SRK INSTITUTE OF TECHNOLOGY, ENIKEPADU, VIJAYAWADA -521108
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ISO 9001:2015 Certified Institution
Accredited with NAAC 'A' grade
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			
CO1:	Apply the basic concepts of semiconductor physics. Understand the formation of p-n junction and how it can be used as a p-n junction as diode in different modes of operation.		
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHill, Second Edition, 2007		
1	**Introduction**	From 02/08/23 To 02/09/23	Lecture interspersed with discussions
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		
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,		
11	Intrinsic concentration, law of mass action		
12	Diffusion current density		
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 filters with relevant expressions and necessary comparisons.		
TB2:	Electronic Devices and Circuits -U.A. Bakshi, A.P. Godse, Technical Publications, First Edition, Reprint, 2015		
23	Zener Diode, Breakdown mechanisms, Zener diode applications	From 03/09/23 To 23/09/23	Lecture interspersed with discussions
24	LED, Varactor Diode		
25	Photo diode, Tunnel Diode		
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		
30	bridge rectifier		
31	Tutorial exercise		
32	derivations of characteristics of rectifiers		
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.		
38	Tutorial exercise		
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:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHill, Second Edition, 2007		
39	BJT: Junction transistor	From 24/09/23 To 18/10/23	Lecture interspersed with discussions
40	transistor current components		
41	transistor equation		
42	transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base		
43	Common Emitter and		
44	Common Collector configurations		
45	Tutorial exercise		
46	Ebers-Moll model of a transistor		
47	punch through/reach through effect, Photo transistor		
48	Typical transistor junction voltage values.		
49	FET: FET types construction, operation, characteristics,		
50	μ, gm, rd parameters		
51	MOSFET-types, construction		

52	operation, characteristics		
53	Tutorial exercise		
UNIT- IV: Transistor Biasing and Thermal Stabilization			
CO4:	Know the need of transistor biasing, various biasing techniques for BJT and FET and stabilization concepts with necessary expressions.		
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHill, Second Edition, 2007		
54	Need for biasing	From 19/10/23 To 31/10/23	Lecture interspersed with discussions
55	operating point		
56	load line analysis		
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		
60	Stability factors (S, S', S")		
61	Bias compensation		
62	Thermal runaway, Thermal stability.		
63	FET Biasing-methods and stabilization.		
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UNIT-V: Small Signal Low Frequency Transistor Amplifier Models			
CO5:	Perform the analysis of small-signal low-frequency transistor amplifier circuits using BJT and FET in different configurations		
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHill, Second Edition, 2007		
65	BJT: Two port network	From 01/11/23 To 25/11/23	Lecture interspersed with discussions
66	Transistor hybrid model		
67	determination of h-parameters		
68	conversion of h-parameters		
69	generalized analysis of transistor amplifier model using h-parameters		
70	Tutorial exercise		
71	Analysis of CB		
72	Analysis of CE		
73	Analysis of CC amplifiers using exact and approximate analysis		
74	Comparison of transistor amplifiers. FET: Generalized analysis of small signal model		
75	Analysis of CG amplifier		
76	Analysis of CS amplifiers		
77	Analysis of CD amplifiers		
78	Tutorial exercise		

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S. Sri Gowri
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Course/Code: Electronic Devices and Circuits / R2021041

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

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TENTATIVE LESSON PLAN

Course/Code: Mathematics - III / R2021011

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

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT – I: VECTOR CALCULUS **CO1: To Interpret the physical meaning of different operators such as gradient, curl and divergence. Estimate the work done against a field, circulation and flux using vector calculus.** **TB:" Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications**			
1	**Vector Differentiation:** Introduction	From: 07/08/2023 To 25/08/2023	Lecture interspersed with discussions
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		
8	Properties of gradient		
9	Vector identities		
10	Problems on application of gradient		
11	Problems on divergence and curl		
12	**Vector Integration:** Introduction		
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		
UNIT – II: LAPLACE TRANSFORMS **CO2: To apply the Laplace transform for solving differential equations** **TB:" Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications**			
21	Laplace Transforms: Definitions, Existence	From 26/08/2023	Lecture interspersed
22	Laplace Transform of standard functions		
23	Linearity property; Shifting properties Change of scale property		
24	Laplace Transforms of derivatives; Integrals		

25	$L(t^n f(t))$	To 15/09/2023	with discussions
26	Laplace Transforms of division by t		
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	From 16/09/2023 To 23/09/2023 & From 3/10/2023 To 12/10/2023	Lecture interspersed with discussions
34	Periodic functions		
35	Fourier series of periodic function		
36	Dirchlets conditions		
37	Even and odd functions		
38	Change of interval		
39	Half range sine and cosine series		
40	Fourier transforms		
41	Fourier integral theorem		
42	Fourier sine and cosine integrals		
43	Sine and cosine transforms		
44	Properties		
45	Inverse transforms		
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.Iyengar; S.Chand publications**			
47	Introduction	From 13/10/2023 To 28/10/2023	Lecture interspersed with discussions
48	Formation of PDE by eliminating arbitrary constants		
49	Formation of PDE by eliminating arbitrary functions		
50	Solutions of PDE		
51	Method of grouping		
52	Method of multipliers		
53	Nonlinear PDE $f(p,q) = 0$		
54	Nonlinear PDE $f(p,q,z) = 0$		
55	Nonlinear PDE $f(p,x) = g(q,y)$		
56	Clairaut's equation		
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 **CO5: Identify solution methods for partial differential equations that model physical processes.** **TB:" Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications**			
60	Introduction; Homogeneous Linear P.D.E with constant coefficients; finding CF Finding PI: RHS term of the type $e^{(ax+by)}$	From 30/10/2023 To 19/11/2023	Lecture interspersed with discussions
61	$\sin(ax+by)$; $\cos(ax+by)$		
62	$x^m y^n$		
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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TENTATIVE LESSON PLAN

Course/Code: Mathematics - III / R2021011

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

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UNIT – II: LAPLACE TRANSFORMS **CO2: To apply the Laplace transform for solving differential equations** **TB:" Engineering Mathematics", Dr. T.K.V.Iyengar; S.Chand publications**			
21	Laplace Transforms: Definitions, Existence	From 26/08/2023 To 15/09/2023	Lecture interspersed with discussions
22	Laplace Transform of standard functions		
23	Linearity property; Shifting properties Change of scale property		
24	Laplace Transforms of derivatives; Integrals		
25	$L(t^n f(t))$		
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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.Iyengar; S.Chand publications**			
47	Introduction	From 13/10/2023 To 28/10/2023	Lecture interspersed with discussions
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26/09/23.

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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 formation of p-n junction and how it can be used as a p-n junction as diode in different modes of operation.		
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHill, Second Edition, 2007		
1	**Introduction**	From 02/08/23 To 02/09/23	Lecture interspersed with discussions
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		
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,		
11	Intrinsic concentration, law of mass action		
12	Diffusion current density		
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 filters with relevant expressions and necessary comparisons.		
TB2:	Electronic Devices and Circuits -U.A. Bakshi, A.P. Godse, Technical Publications, First Edition, Reprint, 2015		
23	Zener Diode, Breakdown mechanisms, Zener diode applications	From 03/09/23 To 23/09/23	Lecture interspersed with discussions
24	LED, Varactor Diode		
25	Photo diode, Tunnel Diode		
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		
30	bridge rectifier		
31	Tutorial exercise		
32	derivations of characteristics of rectifiers		
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.		
38	Tutorial exercise		
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:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHill, Second Edition, 2007		
39	BJT: Junction transistor	From 24/09/23 To 18/10/23	Lecture interspersed with discussions
40	transistor current components		
41	transistor equation		
42	transistor configurations: transistor as an amplifier, characteristics of transistor in Common Base		
43	Common Emitter and		
44	Common Collector configurations		
45	Tutorial exercise		
46	Ebers-Moll model of a transistor		
47	punch through/reach through effect, Photo transistor		
48	Typical transistor junction voltage values.		
49	FET: FET types construction, operation, characteristics,		
50	μ, gm, rd parameters		
51	MOSFET-types, construction		

