24

Mode of Delivery: Onboard, PPT

No. of Periods	TOPIC	Date	Mode of Delivery	
CO1: Ut TB: Jud	I Introduction of Cloud Computing nderstand and analyze the architecture of clo lith Hurwitz, M.Kanfman, F. Halper "Clou First edition		ummies", wiley indi	
- 1	What is cloud computing		1000	
2	How it works		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
3	Types of cloud	From:	P. P. C. L. S.	
4	Goals & Challenges	24.07.2023	Lecture intersperse	
5	Leveraging cloud computing		with discussions	
6	Cloud economics	To: 4.08.2023	The state of the s	
7	Total cost of ownership			
CO2: Ar	Tutorial Cloud Service Models nalyze the deployment of cloud service model ith Hurwitz M Kanfman F. Halper "Cloud			
UNIT-II CO2: Ai TB: Jud edition,	Cloud Service Models nalyze the deployment of cloud service model ith Hurwitz, M.Kanfman, F. Halper "Cloud of First edition		nies", wiley india	
UNIT-II CO2: Ai TB: Jud edition, 1	Cloud Service Models nalyze the deployment of cloud service model ith Hurwitz, M.Kanfman, F. Halper "Cloud of First edition Software as a service introduction		nies", wiley india	
UNIT-II CO2: Ar TB: Jud edition, 1 9	Cloud Service Models nalyze the deployment of cloud service model ith Hurwitz, M.Kanfman, F. Halper "Cloud of First edition Software as a service introduction Challenges in SaaS model		nies", wiley india	
UNIT-II CO2: Ar TB: Jud edition, 9 10	Cloud Service Models nalyze the deployment of cloud service model ith Hurwitz, M.Kanfman, F. Halper "Cloud of First edition Software as a service introduction Challenges in SaaS model SaaS Integration Services		nies", wiley india	
UNIT-II CO2: Ar TB: Jud edition, 9 10 11	Cloud Service Models nalyze the deployment of cloud service model ith Hurwitz, M.Kanfman, F. Halper "Cloud of First edition Software as a service introduction Challenges in SaaS model SaaS Integration Services Advantages and Disadvantages		nies", wiley india	
UNIT-II CO2: Ar TB: Jud edition, 9 10 11 12 13	Cloud Service Models nalyze the deployment of cloud service model ith Hurwitz, M.Kanfman, F. Halper "Cloud of First edition Software as a service introduction Challenges in SaaS model SaaS Integration Services Advantages and Disadvantages Infrastructure as a service introduction	Computing for Dumn		
UNIT-II CO2: Ar TB: Jud edition, 9 10 11 12 13	Cloud Service Models nalyze the deployment of cloud service models ith Hurwitz, M.Kanfman, F. Halper "Cloud of First edition Software as a service introduction Challenges in SaaS model SaaS Integration Services Advantages and Disadvantages Infrastructure as a service introduction Virtual machines	From: 07.08.2023	Lecture intersperses	
UNIT-II CO2: Ar TB: Jud edition, 9 10 11 12 13	Cloud Service Models nalyze the deployment of cloud service models ith Hurwitz, M.Kanfman, F. Halper "Cloud of First edition Software as a service introduction Challenges in SaaS model SaaS Integration Services Advantages and Disadvantages Infrastructure as a service introduction Virtual machines VM Migration services	From: 07.08.2023	Lecture interspersed with discussions	
UNIT-II CO2: Ar TB: Jud edition, 9 10 11 12 13 14 15	Cloud Service Models nalyze the deployment of cloud service models ith Hurwitz, M.Kanfman, F. Halper "Cloud of First edition Software as a service introduction Challenges in SaaS model SaaS Integration Services Advantages and Disadvantages Infrastructure as a service introduction Virtual machines	From: 07.08.2023	Lecture interspersed	
UNIT-II CO2: Ar TB: Jud edition, 9 10 11 12 13 14 15	Cloud Service Models nalyze the deployment of cloud service models ith Hurwitz, M.Kanfman, F. Halper "Cloud of First edition Software as a service introduction Challenges in SaaS model SaaS Integration Services Advantages and Disadvantages Infrastructure as a service introduction Virtual machines VM Migration services Advantages and Disadvantages Platform as a service introduction	From: 07.08.2023	Lecture interspersed	
UNIT-II CO2: Ar TB: Jud edition, 9 10 11 12 13 14 15 16	Cloud Service Models nalyze the deployment of cloud service model ith Hurwitz, M.Kanfman, F. Halper "Cloud of First edition Software as a service introduction Challenges in SaaS model SaaS Integration Services Advantages and Disadvantages Infrastructure as a service introduction Virtual machines VM Migration services Advantages and Disadvantages	From: 07.08.2023	Lecture intersperses	