52	operation, characteristics		
53	Tutorial exercise		
UNIT- IV: Transistor Biasing and Thermal Stabilization			
CO4:	Know the need of transistor biasing, various biasing techniques for BJT and FETandstabilization concepts with necessaryexpressions.		
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHill, Second Edition, 2007		
54	Need for biasing	From 19/10/23 To 31/10/23	Lecture interspersed with discussions
55	operating point		
56	load line analysis		
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		
60	Stability factors (S, S', S")		
61	Bias compensation		
62	Thermal runaway, Thermal stability.		
63	FET Biasing-methods and stabilization.		
64	Tutorial exercise		
UNIT-V: Small Signal Low Frequency Transistor Amplifier Models			
CO5:	Perform the analysis of small-signal low-frequency transistor amplifier circuits using BJT and FET in different configurations		
TB1:	Electronic Devices and Circuits-J.Millman, C.Halkias, TataMc-GrawHill, Second Edition, 2007		
65	BJT: Two port network	From 01/11/23 To 18/11/23	Lecture interspersed with discussions
66	Transistor hybrid model		
67	determination of h-parameters		
68	conversion of h-parameters		
69	generalized analysis of transistor amplifier model using h-parameters		
70	Tutorial exercise		
71	Analysis of CB		
72	Analysis of CE		
73	Analysis of CC amplifiers using exact and approximate analysis		
74	Comparison of transistor amplifiers. FET: Generalized analysis of small signal model		
75	Analysis of CG amplifier		
76	Analysis of CS amplifiers		
77	Analysis of CD amplifiers		
78	Tutorial exercise		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Switching Theory and Logic Design / R2021042

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

S. No.	TOPIC	Date	Mode of Delivery
UNIT-I REVIEW OF NUMBER SYSTEMS & CODES AND BOOLEAN THEOREMS AND LOGIC OPERATIONS: **CO1:** An ability to manipulate numeric information in different forms, e.g. different bases, signed integers, apply to generate various codes and analyze new error coding techniques. Theorems and functions of Boolean algebra and behavior of logic gates. **TB1: Digital Design, 5/e, M. Morris Mano, Michael D Ciletti, PEA.**			
1	Introduction	From: 7-8-2023 To: 2-9-2023	Onboard Lecture interspersed with discussions
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		
8	Excess – 3 Code and Arithmetic		
9	2421, 84-2-1 codes		
10	Error Detection & Correction Codes: Parity Checking, Even Parity, Odd Parity		
11	Hamming code		
12	Boolean Theorems and Logic Operations: Postulates of Boolean Algebra		
13	Principle of Complementation & Duality		
14	De-Morgan Theorems		

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	From: 4-9-2023 To: 20-9-2023	Onboard Lecture interspersed with discussions
23	Problems on Minimization		
24	K-Map (up to 6 variables)		
25	Tabular Method (Quine-McCluskey Method) With Only Four Variables and single function.		
26	Design of Half adder, full adder		
27	Design of half subtractor, full subtractor		
28	Applications of Full Adders		
29	4-bit adder-subtractor circuit, BCD adder circuit		
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		

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	From: 21-9-2023 To: 16-10-2023	Onboard Lecture interspersed with discussions
34	Multiplexer and De-Multiplexers		
35	Implementation of higher order circuits using lower order circuits		
36	Realization of Boolean functions using decoders and multiplexers		
37	Design of priority encoder		
38	4-bit digital comparator		
39	Seven segment decoder		
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		

48	Conversion from one flip-flop to another flip-flop	From: 17-10-2023 To: 7-11-2023	Onboard Lecture interspersed with discussions
49	Design of 5ripple counters		
50	Design of synchronous counters, Johnson counter, ring counter		
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 state-machines.			
TB2: Digital Logic and Computer Design, M. Morris Mano, PEA.			
TB3:Switching Theory and Logic Design by A.Anand Kumar, PHI Learning.			
56	Finite State Machine	From: 8-11-2023 To: 18-11-2023	Onboard Lecture interspersed with discussions
57	State Diagrams, State Tables		
58	Reduction of state tables		
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)		
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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TENTATIVE LESSON PLAN

Course/Code: Signals and Systems / R2021043

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

S. No.	TOPIC	Date	Mode of Delivery
UNIT-I INTRODUCTION CO1: Analyze the characteristics of signals, systems and principles of vector space. **TB1: Signals and Systems by A. Anand Kumar, PHI**			
1	Introduction, Definition of Signals and Systems	From: 7-8-2023 To: 2-9-2023	Onboard Lecture interspersed with discussions
2	Classification of Signals, problems on classification		
3	Basic Elementary Signals		
4	Operations on signals: on time and amplitude		
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		
UNIT-II FOURIER SERIES AND FOURIER TRANSFORM CO2: Examine Continues time signals and continues time systems using Fourier series and Fourier Transform. **TB1: Signals and Systems by A. Anand Kumar, PHI**			
12	Fourier Series Representation of CT signals, Dirichlet's conditions		
13	Trigonometric Fourier Series		

14	Exponential Fourier Series	From: 4-9-2023 To: 20-9-2023	Onboard Lecture interspersed with discussions
15	Relation between TFS and EFS		
16	Complex Fourier Spectrum		
17	Properties of Fourier Series		
18	Related Problems		
19	Fourier Transform from Fourier Series		
20	Fourier Transform for standard signals		
21	Properties of Fourier Transforms		
22	Inverse Fourier Transform and related problems		
23	Fourier Transform for periodic signals		
24	Fourier Transform Involving impulse function and signum function		
25	Introduction to Hilbert Transform, Related problems		
UNIT-III SAMPLING THEOREM CO3: Apply sampling theorem and evaluate the concept of Convolution, correlation Energy and Power density spectrum and their relationship **TB1: Signals and Systems by A. Anand Kumar, PHI**			
26	Unit.3 Introduction, linear systems, Impulse response of linear systems	From: 21-9-2023 To: 16-10-2023	Onboard Lecture interspersed with discussions
27	LTI and LTV systems		
28	Concept of convolution in time and frequency domain		
29	Transfer function of LTI system, Related problem		
30	Filter Characteristics of Linear System		
31	Distortion less Transmission Through a System		
32	Signal band-with, System band-width, Ideal LPF,HPF,BPF &BRF Characteristic		

33	Causality and poly-Winer criterianfor physically realization		
34	Relationship between rise time and bandwidth ,problems		
35	Convolution by graphical method		
36	Problems		
37	Tutorial		
38	Problems		

UNIT-IV ANALYSIS OF LINEAR SYSTEMS

CO4: Determine relationship among the various representations of LTI systems.

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

39	Auto and Cross Correlation function	From: 17-10-2023 To: 7-11-2023	Onboard Lecture interspersed with discussions
40	Properties of Correlation function		
41	Problems		
42	Energy density Spectrum, Parsevals theorem		
43	Power density spectrum, relation between auto and cross		
44	Detection of periodic signals in noise		
45	Extraction of signals from noise by filtering		
46	Introduction to sampling theorem		
47	Effect of under sampling ,BP sampling		
48	Related problems		
49	Tutorial		

UNIT-V LAPLACE TRANSFORMS AND Z – TRANSFORMS

CO5: Apply Laplace Transform and z-transforms to analyze continues and discrete time signals .

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

50	Introduction to LT		
51	Region of convergence		

52	Properties of Laplace Transform	From: 8-11-2023 To: 18-11-2023	Onboard Lecture interspersed with discussions
53	Inverse Laplace Transform		
54	Relation between L.T and F.T		
55	L.T using wave form synthesis		
56	Concept of Z-transforms		
57	Region of convergence		
58	Relation between L.T and F.T		
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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TENTATIVE LESSON PLAN

Course/Code: Random Variables and Stochastic Processes / R2021044

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

S.No	TOPIC	Date	Mode of Delivery
UNIT –I THE RANDOM VARIABLE **CO1: Describe the concept of Random Variable, functions based on Random Variable like distribution and density functions.** **TB : Probability, Random Variables & Random Signal Principles, Peyton Z. Peebles, TMH, 4 th Edition, 2001.**			
1	Introduction, Definition of a Random Variable, Conditions for a Function to be a Random Variable.	**From: 07/08/2023 To: 26/08/2023**	Lecture interspersed with discussions
2	Discrete, Continuous and Mixed random variable		
3	Density Function, Properties		
4	Distribution function, Properties		
5	Binomial, Poisson density functions		
6	Uniform , Gaussian Density functions		
7	Exponential, Rayleigh Density functions		
8	Conditional distribution and properties, conditional density		
9	Related problems.		
10	Tutorial		
UNIT –II OPERATION ON ONE RANDOM VARIABLE- EXPECTATIONS **CO2: Determine the expected value, moments on one random variable and their transformations.** **TB : Probability, Random Variables & Random Signal Principles, Peyton Z.Peebles, TMH, 4 th Edition, 2001.**			
11	Introduction, Expected value of a Random Variable, Functions	**From: 28/08/2023 To: 16/09/2023**	Lecture interspersed with discussions
12	Moments about the origin, Central moments		
13	Central moments ,Variance and skew		
14	Characteristic function		
15	Moment generation function		
16	Chebychev's Inequality		
17	Transformations of a random variable: Monotonic transformations for a continuous random variable		
18	Non-monotonic transformations of continuous random variable, Problems		

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	**From: 18/09/2023 To: 16/10/2023**	Lecture interspersed with discussions
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		
25	Problems		
26	Revision		
	OPERATIONS ON MULTIPLE RANDOM VARIABLES		
27	Joint moments about the origin		
28	joint central moments		
29	Joint characteristic function		
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		
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, 4 th Edition, 2001.