No. of Periods	TOPIC	Date	Mode of Delivery
	III Virtualization and Abstraction	A RESERVE OF	
	nalyze the virtualization and abstraction in cl	and computing	
TB: Ju	dith Hurwitz, M.Kanfman, F. Halper "Clou	d Computing for D	ummies" wiley indi
	First edition	a Computing for D	unimics , whey man
21	What is virtualization		
22	How abstraction is provided in cloud	From:	
23	Advantages and Disadvantages	01.09.2023	Lecture intersperse
24	Types of hypervisor		with discussions
25	Loadbalancing	To:	with discussions
26	Tutorial	23.09,2023	
The latest work or printing	V Amazon Web Services		
and Par	jkumar Buyya, James Broberg, Andrej M.Gor radigms", Wiley Publication,2011. Getting started with AWS	schiski, Cloud Com	puting: Principles
28	AWS compute		
29	Storage		
30	Networking	From:	Lecture intersperse
31	AWS security	25.09.2023	with discussions
32	Identity and Access Management		The state of the s
33	AWS database options	To:	
34	AWS elasticity	18.10.2023	
35	Management tools		
36	Tutorial		
-	Architecting on AWS		
FB: Raj and Par	esign architectures to decouple infrastructure jkumar Buyya, James Broberg, Andrej M.Gos adigms", Wiley Publication,2011.	and reduce interder cinski, "Cloud Com	endencies. puting: Principles
37	AWS essentials review		
37			5-35-5-
	AWS essentials review		
38 39 40	AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling		Lecture interspersed
38 39 40 41	AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices	From	Lecture interspersed with discussions
38 39 40 41 42	AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security	From:	The second secon
38 39 40 41 42 43	AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security Reliability	From: 19.10.2023	The second secon
38 39 40 41 42 43 44	AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security Reliability Performance efficiency	19.10.2023	The second secon
38 39 40 41 42 43 44 45	AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security Reliability Performance efficiency Cost optimization	December 1987	The second secon
38 39 40 41 42 43 44 45 46	AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security Reliability Performance efficiency	19.10.2023 To:	The second secon
38 39 40 41 42 43 44 45	AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security Reliability Performance efficiency Cost optimization	19.10.2023 To:	The second secon
38 39 40 41 42 43 44 45 46	AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security Reliability Performance efficiency Cost optimization Deployment and implementation	19.10.2023 To:	The second secon

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Cloud Computing with AWS / R204105W