36	Random process concept	**From: 17/10/2023 To: 02/11/2023**	Lecture interspersed with discussions
37	Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions		
38	Statistically independent process		
39	Stationary processes-First order, 2nd order, Wide-sense, strict-sense stationary		
40	Time averages, Ergodicity		
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, 4 th 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: 03/11/2023 To: 18/11/2023**	Lecture interspersed with discussions
46	Linear systems with Random inputs		
47	Random signal response of linear system		
48	Auto correlation and cross correlation		
49	Mean and mean- squared value of system response		
50	Cross power density spectra of input and output		
51	Narrow band processes, properties, Problems		

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TENTATIVE LESSON PLAN

Course/Code: Random Variables and Stochastic Processes / R2021044

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

S.No	TOPIC	Date	Mode of Delivery
UNIT –I THE RANDOM VARIABLE **CO1: Describe the concept of Random Variable, functions based on Random Variable like distribution and density functions.** **TB : Probability, Random Variables & Random Signal Principles, Peyton Z. Peebles, TMH, 4 th Edition, 2001.**			
1	Introduction, Definition of a Random Variable, Conditions for a Function to be a Random Variable.	**From: 07/08/2023 To: 26/08/2023**	Lecture followed by problem solving
2	Discrete, Continuous and Mixed random variable		
3	Density Function, Properties		
4	Distribution function, Properties		
5	Binomial, Poisson density functions		
6	Uniform , Gaussian Density functions		
7	Exponential, Rayleigh Density functions		
8	Conditional distribution and properties, conditional density		
9	Related problems.		
10	Tutorial		
UNIT –II OPERATION ON ONE RANDOM VARIABLE- EXPECTATIONS **CO2: Determine the expected value, moments on one random variable and their transformations.** **TB : Probability, Random Variables & Random Signal Principles, Peyton Z. Peebles, TMH, 4 th Edition, 2001.**			
11	Introduction, Expected value of a Random Variable, Functions	**From: 28/08/2023 To: 16/09/2023**	Lecture followed by problem solving
12	Moments about the origin, Central moments		
13	Central moments ,Variance and skew		
14	Characteristic function		
15	Moment generation function		
16	Chebychev's Inequality		
17	Transformations of a random variable: Monotonic transformations for a continuous random variable		
18	Non-monotonic transformations of continuous random variable, Problems		

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	**From: 18/09/2023 To: 16/10/2023**	Lecture followed by problem solving
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		
25	Problems		
26	Revision		
	OPERATIONS ON MULTIPLE RANDOM VARIABLES		
27	Joint moments about the origin		
28	joint central moments		
29	Joint characteristic function		
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		
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.

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36	Random process concept	**From: 17/10/2023 To: 02/11/2023**	Lecture followed by problem solving
37	Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions		
38	Statistically independent process		
39	Stationary processes-First order, 2nd order, Wide-sense, strict-sense stationary		
40	Time averages, Ergodicity		
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

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

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TENTATIVE LESSON PLAN

Course/Code: Analog IC Applications / R2031041

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

No. of Periods	TOPIC	Date	Mode of 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, PHI.			
T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International.			
1.	Introduction	**From: 17-07-2023 To 09-08-2023**	Lecture interspersed with discussions
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		
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		
10.	AC Characteristics-Frequency Compensation		
11.	Tutorial		
12.	Measurements of Op-Amp Parameters		
13.	AC Characteristics		
14.	Slew Rate		
15.	CMRR		
16.	PSRR		
17.	Current Booster		
18.	Three-Terminal Voltage Regulators 78xx& 79xx Series		
19.	Adjustable voltage Regulator		
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, PHI.			
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		
30.	Log Amplifiers		

31.	Anti log Amplifiers	From: 10-08-2023 To: 31-08-2023	Lecture interspersed with discussions
32.	Multiplier and Divider		
33.	Integrator		
34.	Differentiator		
35.	Comparators And Waveform Generators		
36.	Square Wave Generators- Comparator		
37.	Schmitt Trigger		
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: Ability to use OP Amp as Filter.** **T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHI.** **T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International..**			
44.	Design & Analysis of active filters	From: 02-09-2023 To: 29-09-2023	Lecture interspersed with discussions
45.	1st order LPF		
46.	2nd order LPF		
47.	1st order HPF filters		
48.	2nd order HPF		
49.	Tutorial		
50.	Narrow Band Pass Filter		
51.	Wide Band Pass Filter		
52.	Narrow Band Reject Filter		
53.	Wide Band Reject Filter		
54.	All Pass filters		
UNIT - IV TIMERS AND PLL **CO 4: Able to use OP Amp to generate different waveforms and as PLL, Timer.** **T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International.**			
55.	Introduction to 555 timer	From: 30-9-2023 To: 18-10-2023	Lecture interspersed with discussions
56.	Functional Diagram		
57.	Monostable operation		
58.	Applications of Monostable multivibrator		
59.	Ramp generator		
60.	Frequency divider and multiplier		
61.	Astable operation		
62.	Applications of Astable mode		
63.	PLL - Introduction, block schematic		
64.	Principles and description of individual blocks		
65.	565 PLL		
66.	Applications of PLL – frequency multiplication		
67.	Frequency translation		
68.	AM and FM demodulators		
69.	Tutorial		
70.	FSK demodulators		
UNIT – V DIGITAL TO ANALOG AND ANALOG TO DIGITAL CONVERTERS **CO 5: Able to use OP Amp to as analog to digital and digital to analog converter.** **T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHI.**			
71.	Introduction		

72.	Basic DAC techniques - Weighted resistor DAC	**From: 19-10-2023 To: 11-11-2023**	Lecture interspersed with discussions
73.	Weighted resistor DAC		
74.	Tutorial		
75.	R-2R ladder DAC		
76.	Inverted R-2R DAC		
77.	Tutorial		
78.	DAC Specifications		
79.	ADCs – Parallel Comparator ADC		
80.	Counter type ADC		
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

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

No. of Periods	TOPIC	Date	Mode of 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, PHI.			
T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International.			
1.	Introduction	**From: 17-07-2023 To 10-08-2023**	Lecture interspersed with discussions
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		
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		
10.	AC Characteristics-Frequency Compensation		
11.	Tutorial		
12.	Measurements of Op-Amp Parameters		
13.	AC Characteristics		
14.	Slew Rate		
15.	CMRR		
16.	PSRR		
17.	Current Booster		
18.	Three-Terminal Voltage Regulators 78xx& 79xx Series		
19.	Adjustable voltage Regulator		
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, PHI.			
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		
30.	Log Amplifiers		
31.	Anti log Amplifiers		

32.	Multiplier and Divider	From: 14-08-2023 To: 31-08-2023	Lecture interspersed with discussions
33.	Integrator		
34.	Differentiator		
35.	Comparators And Waveform Generators		
36.	Square Wave Generators- Comparator		
37.	Schmitt Trigger		
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: Ability to use OP Amp as Filter.** **T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHI.** **T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International..**			
44.	Design & Analysis of active filters	From: 02-09-2023 To: 29-09-2023	Lecture interspersed with discussions
45.	1st order LPF		
46.	2nd order LPF		
47.	1st order HPF filters		
48.	2nd order HPF		
49.	Tutorial		
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51.	Wide Band Pass Filter		
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55.	Introduction to 555 timer	From: 30-9-2023 To: 20-10-2023	Lecture interspersed with discussions
56.	Functional Diagram		
57.	Monostable operation		
58.	Applications of Monostable multivibrator		
59.	Ramp generator		
60.	Frequency divider and multiplier		
61.	Astable operation		
62.	Applications of Astable mode		
63.	PLL - Introduction, block schematic		
64.	Principles and description of individual blocks		
65.	565 PLL		
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67.	Frequency translation		
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69.	Tutorial		
70.	FSK demodulators		
UNIT – V DIGITAL TO ANALOG AND ANALOG TO DIGITAL CONVERTERS **CO 5: Able to use OP Amp to as analog to digital and digital to analog converter.** **T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHI.**			
71.	Introduction		
72.	Basic DAC techniques - Weighted resistor DAC		
73.	Weighted resistor DAC		

74.	Tutorial	**From: 21-10-2023 To: 11-11-2023**	Lecture interspersed with discussions
75.	R-2R ladder DAC		
76.	Inverted R-2R DAC		
77.	Tutorial		
78.	DAC Specifications		
79.	ADCs – Parallel Comparator ADC		
80.	Counter type ADC		
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

S.No	TOPIC	Date	Mode of Delivery
UNIT –I Intoduction to Traditional Knowledge **CO1: Understand the concept of Traditional Knowledege and its importance** **TB : Traditional Knowledge System in India, by Amit jha,2009**			
1	Define Tradional knowledge , Scope and importance	**From: 10/08/2023 To: 24/08/2023**	Lecture interspersed with discussions
2	Kinds of Traditional Knowledge		
3	The physical and social contexts in which traditional knowledge develop		
4	The historical impact of social change on Traditional knowledge system		
5	Indigenous knowledge (Ik)		
UNIT –II *Basic structure of Indian Knowledge System:* **CO2:** Classify the Indian Traditional Knowledge **TB :** Krishna Chaitanya, Arts of India, Abhinav Publications, 1987			
6	AstadashVidya- 4	**From: 25/08/2023 To: 20/09/2023**	Lecture interspersed with discussions
7	Upaved (Ayurved,Dhanurved,GandharvaVed&SthapthyaAdi)		
8	6vedanga(Shisha,Kalppa,Nirukha,Vykaran,J yothisha&Chand)		
9	upanga(Dharmashastra,Meemamsa,purana&Tharka Shastra).		
10	structure of Indian Knowledge System		
UNIT –III *Modern Science and Indian Knowledge System-* **CO3:** Compare Modern Science with Indian Traditional Knowledge system. **TB:** . Sivaramakrishnan (Ed.), Cultural Heritage of India-course material, BharatiyaVidya			
11	-Indigenous Knowledge,	**From: 20/09/2023 To: 16/10/2023**	Lecture interspersed with discussions
12	Characteristics- Yoga and Holistic Health care-cases studies.		
13	Importance of Health care		
14	Cultural heritage of India		
15	Modern Science with Traditional Knowledge		

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.			
16	The need for protecting traditional knowledge -	**From: 17/10/2023 To: 01/11/2023**	Lecture interspersed with discussions
17	Significance of Traditional knowledge		
18	Protection-Role of government to harness Traditional Knowledge		
UNIT – *Impact of Traditions* **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: 01/11/2023 To: 15/11/2023**	Lecture interspersed with discussions
20	Vyshepec, Sankhya, Yog, Meemamsa,		
21	Vedantha, Chavanka, Jain &Boudh		
22	Indian Artistic Tradition - Chitrakala,		

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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:** II **A.Y:** 2023-24

S.No	TOPIC	Date	Mode of Delivery
UNIT –I Intoduction to Traditional Knowledge **CO1: Understand the concept of Traditional Knowledege and its importance** **TB : Traditional Knowledge System in India, by Amit jha,2009**			
1	Define Tradional knowledge , Scope and importance	**From: 12/08/2023 To: 22/08/2023**	Lecture interspersed with discussions
2	Kinds of Traditional Knowledge		
3	The physical and social contexts in which traditional knowledge develop		
4	The historical impact of social change on Traditional knowledge system		
5	Indigenous knowledge (Ik)		
UNIT –II *Basic structure of Indian Knowledge System:* **CO2:** Classify the Indian Traditional Knowledge **TB :** Krishna Chaitanya, Arts of India, Abhinav Publications, 1987			
6	AstadashVidya- 4	**From: 22/08/2023 To: 18/09/2023**	Lecture interspersed with discussions
7	Upaved (Ayurved,Dhanurved,GandharvaVed&SthapthyaAdi)		
8	6vedanga(Shisha,Kalppa,Nirukha,Vykaran,J yothisha&Chand)		
9	upanga(Dharmashastra,Meemamsa,purana&Tharka Shastra).		
10	structure of Indian Knowledge System		
UNIT –III *Modern Science and Indian Knowledge System-* **CO3:** Compare Modern Science with Indian Traditional Knowledge system. **TB:** . Sivaramakrishnan (Ed.), Cultural Heritage of India-course material, BharatiyaVidya			
11	-Indigenous Knowledge,	**From: 18/09/2023 To: 20/10/2023**	Lecture interspersed with discussions
12	Characteristics- Yoga and Holistic Health care-cases studies.		
13	Importance of Health care		
14	Cultural heritage of India		
15	Modern Science with Traditional Knowledge		

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.			
16	The need for protecting traditional knowledge -	**From: 20/10/2023 To: 01/11/2023**	Lecture interspersed with discussions
17	Significance of Traditional knowledge		
18	Protection-Role of government to harness Traditional Knowledge		
UNIT – *Impact of Traditions* **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: 01/11/2023 To: 15/11/2023**	Lecture interspersed with discussions
20	Vyshepec, Sankhya, Yog, Meemamsa,		
21	Vedantha, Chavanka, Jain &Boudh		
22	Indian Artistic Tradition - Chitrakala,		

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TENTATIVE LESSON PLAN

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

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

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I TRANSMISSION LINES-I **CO1 : Demonstrate and compute various parameters for transmission lines using either a smith chart or classical theory.** **TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001.**			
1	Types, Parameters	**From: 27.07.2023** **To: 07.08.2023**	On Black Board
2	T & π equivalent circuits		
3	Transmission Line Equations		
4	Primary & Secondary Constants		
5	Expression for Characteristic Impedance		
6	Propagation Constant		
7	Phase & group Velocities		
8	Infinite Line Concepts		
9	Lossless lines/Low Loss Characterization		
10	Distortion – Condition for Distortion less lines and Minimum Attenuation		
11	Loading - Types of Loading		
12	Illustrative Problems		
UNIT-II TRANSMISSION LINES-II **CO2: Differentiate matching networks for loaded transmission lines for OC and SC.** **TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001.**			
13	Input Impedance Relations, SC and OC Lines	**From: 08.08.2023**	On Black Board
14	Reflection Coefficient, VSWR		
15	Low loss radio frequency lines		
16	UHF Transmission lines		
17	$\lambda/4$, $\lambda/2$, $\lambda/8$ Lines – Impedance Transformations		
18	Smith Chart – Construction and Applications		
19	Smith Chart – Construction and Applications		

20	Quarter wave transformer	To: 02.09.2023	
21	Single and Double Stub Matching		
22	Illustrative Problems		
UNIT-III ELECTROSTATICS **CO3: Determine E using various laws and applications of electro static fields.** **TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001**			
23	Review of Coordinate System	From: 04.09.2023 To: 05.10.2023	On Black Board
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		
29	Convection and Conduction Currents		
30	Dielectric Constant, Continuity Equation, Relaxation Time		
31	Poisson's and Laplace's Equations		
32	Capacitance: Parallel Plate, Coaxial capacitors		
33	Illustrative Problems		
34	Illustrative Problems		
UNIT-IV MAGNETOSTATICS & MAXWELL EQUATIONS (TIME VARYING FIELD) **CO4: Determine H using various laws and applications of magneto static fields & Derive Maxwell Equations in Time Varying Fields.** **TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001.**			
35	Biot-Savart Law, Ampere's Circuital Law and Applications	From: 06.10.2023 To: 19.10.2023	On Black Board
36	Magnetic Flux Density, Maxwell Equations for MSF		
37	Magnetic Scalar and Vector Potentials		
38	Forces due to Magnetic Fields		
39	Ampere's Force Law, Inductances, Magnetic Energy		
40	Illustrative Problems		
41	Faraday's Law and Transformer emf		
42	Inconsistency of Ampere's Law		
43	Displacement Current Density		
44	Maxwell's Equations in Different Final Forms		
45	Conditions at Boundary Surface: Dielectric-Dielectric Interfaces		
46	Dielectric-Conductor Interfaces		