Year / Semester: IV/I Section: II A.Y: 2023-24

Mode of Delivery: Onboard, PPT

No. of Periods	TOPIC	Date	Mode of Delivery	
UNIT-I	Introduction of Cloud Computing		Sales Pales	
CO1: Un TB: Jud	iderstand and analyze the architecture of clo lith Hurwitz, M.Kanfman, F. Halper "Clou First edition		ummies", wiley indi	
1	What is cloud computing		2'8 C. J. ISS	
2	How it works		A STATE OF THE STA	
3	Types of cloud	From:		
4	Goals & Challenges	24.07.2023	Lecture interspersed	
5	Leveraging cloud computing		with discussions	
6	Cloud economics	To: 4.08.2023		
7	Total cost of ownership			
8	Tutorial	THE STATE OF THE S	Paris Contract	
edition, l	ith Hurwitz, M.Kanfman, F. Halper "Cloud First edition	Computing for Dumn	nies", wiley india	
9	Software as a service introduction			
10	Challenges in SaaS model			
11	SaaS Integration Services			
12	Advantages and Disadvantages	From:		
13	Infrastructure as a service introduction	07.08.2023		
14	Virtual machines	07.08.2023	Lecture interspersed	
15	VM Migration services	To:	with discussions	
16	Advantages and Disadvantages	31.08.2023	February 1	
17	Platform as a service introduction	51,00,2023		
18				
	Integration on private and public cloud			
19	Advantages and Disadvantages Tutorial			

Danie I.	TOPIC	Date	Mode of Delivery
Periods	II Virtualization and Abstraction	45000	Personal Provider Annual
	nalyze the virtualization and abstraction in cl	and computing	
	dith Hurwitz, M.Kanfman, F. Halper "Clou		ummies" wiley indi
	First edition	a companing for D	unnines , whey mu
21	What is virtualization		
22	How abstraction is provided in cloud	From:	
23	Advantages and Disadvantages	01.09.2023	I astura interconne
24	Types of hypervisor		Lecture intersperses with discussions
25	Loadbalancing	To:	with discussions
26	Tutorial	23.09.2023	
	V Amazon Web Services		1
and Par	kumar Buyya, James Broberg, Andrej M.Go adigms", Wiley Publication,2011.	scinski, "Cloud Com	puting: Principles
27	Getting started with AWS	1	Part San Property
28	AWS compute		
29	Storage	Pour	Lecture intersperses
30	Networking	From: 25.09.2023	with discussions
31	AWS security	25.09.2023	
32	Identity and Access Management	To:	
33	AWS database options	18.10.2023	
34	AWS elasticity	10.10.2025	2001/2017/20
35	Management tools	The state of the s	Design of the U.S.
36	Tutorial		
	Architecting on AWS		
TB: Ra	esign architectures to decouple infrastructure kumar Buyya, James Broberg, Andrej M.Go: adigms", Wiley Publication,2011.		
TB: Raj	kumar Buyya, James Broberg, Andrej M.Gos		
TB: Raj and Par	kumar Buyya, James Broberg, Andrej M.Go: adigms", Wiley Publication,2011.		
TB: Raj and Par 37 38 39	kumar Buyya, James Broberg, Andrej M.Gos adigms", Wiley Publication,2011. AWS essentials review System design for high availability Automation and serverless architectures		
TB: Raj and Par 37 38 39 40	kumar Buyya, James Broberg, Andrej M.Gos adigms", Wiley Publication,2011. AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling		puting: Principles
TB: Raj and Par 37 38 39 40 41	kumar Buyya, James Broberg, Andrej M.Gos adigms", Wiley Publication, 2011. AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices	scinski, "Cloud Com	puting: Principles
TB: Raj and Par 37 38 39 40 41 42	kumar Buyya, James Broberg, Andrej M.Gos adigms", Wiley Publication,2011. AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security	From:	puting: Principles Lecture interspersed
TB: Raj and Par 37 38 39 40 41 42 43	kumar Buyya, James Broberg, Andrej M.Gos adigms", Wiley Publication, 2011. AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security Reliability	scinski, "Cloud Com	puting: Principles Lecture interspersed
TB: Raj and Par 37 38 39 40 41 42 43 44	kumar Buyya, James Broberg, Andrej M.Gos adigms", Wiley Publication,2011. AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security Reliability Performance efficiency	From:	puting: Principles Lecture interspersed
TB: Raj and Par 37 38 39 40 41 42 43	kumar Buyya, James Broberg, Andrej M.Gos adigms", Wiley Publication, 2011. AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security Reliability	From: 19.10.2023	puting: Principles Lecture interspersed
TB: Raj and Par 37 38 39 40 41 42 43 44	kumar Buyya, James Broberg, Andrej M.Gos adigms", Wiley Publication,2011. AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security Reliability Performance efficiency	From: 19.10.2023	puting: Principles Lecture interspersed
TB: Raj and Par 37 38 39 40 41 42 43 44 45	kumar Buyya, James Broberg, Andrej M.Goradigms", Wiley Publication, 2011. AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security Reliability Performance efficiency Cost optimization	From: 19.10.2023	puting: Principles Lecture interspersed
TB: Raj and Par 37 38 39 40 41 42 43 44 45 46	kumar Buyya, James Broberg, Andrej M.Goradigms", Wiley Publication, 2011. AWS essentials review System design for high availability Automation and serverless architectures Event-Driven scaling Well architected best practices Security Reliability Performance efficiency Cost optimization Deployment and implementation	From: 19.10.2023	puting: Principles Lecture interspersed