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.**			
47	Wave Equations for Conducting and Dielectric Media	**From: 25.10.2023** **To: 10.11.2023**	On Black Board
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		
53	Skin depth, Polarization & Types		
54	Illustrative Problems		
55	Reflection and Refraction of Plane Waves		
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		
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 **CO1 : Demonstrate and compute various parameters for transmission lines using either a smith chart or classical theory.** **TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001.**			
1	Types, Parameters	**From: 27.07.2023** **To: 07.08.2023**	On Black Board
2	T & π equivalent circuits		
3	Transmission Line Equations		
4	Primary & Secondary Constants		
5	Expression for Characteristic Impedance		
6	Propagation Constant		
7	Phase & group Velocities		
8	Infinite Line Concepts		
9	Lossless lines/Low Loss Characterization		
10	Distortion – Condition for Distortion less lines and Minimum Attenuation		
11	Loading - Types of Loading		
12	Illustrative Problems		
UNIT-II TRANSMISSION LINES-II **CO2: Differentiate matching networks for loaded transmission lines for OC and SC.** **TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001.**			
13	Input Impedance Relations, SC and OC Lines	**From: 07.08.2023**	On Black Board
14	Reflection Coefficient, VSWR		
15	Low loss radio frequency lines		
16	UHF Transmission lines		
17	λ/4, λ /2, λ/8 Lines – Impedance Transformations		
18	Smith Chart – Construction and Applications		
19	Smith Chart – Construction and Applications		

20	Quarter wave transformer	To: 02.09.2023	
21	Single and Double Stub Matching		
22	Illustrative Problems		
UNIT-III ELECTROSTATICS **CO3: Determine E using various laws and applications of electro static fields.** **TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001**			
23	Review of Coordinate System	From: 04.09.2023 To: 05.10.2023	On Black Board
24	Coulomb's Law		
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35	Biot-Savart Law, Ampere's Circuital Law and Applications	From: 06.10.2023 To: 19.10.2023	On Black Board
36	Magnetic Flux Density, Maxwell Equations for MSF		
37	Magnetic Scalar and Vector Potentials		
38	Forces due to Magnetic Fields		
39	Ampere's Force Law, Inductances, Magnetic Energy		
40	Illustrative Problems		
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43	Displacement Current Density		
44	Maxwell's Equations in Different Final Forms		
45	Conditions at Boundary Surface: Dielectric-Dielectric Interfaces		
46	Dielectric-Conductor Interfaces		

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.

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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		
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53	Skin depth, Polarization & Types		
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TENTATIVE LESSON PLAN

Course/Code: Digital Communications / R2031043

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

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I Pulse Digital Modulation **CO1: Explain the working of pulse digital modulation systems such as PCM, DPCM and DM.** **Communication Systems.** **TB: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.** **2. Digital communications - Simon Haykin, John Wiley, 2005**			
1.	Elements of digital communication systems	**From: 24.07.2023 To: 18.08.2023**	Lecture interspersed with discussions
2.	Advantages of digital communication systems		
3.	Elements of PCM: Sampling		
4.	Quantization and coding		
5.	Quantization error		
6.	Companding in PCM systems		
7.	Differential PCM		
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		
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	**From: 19.08.2023 To: 31.08.2023**	Lecture interspersed with discussions
14.	Introduction		
15.	ASK		
16.	FSK		
17.	PSK		
18.	DPSK		
19.	DEPSK		
20.	QPSK		
21.	M-ary PSK		

22.	M-ary ASK		
23.	M-ary FSK		
24.	Similarity of BFSK and BPSK		
UNIT - III Data Transmission **CO3: Analyze the performance of various Digital Modulation systems in terms of probability of error.** **TB : 1. Communication Systems - Simon Haykin, John Wiley, 3/e.** **2. Digital communications - Simon Haykin, John Wiley, 2005**			
25.	Baseband signal receiver	**From: 1.09.2023 To: 23.09.2023**	Lecture interspersed with discussions
26.	Probability of error		
27.	The optimum filter		
28.	Matched filter		
29.	Matched filter		
30.	Probability of error using Matched filter		
31.	Coherent reception		
32.	Non-coherent detection of FSK		
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		
UNIT –IV Information Theory **CO4: Understand the concepts of Information Theory and the need for source coding.** **TB :1. Communication Systems - Simon Haykin, John Wiley, 3/e.**			
37.	Discrete messages	**From: 25.09.2023 To: 19.10.2023**	Lecture interspersed with discussions
38.	Concept of amount of information and its properties		
39.	Average Information		
40.	Average Information		
41.	Entropy and its properties		
42.	Information rate		
43.	Mutual Information and its properties		
44.	Mutual Information and its properties		
UNIT –V Source Coding **CO5: Learn the theorems governing the transmission of information over a noisy channel and perform the efficiency calculations.** **TB: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.**			
45.	Introduction, Advantages		

46.	Shannon's Theorem	From: 20.10.2023 To: 9.11.2023	Lecture interspersed with discussions
47.	Shannon-Fano Coding		
48.	Huffman Coding		
49.	Efficiency calculations		
50.	Channel capacity of discrete and analog channels		
51.	Capacity of a Gaussian channel		
52.	Bandwidth-S/N trade-off		
53.	Introduction to Linear Block Codes		
54.	Matrix description of linear block codes		
55.	Error detection and correction capabilities of LBC		
56.	Hamming codes		
57.	Revision		
58.	Binary cyclic codes		
59.	Classification cyclic codes		
60.	Algebraic structure		
61.	Encoding		
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 **Section:** II **A.Y:** 2023-24

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I Pulse Digital Modulation **CO1: Explain the working of pulse digital modulation systems such as PCM, DPCM and DM.** **Communication Systems.** **TB: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.** **2. Digital communications - Simon Haykin, John Wiley, 2005**			
1.	Elements of digital communication systems	**From: 24.07.2023 To: 10.08.2023**	Lecture interspersed with discussions
2.	Advantages of digital communication systems		
3.	Elements of PCM: Sampling		
4.	Quantization and coding		
5.	Quantization error		
6.	Companding in PCM systems		
7.	Differential PCM		
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		
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	**From: 11.08.2023 To: 26.08.2023**	Lecture interspersed with discussions
14.	Introduction		
15.	ASK		
16.	FSK		
17.	PSK		
18.	DPSK		
19.	DEPSK		
20.	QPSK		

21.	M-ary PSK		
22.	M-ary ASK		
23.	M-ary FSK		
24.	Similarity of BFSK and BPSK		
UNIT - III Data Transmission **CO3: Analyze the performance of various Digital Modulation systems in terms of probability of error.** **TB : 1. Communication Systems - Simon Haykin, John Wiley, 3/e.** **2. Digital communications - Simon Haykin, John Wiley, 2005**			
25.	Baseband signal receiver	**From: 28.09.2023 To: 25.09.2023**	Lecture interspersed with discussions
26.	Probability of error		
27.	The optimum filter		
28.	Matched filter		
29.	Matched filter		
30.	Probability of error using Matched filter		
31.	Coherent reception		
32.	Non-coherent detection of FSK		
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		
UNIT –IV Information Theory **CO4: Understand the concepts of Information Theory and the need for source coding.** **TB :1. Communication Systems - Simon Haykin, John Wiley, 3/e.**			
37.	Discrete messages	**From: 26.09.2023 To: 20.10.2023**	Lecture interspersed with discussions
38.	Concept of amount of information and its properties		
39.	Average Information		
40.	Average Information		
41.	Entropy and its properties		
42.	Information rate		
43.	Mutual Information and its properties		
44.	Mutual Information and its properties		
UNIT –V Source Coding **CO5: Learn the theorems governing the transmission of information over a noisy channel and perform the efficiency calculations.** **TB: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.**			
45.	Introduction, Advantages		

46.	Shannon's Theorem	From: 21.10.2023 To: 10.11.2023	Lecture interspersed with discussions
47.	Huffman Coding		
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		
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 Periods	TOPIC	Date	Mode of Delivery
UNIT –I Performance characteristics of instruments.			
CO1: Analyzing the performance of various measuring systems and metrics.			
TB: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004.			
1.	Performance characteristics of instruments	**From: 17.7.2023 To: 31.07.2023**	Lecture interspersed with discussions
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.		
7.	DC Voltmeters- Multi-range		
8.	Range extension/Solid state and differential voltmeters		
9.	AC voltmeters- multi range, range extension		
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**		
UNIT –II Specifications and designing aspects of Signal generators.			
CO2: Recognize various signal generators and acquire knowledge on principle of operation, working of signal analyzers.			
TB: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004.			
16.	Signal Generator- fixed and variable	**From: 1.08.2023 To: 14.08.2023**	Lecture interspersed with discussions
17.	AF oscillators, AF sine wave signal generators		
18.	AF square wave signal generators		
19.	Function Generators Square pulse, Random noise		
20.	Sweep generator		
21.	Arbitrary waveform generator		
22.	Wave Analyzers		
23.	Harmonic Distortion Analyzers		
24.	Spectrum Analyzers		
25.	Digital Fourier Analyzers		
26.	**Tutorial**		
UNIT – III Oscilloscopes			
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	From: 16.08.2023 To: 30.09.2023	Lecture interspersed with discussions
28.	Horizontal deflection system		
29.	Sweep, trigger pulse, delay line		
30.	Simple CRO		
31.	Triggered sweep CRO		
32.	Dual beam CRO ,Dual trace oscilloscope		
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–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 2005.

39.	Bridge circuits- Wheat stone bridge	From: 1.10.2023 To: 21.10.2023	Lecture interspersed with discussions
40.	Measurement of very low resistance		
41.	AC Bridges Measurement of inductance- Maxwell's bridge.		
42.	Anderson bridge.		
43.	Measurement of capacitance -Shearing Bridge		
44.	Wien's Bridge		
45.	Errors and precautions in using bridges		
46.	Q-meter principle of operation		
47.	Measurement methods and sources of errors.		
48.	Counters : principle of operation		
49.	Modes of operation- totalizing mode,		
50.	Frequency mode and time period mode- sources of errors.		
51.	**Tutorial**		

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	From: 23.10.2023 To: 9.11.2023	Lecture interspersed with discussions
53.	Resistance, Capacitance,		
54.	Inductance		
55.	Strain gauges		
56.	LVDT		
57.	Piezo Electric transducers		
58.	Measurement of physical parameters, temperature		
59.	Measurement of pressure		
60.	Measurement of velocity		
61.	Measurement of displacement		
62.	Measurement of force		
63.	Measurement of acceleration		
64.	**Tutorial**		

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TENTATIVE LESSON PLAN

Course/Code: Electronic Measurements and Instrumentation /R203104B

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

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I Performance characteristics of instruments. **CO1:**Analyzing the performance of various measuring systems and metrics. **TB:Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004.**			
1.	Performance characteristics of instruments	**From: 17.7.2023 To: 31.07.2023**	Lecture interspersed with discussions
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.		
7.	DC Voltmeters- Multi-range		
8.	Range extension/Solid state and differential voltmeters		
9.	AC voltmeters- multi range, range extension		
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**		
UNIT –IISpecifications and designing aspects of Signal generators. **CO2:**Recognize various signal generators and acquire knowledge on principle of operation, working of signal analyzers. **TB: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004.**			
16.	Signal Generator- fixed and variable	**From: 1.08.2023 To: 14.08.2023**	Lecture interspersed with discussions
17.	AF oscillators, AF sine wave signal generators		
18.	AF square wave signal generators		
19.	Function Generators Square pulse, Random noise		
20.	Sweepgenerator		
21.	Arbitrary waveformgenerator		
22.	Wave Analyzers		
23.	Harmonic Distortion Analyzers		
24.	Spectrum Analyzers		
25.	Digital Fourier Analyzers		
26.	**Tutorial**		
UNIT – IIIOscilloscopes **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	From: 16.08.2023 To: 30.09.2023	Lecture interspersed with discussions
28.	Horizontal deflection system		
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30.	Simple CRO		
31.	Triggered sweep CRO		
32.	Dual beam CRO ,Dual trace oscilloscope		
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.**			
39.	Bridge circuits- Wheat stone bridge	From: 1.10.2023 To: 21.10.2023	Lecture interspersed with discussions
40.	Measurement of very low resistance		
41.	AC Bridges Measurement of inductance-Maxwell's bridge.		
42.	Anderson bridge.		
43.	Measurement of capacitance -Shearing Bridge		
44.	Wien's Bridge		
45.	Errors and precautions in using bridges		
46.	Q-meter principle of operation		
47.	Measurement methods and sources of errors.		
48.	Counters : principle of operation		
49.	Modes of operation- totalizing mode,		
50.	Frequency mode and time period mode- sources of errors.		
51.	**Tutorial**		
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	From: 23.10.2023 To: 9.11.2023	Lecture interspersed with discussions
53.	Resistance, Capacitance,		
54.	Inductance		
55.	Strain gauges		
56.	LVDT		
57.	Piezo Electric transducers		
58.	Measurement of physical parameters, temperature		
59.	Measurement of pressure		
60.	Measurement of velocity		
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: Computer Organization & Architecture / R203105K

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

Mode of Delivery: Onboard

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I NUMBER SYSTEM AND DATA REPRESENTATION, BOOLEAN ALGEBRA AND LOGIC GATES **CO1: Demonstrate an understanding of the different number systems, codes and Relate Postulates of Boolean algebra and minimize combinational functions** **TB: Digital Logic and Computer Design, Moriss Mano, 11th Edition, Pearson Education.**			
1	Introduction	**From: 24.07.2023** **To: 18.08.2023**	Lecture interspersed with discussions
2	Numbering Systems		
3	Decimal to Binary Conversion		
4	Binary Coded Decimal Numbers		
5	Error Detecting Codes		
6	Error Correcting Codes		
7	Hamming Code for Error Correction		
8	Karnaugh map representation		
9	minimization of Boolean functions using K-maps up to 4-variable		
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		
14	**Tutorial**		
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: 19.08.2023** **To: 31.08.2023**	Lecture interspersed with discussions
16	Full adder		
17	Half subtractor		
18	Full subtractor		
19	Design of decoder		
20	De-multiplexer		

No. of Periods	TOPIC	Date	Mode of Delivery
21	Encoder	From: 19.08.2023 To: 31.08.2023	Lecture interspersed with discussions
22	Multiplexer		
23	Classification of sequential circuits (synchronous and asynchronous)		
24	Basic flip-flops		
25	Truth tables		
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)		
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, 5th ed.,Hamacher, Vranesicand Zaky,TMH,2002.**			
28	Computer Types	From: 1.09.2023 To: 23.09.2023	Lecture interspersed with discussions
29	Functional unit		
30	Basic Operational concepts		
31	Bus structures		
32	Software		
33	Performance		
34	Multiprocessors and multi computers		
35	Register Transfer language		
36	Register Transfer Bus and memory transfers		
37	Arithmetic Micro-operations		
38	Logic micro operations		
39	Shift micro operations		
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		

No. of Periods	TOPIC	Date	Mode of Delivery
50	Instruction Formats	From: 25.09.2023 To: 19.10.2023	Lecture interspersed with discussions
51	Addressing modes		
52	Data Transfer and Manipulation		
53	Program Control		
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/PHI.**			
55	Memory Hierarchy	From: 20.10.2023 To: 9.11.2023	Lecture interspersed with discussions
56	Main Memory		
57	Auxiliary memory		
58	Associate Memory		
59	Cache Memory		
60	Virtual memories		
61	Introduction to Shift registers and RAID		
62	Input-Output Interface		
63	Asynchronous data transfer		
64	Modes of Transfer		
65	Priority Interrupts		
66	DMA		
67	Input Output Processor		
68	Serial Communication		
69	**Tutorial**		