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code	e: UNIVERSAL	HUMAN VAL	JIES-2

Year / Semester: IV/I Section: 1 A.Y: 2023-24 Mode of Delivery: Onboard/PPT
No. of Topics

No. of Periods	TOPIC	Date	Remarks
UNIT 1 - C FOR VAL	COURSE INTRODUCTION - NEED, BASIC GUIDELINE UE EDUCATION	S, CONTENT A	ND PROCESS
TB :: "A f	ain the student for Development of a holistic perspective b human being), family, society and nature/existence. oundational course in Human Values and Professional E Excel Books".	(See (See (See (See (See (See (See (See	
1	Introduction		The second
2	Need ,Basic Guide lines for Value Education		Lecture Interspersed with discussions
3	Content and Process for Value Education		
4	Introduction to Self-Exploration	1955	
5	Self-Exploration content and process		
6	Personality Traits		
7	Self Excellence, Natural Acceptance" and Experiential Validation"		
8	The process for self-exploration	From:	
9	Adaptability, Belief and Understanding- Self discipline	17-07-2023	
10	Continuous Happiness and Prosperity		
11	A look at basic Human Aspirations	To:	
12	Right understanding, Relationship and Physical Facility	10-08-2023	
13	the basic requirements for fulfillment of aspirations of every human being with their correct priority		
14	Method to fulfill the above human aspirations		
15	Understanding and living in harmony at various levels.	The first and the	

UNIT -II UNDERSTANDING HARMONY IN THE HUMAN BEING - HARMONY IN MYSELF!

Myers-Briggs Type Indicator (MBTI) Personality test

CO2: To understand Harmony in the Human Being - characteristics and activities and harmony in I and correct appraisal of Physical needs, meaning of Prosperity in detail.

TB :: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP Bagaria, "Excel Books".

17	Introduction Understanding Harmony in the Human Being	100000000000000000000000000000000000000	Lecture Interspersed with discussions
18	Understanding human being as a co-existence of the sentient I" and the material "Body"	From:	
19	Understanding the needs of Self (I) and Body " - happiness and physical facility"		
20	Understanding the Body as an instrument of 1	14-08-2023	
21	I being the doer, seer and enjoyer		
22	Habits and Hobbies	To:	
23	SWOT Analysis (Activity)	31-08-2023	
24	Understanding the characteristics and activities of I		
25	Harmony in I		

26	Dalai Lamas" Tibetan Personality Test"
27	.Understanding the harmony of I with the Body
28	Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail
29	Programs to ensure Sanyam and Health
30	Epidemiology- Definition of health, Social and Preventive Medicine, Personal hygiene and handling stress
31	WHO Guidelines

UNIT - III UNDERSTANDING HARMONY IN THE FAMILY AND SOCIETY- HARMONY IN HUMAN RELATIONSHIP

CO3: To understand (or develop clarity) the harmony in the human being, family, society and Human Relationship

TB:: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP Bagaria" Excel Books".

32	Introduction Understanding Harmony in the Family and Society		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
33	Harmony in Human-Human Relationship		Lecture Interspersed with discussions
34	Understanding values in human-human relationship		
35	meaning of Justice, Trust and Respect as the foundational values of relationship		
36	Understanding the meaning of Trust; Difference between intention and competence	From:	
37	Understanding the meaning of Respect, Difference between respect and differentiation	01-09-2023	
38	The other salient values in relationship, Friends and Foes, Empathy, False Prestige.	To: 26-09-2023	
39	Concept of an Ideal family- Marriage as an Institution	200	
40	Understanding the harmony in the society		
41	Visualizing a universal harmonious order in society		
42	Undivided Society, Universal Human Order- from family to world family.		
HNIT IV	INDEDCT ANDRES IT BASES IN THE		

UNIT – IV : UNDERSTANDING HARMONY IN THE NATURE AND EXISTENCE - WHOLE EXISTENCE AS COEXISTENCE

CO4: To strengthen the students in Understanding Existence as Co-existence of mutually interacting units in all- pervasive space, Holistic perception of harmony at all levels of existence.

B:: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP Bagaria," "Excel Books".

43	Introduction to Understanding Harmony in the Nature and Existence	1000	E TELEBO
44	Whole existence as Coexistence	From: 27-09-2023 To: 18-10-2023	Lecture Interspersed with discussions
45	Understanding the harmony in the Nature and its Equanimity		
46	Respect for all, Nature as Teacher		
47	Interconnectedness and mutual fulfillment among the four orders of nature		
48	Recyclability and self-regulation in nature		
49	Understanding Existence as Co-existence of mutually interacting units in all		
50	pervasive space		
51	Holistic perception of harmony at all levels of existence.		
52	practice sessions		

IMPLICATIONS OF THE ABOVE HOLISTIC UNDERSTANDING OF HARMONY ON PROFESSIONAL ETHICS

CO5: To Infuse the student with Humanistic Education, Humanistic Constitution and Humanistic Universal Order

TB:: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP

Bagaria "Excel Books".

53	Implications of the above Holistic Understanding of Harmony on Professional Ethics	From:	Lecture Interspersed with discussions
54	Natural acceptance of human values		
55	Definitiveness of Ethical Human Conduct		
56	Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order		
57	Competence in professional ethics	19-10-2023	
58	Case studies of typical holistic technologies, management models and production systems	To: 11-11-2023	
- 59	Vision for the Holistic alternatives, UHVs for entrepreneurship		
60	Strategy for transition from the present state to Universal Human Order		
61	(a) At the level of individual(b) At the level of society		
62	practice sessions and Case Studies		



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: UNIVERSAL HUMAN VALUES-2

Year / Semester: IV/I Section: II A.Y: 2023-24 Mode of Delivery: Onboard/PPT

No. of Periods	TOPIC	Date	Remarks
	COURSE INTRODUCTION - NEED, BASIC GUIDELIN UE EDUCATION		
B :: "A	rain the student for Development of a holistic perspective less human being), family, society and nature/existence, foundational course in Human Values and Professional Excel Books".		
1	Introduction		
2	Need ,Basic Guide lines for Value Education		The state of
3	Content and Process for Value Education		Lecture Interspersed with discussions
4	Introduction to Self-Exploration		
5	Self-Exploration content and process	- 3	
6	Personality Traits		
7	Self Excellence, Natural Acceptance" and Experiential Validation"	- Contract	
8	The process for self-exploration	P	
9	Adaptability, Belief and Understanding- Self discipline	From: 17-07-2023	
10	Continuous Happiness and Prosperity	17-07-2023	
11	A look at basic Human Aspirations	To:	
12	Right understanding, Relationship and Physical Facility	10-08-2023	
13	the basic requirements for fulfillment of aspirations of every human being with their correct priority		
14	Method to fulfill the above human aspirations	-	
15	Understanding and living in harmony at various levels.	-	
	the state of the s		

UNIT -II UNDERSTANDING HARMONY IN THE HUMAN BEING - HARMONY IN MYSELF! CO2: To understand Harmony in the Human Being - characteristics and activities and harmony in I and correct appraisal of Physical needs, meaning of Prosperity in detail.