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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
UNIT –I NUMBER SYSTEM AND DATA REPRESENTATION, BOOLEAN ALGEBRA AND LOGIC GATES **CO1: Demonstrate an understanding of the different number systems, codes and Relate Postulates of Boolean algebra and minimize combinational functions** **TB: Digital Logic and Computer Design, Moriss Mano, 11th Edition, Pearson Education.**			
1	Introduction	**From: 24.07.2023** **To: 10.08.2023**	Lecture interspersed with discussions
2	Numbering Systems		
3	Decimal to Binary Conversion		
4	Binary Coded Decimal Numbers		
5	Error Detecting Codes		
6	Error Correcting Codes		
7	Hamming Code for Error Correction		
8	Karnaugh map representation		
9	minimization of Boolean functions using K-maps up to 4-variable		
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		
14	**Tutorial**		
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: 11.08.2023** **To: 26.08.2023**	Lecture interspersed with discussions
16	Full adder		
17	Half subtractor		
18	Full subtractor		
19	Design of decoder		
20	De-multiplexer		

No. of Periods	TOPIC	Date	Mode of Delivery
21	Encoder	From: 11.08.2023 To: 26.08.2023	Lecture interspersed with discussions
22	Multiplexer		
23	Classification of sequential circuits (synchronous and asynchronous)		
24	Basic flip-flops		
25	Truth tables		
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)		
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, 5th ed.,Hamacher, Vranesicand Zaky,TMH,2002.**			
28	Computer Types	From: 28.09.2023 To: 25.09.2023	Lecture interspersed with discussions
29	Functional unit		
30	Basic Operational concepts		
31	Bus structures		
32	Software		
33	Performance		
34	Multiprocessors and multi computers		
35	Register Transfer language		
36	Register Transfer Bus and memory transfers		
37	Arithmetic Micro-operations		
38	Logic micro operations		
39	Shift micro operations		
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: 26.09.2023 To: 20.10.2023	Lecture interspersed with discussions
46	Address sequencing		
47	micro program example		
48	design of control unit		
49	General Register Organization		

No. of Periods	TOPIC	Date	Mode of Delivery
50	Instruction Formats	From: 26.09.2023 To: 20.10.2023	Lecture interspersed with discussions
51	Addressing modes		
52	Data Transfer and Manipulation		
53	Program Control		
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/PHI.**			
55	Memory Hierarchy	From: 21.10.2023 To: 10.11.2023	Lecture interspersed with discussions
56	Main Memory		
57	Auxiliary memory		
58	Associate Memory		
59	Cache Memory		
60	Virtual memories		
61	Introduction to Shift registers and RAID		
62	Input-Output Interface		
63	Asynchronous data transfer		
64	Modes of Transfer		
65	Priority Interrupts		
66	DMA		
67	Input Output Processor		
68	Serial Communication		
69	**Tutorial**		

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TENTATIVE LESSON PLAN

Course/Code: Optical Communication / R204104A
Year / Semester: IV/I **Section:** I **A.Y:** 2023-24
Mode of Delivery: Onboard, PPT

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I **CO1 :: Demonstrate the necessity of components required in modern Optical communication systems and analyze the step and graded index fibers** **TB: Optical Fiber Communications – Gerd Keiser, Mc Graw-Hill International edition, 3rd Edition, 2000.**			
1.	Overview of optical fiber communication- Historical development	**From:** **17-07-2023** **To:** **08-08-2023**	Lecture interspersed with discussions
2.	The general system,advantages of optical fiber communications		
3.	Optical fiber waveguides- Introduction,Ray theory transmission		
4.	Total Internal Reflection,Acceptance angle		
5.	Numerical Aperture,skew rays		
6.	Cylindrical fibers, modes ,v-number		
7.	Mode coupling, Step Index fibers		
8.	Graded Index fibers, Single mode fibers		
9.	Cut off wavelength, Mode Field Diameter		
10.	Effective Refractive Index, Related problems.		
11.	**Tutorial**		
UNIT – II **CO2:: Interpret the properties of optical fiber and the amount of light lost going through an Optical system, dispersion of optical fibers.** **TB: Optical Fiber Communications – Gerd Keiser, Mc Graw-Hill International edition, 3rd Edition, 2000.**			
12.	Fiber materials:- Glass, Halide, Active glass	**From:** **09-08-2023** **To:** **21-08-2023**	Lecture interspersed with discussions
13.	Chalgenide glass, Plastic optical fibers		
14.	Signal distortion in optical fibers-Attenuation,Absorption		
15.	Scattering and Bending losses		
16.	Core and Cladding losses, Information capacity determination		
17.	Group delay, Types of Dispersion:- Material dispersion		
18.	Wave-guide dispersion, Polarization-Mode dispersion		
19.	Intermodal dispersion, Pulse broadening in Graded index		
20.	Related problems		
UNIT – III **CO3:: Analyze the losses in optical fiber connectors.** **TB: Optical Fiber Communications – Gerd Keiser, Mc Graw-Hill International edition, 3rd Edition, 2000.**			
21.	Single mode fiber connectors, Connector return loss	**From:**	

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

27.	Optical sources- LEDs, Structures	From: 25-09-2023 To: 13-10-2023	Lecture interspersed with discussions
28.	Materials, Types of LED		
29.	Quantum efficiency		
30.	Power, Modulation, Power bandwidth product		
31.	Injection Laser Diodes-Modes, Resonant frequencies		
32.	Threshold conditions, External quantum efficiency		
33.	Laser diode rate equations		
34.	Optical detectors- Physical principles of PIN		
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	From: 14-10-2023 To: 11-11-2023	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		
41.	Digital signal transmission, error sources		
42.	Receiver configuration, Digital receiver performance Quantum limit, Analog receivers		
43.	Optical system design - Point-to- point links, Component choice and considerations		
44.	Link power budget with examples		
45.	Rise time budget with examples		
46.	Line coding in Optical links, WDM		
47.	Measurement of Attenuation and Dispersion,		
48.	Eye Pattern		

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Accredited with NAAC 'A' grade
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Optical Communication / R204104A
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			
CO1 :: Demonstrate the necessity of components required in modern Optical communication systems and analyze the step and graded index fibers			
TB: Optical Fiber Communications – Gerd Keiser, Mc Graw-Hill International edition, 3rd Edition, 2000.			
1.	Overview of optical fiber communication- Historical development	**From: 17-07-2023 To: 04-08-2023**	Lecture interspersed with discussions
2.	The general system,advantages of optical fiber communications		
3.	Optical fiber waveguides- Introduction,Ray theory transmission		
4.	Total Internal Reflection,Acceptance angle		
5.	Numerical Aperture,skew rays		
6.	Cylindrical fibers, modes ,v-number		
7.	Mode coupling, Step Index fibers		
8.	Graded Index fibers, Single mode fibers		
9.	Cut off wavelength, Mode Field Diameter		
10.	Effective Refractive Index, Related problems.		
11.	**Tutorial**		
UNIT – II			
CO2:: Interpret the properties of optical fiber and the amount of light lost going through an Optical system, dispersion of optical fibers.			
TB: Optical Fiber Communications – Gerd Keiser, Mc Graw-Hill International edition, 3rd Edition, 2000.			
12.	Fiber materials:- Glass, Halide, Active glass	**From: 05-08-2023 To: 21-08-2023**	Lecture interspersed with discussions
13.	Chalgenide glass, Plastic optical fibers		
14.	Signal distortion in optical fibers-Attenuation,Absorption		
15.	Scattering and Bending losses		
16.	Core and Cladding losses, Information capacity determination		
17.	Group delay, Types of Dispersion:- Material dispersion		
18.	Wave-guide dispersion, Polarization-Mode dispersion		
19.	Intermodal dispersion, Pulse broadening in Graded index		
20.	Related problems		
UNIT – III			
CO3:: Analyze the losses in optical fiber connectors.			
TB: Optical Fiber Communications – Gerd Keiser, Mc Graw-Hill International edition, 3rd Edition, 2000.			
21.	Optical fiber Connectors-Connector types	**From:**	Lecture interspersed
22.	Single mode fiber connectors, Connector return loss		