TB :: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP Bagaria, "Excel Books".

17	Introduction Understanding Harmony in the Human Being		
18	and the material "Body"	From:	Lecture Interspersed with discussions
19	Understanding the needs of Self (I) and Body " - happiness and physical facility"		
20	Understanding the Body as an instrument of I	14-08-2023	
21	I being the doer, seer and enjoyer	14-08-2023	
22	Habits and Hobbies	To: 31-08-2023	
23	SWOT Analysis (Activity)		
24	Understanding the characteristics and activities of 1		
25	Harmony in I		

26	Dalai Lamas" Tibetan Personality Test"	
27	to the diagram of I with the Body	
28	Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail	
29	n and to ensure Sanyam and Health	
30	Epidemiology- Definition of health, Social and Preventive Medicine, Personal hygiene and handling stress	
31	WHO Guidelines	SOCIETY- HARMONY I

UNIT - III UNDERSTANDING HARMONY IN THE FAMILY AND SOCIETY-

CO3: To understand (or develop clarity) the harmony in the human being, family, society and

TB :: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP

Bagaria " Excel Books".

Bagaria "E	KCCI BOOKS .		
32	Introduction Understanding Harmony in the Family and Society	000	
33	Harmony in Human-Human Relationship		
34	Understanding values in human-human relationship	1	
35	meaning of Justice, Trust and Respect as the foundational values	From: 01-09-2023 To:	Lecture Interspersed with
36	Understanding the meaning of Trust; Difference between intention		
37	Understanding the meaning of Respect, Difference between		
38	The other salient values in relationship, Friends and Foes, Empathy, False Prestige.	26-09-2023	discussions
39	Concept of an Ideal family- Marriage as an Institution		
40	Understanding the harmony in the society		56Vm
41	Visualizing a universal harmonious order in society		
42	Undivided Society, Universal Human Order- from family to world		CE WHOLE

UNIT - IV: UNDERSTANDING HARMONY IN THE NATURE AND EXISTENCE - WHOLE EXISTENCE AS COEXISTENCE

CO4: To strengthen the students in Understanding Existence as Co-existence of mutually interacting units in all- pervasive space, Holistic perception of harmony at all levels of existence.

TB :: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP

Bagaria "" Evcel Books"

Bagaria ," "	Excel Books". Introduction to Understanding Harmony in the Nature and		
300-5	Existence		Lecture Interspersed with discussions
44	Whole existence as Coexistence		
45	Understanding the harmony in the Nature and its Equanimity		
46	Respect for all, Nature as Teacher	From:	
47	Interconnectedness and mutual fulfillment among the four orders of nature	27-09-2023	
48	Recyclability and self-regulation in nature	To:	
49	Understanding Existence as Co-existence of mutually interacting units in all	18-10-2023	
50	pervasive space		
51	Holistic perception of harmony at all levels of existence.		
52	practice sessions		

UNIT - V IMPLICATIONS OF THE ABOVE HOLISTIC UNDERSTANDING OF HARMONY ON PROFESSIONAL ETHICS

CO5: To Infuse the student with Humanistic Education, Humanistic Constitution and Humanistic Universal Order

TB:: "A foundational course in Human Values and Professional Ethics by RR Gaur, R Sangal, GP Bagaria" Excel Books".

53	Implications of the above Holistic Understanding of Harmony on Professional Ethics		Lecture Interspersed with discussions
54	Natural acceptance of human values		
55	Definitiveness of Ethical Human Conduct		
56	Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order	1.	
57	Competence in professional ethics	From: 19-10-2023	
58	Case studies of typical holistic technologies, management models and production systems	To: 11-11-2023	
59	Vision for the Holistic alternatives, UHVs for entrepreneurship		
60	Strategy for transition from the present state to Universal Human Order		
61	(a) At the level of individual(b) At the level of society		
62	practice sessions and Case Studies		

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