23.	Fiber Splicing- Splicing techniques	**22-08-2023**	with discussions
24.	Splicing single mode fibers, Fiber alignment & joint loss	**To:**	
25.	Multimode fiber joints, singlemode fiber joints.		
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	**From: 25-09-2023** **To: 10-10-2023**	Lecture interspersed with discussions
29.	Materials, Types of LED		
30.	Quantum efficiency		
31.	Power, Modulation, Power bandwidth product		
32.	Injection Laser Diodes-Modes, Resonant frequencies		
33.	Threshold conditions, External quantum efficiency		
34.	Laser diode rate equations		
35.	Optical detectors- Physical principles of PIN		
36.	APD , Detector response time, Temperature effect on Avalanche gain, Comparison of Photo detectors,		
37.	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
38.	Source to fiber power launching - Output patterns	**From: 11-10-2023** **To: 11-11-2023**	Lecture interspersed with discussions
39.	Power coupling, Power launching		
40.	Equilibrium Numerical Aperture, Laser diode to fiber coupling		
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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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course /Code: Satellite Communications/ R204104D

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

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I	**INTRODUCTION, ORBITAL MECHANICS AND LAUNCHERS**		
CO 1: Student can understand the basic concepts of orbital mechanics of satellite communication.			
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.			
1.	Origin of Satellite Communications	FROM 17-07-2023 TO 05-08-2023	Lecture interspersed with discussions
2.	Historical Back-ground		
3.	Basic Concepts of Satellite Communications		
4.	Frequency allocations for Satellite services		
5.	Applications		
6.	Future Trends of Satellite Communications		
7.	Tutorial		
8.	Orbital Mechanics		
9.	Look Angle determination		
10.	Orbital perturbations		
11.	Orbit determination		
12.	launches and launch vehicles		
13.	Orbital effects in communication systems performance		
14.	Tutorial		
UNIT –II	**SATELLITE SUBSYSTEMS**		
CO 2: Student can understand various satellite subsystems and its functionality.			
T1: Satellite Communications – Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003.			
15.	Attitude and orbit control system	FROM 07-08-2023 TO 19-08-2023	Lecture interspersed with discussions
16.	Telemetry, Tracking, Command and monitoring		
17.	power systems		
18.	communication subsystems		
19.	Satellite antennas		
20.	Equipment reliability and Space qualification		
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	FROM 21-08-2023 TO 23-09-2023	Lecture interspersed with discussions
23.	system noise temperature and G/T ratio		
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.

32.	Frequency division multiple access (FDMA)	FROM 25-09-2023 TO 14-10-2023	Lecture interspersed with discussions
33.	Intermodulation		
34.	Calculation of C/N		
35.	Time division Multiple Access (TDMA)		
36.	Frame structure		
37.	Examples		
38.	Satellite Switched TDMA		
39.	Onboard processing		
40.	DAMA		
41.	**Tutorial**		
42.	Code Division Multiple access (CDMA)		
43.	Spread spectrum transmission and reception		
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	FROM 16-10-2023 TO 11-11-2023	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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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 AND LAUNCHERS **CO 1: Student can understand the basic concepts of orbital mechanics of satellite communication.** **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.			
1.	Origin of Satellite Communications	FROM 17-07-2023 TO 05-08-2023	Lecture interspersed with discussions
2.	Historical Back-ground		
3.	Basic Concepts of Satellite Communications		
4.	Frequency allocations for Satellite services		
5.	Applications		
6.	Future Trends of Satellite Communications		
7.	Tutorial		
8.	Orbital Mechanics		
9.	Look Angle determination		
10.	Orbital perturbations		
11.	Orbit determination		
12.	launches and launch vehicles		
13.	Orbital effects in communication systems performance		
14.	Tutorial		
UNIT –II SATELLITE SUBSYSTEMS **CO 2: Student can understand various satellite subsystems and its functionality.** **T1:** Satellite Communications – Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003.			
15.	Attitude and orbit control system	FROM 07-08-2023 TO 19-08-2023	Lecture interspersed with discussions
16.	Telemetry, Tracking, Command and monitoring		
17.	power systems		
18.	communication subsystems		
19.	Satellite antennas		
20.	Equipment reliability and Space qualification		
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	FROM 21-08-2023 TO 23-09-2023	Lecture interspersed with discussions
23.	system noise temperature and G/T ratio		
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.

32.	Frequency division multiple access (FDMA)	FROM 25-09-2023 TO 14-10-2023	Lecture interspersed with discussions
33.	Intermodulation		
34.	Calculation of C/N		
35.	Time division Multiple Access (TDMA)		
36.	Frame structure		
37.	Examples		
38.	Satellite Switched TDMA		
39.	Onboard processing		
40.	DAMA		
41.	**Tutorial**		
42.	Code Division Multiple access (CDMA)		
43.	Spread spectrum transmission and reception		
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	FROM 16-10-2023 TO 11-11-2023	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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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: INTERNET OF THINGS (R204104I)

Year / Semester: IV/I **Section:** I **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	Lecture interspersed with discussions
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		
9.	Security aspects inIoT		
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	Lecture interspersed with discussions
12.	Arduino, Raspberry PI		
13.	ARM Cortex-A class processor		
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	Lecture interspersed with discussions
19.	Sensing, Actuation, I/O interfaces		
20.	Software Components		
21.	Programming API's (using Python/Node.js/Arduino)		

22.	MQTT, ZigBee	To: 26-09-2023	
23.	CoAP, UDP		
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 To: 25-10-2023	Lecture interspersed with discussions
30.	Data acquisition and integration		
31.	Device data storage		
32.	Unstructured data storage on cloud/local server		
33.	Authentication		
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	From: 26-10-2023 To: 25-11-2023	Lecture interspersed with discussions
38.	mini projects based on Industrial automation		
39.	Transportation		
40.	Agriculture		
41.	Healtheare		
42.	Home Automation		
43.	Cloud Analytics for IoT Application: Introduction to cloud computing		
44.	Difference between Cloud Computing and Fog Computing: The Next Evolution of Cloud Computing		
45.	Role of Cloud Computing in IoT		
46.	Connecting IoT to cloud		
47.	Cloud Storage for IoT Challenge in integration of IoT with Cloud		
48.	Tutorial		

17/7/23
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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 –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	Lecture interspersed with discussions
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)		
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9.	Security aspects inIoT		
10.	Tutorial		

UNIT –II Elements of IoT
CO2: Understanding Arduino , Raspberry pi and ARM processors
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S.No	TOPIC	Date	Mode of Delivery
11.	Hardware Component	From: 14-08-2023 To: 31-08-2023	Lecture interspersed with discussions
12.	Arduino, Raspberry PI		
13.	ARM Cortex-A class processor		
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	Lecture interspersed with discussions
19.	Sensing, Actuation, I/O interfaces		
20.	Software Components		
21.	Programming API's (using Python/Node.js/Arduino)		

22.	MQTT, ZigBee	To: 26-09-2023	
23.	CoAP, UDP		
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		
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UNIT – IV Solution framework for IoT applications
CO4: Discribing the design principles for IoT Applications
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S.No	TOPIC	Date	Mode of Delivery
29.	Implementation of Device integration	From: 27-09-2023 To: 25-10-2023	Lecture interspersed with discussions
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31.	Device data storage		
32.	Unstructured data storage on cloud/local server		
33.	Authentication		
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	From: 26-10-2023 To: 25-11-2023	Lecture interspersed with discussions
38.	mini projects based on Industrial automation		
39.	Transportation		
40.	Agriculture		
41.	Healthcare		
42.	Home Automation		
43.	Cloud Analytics for IoT Application: Introduction to cloud computing		
44.	Difference between Cloud Computing and Fog Computing: The Next Evolution of Cloud Computing		
45.	Role of Cloud Computing in IoT		
46.	Connecting IoT to cloud		
47.	Cloud Storage for IoT Challenge in integration of IoT with Cloud		
48.	Tutorial		

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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	From: 17-07-2023	Lecture interspersed with discussions
2	Cybercrime and Information Security		
3	Cybercriminals, Classification of Cybercrimes		
4	Cybercrime: The Legal Perspectives		
5	Cybercrimes: An Indian Perspective		
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		
10	Social Engineering	To: 10-08-2023	
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	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	To: 31-08-2023	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		
24	Mobile Devices: Security Implications for Organizations		
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	From: 01-09-2023 To: 26-09-2023	Lecture interspersed with discussions
29	Proxy Servers and Anonymizers		
30	Phishing		
31	Password Cracking		
32	Key loggers and Spywares		
33	Virus and Worms		
34	Trojan Horses and Backdoors		
35	Steganography		
36	DoS and DDoS Attacks		
37	SQL Injection		
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: 27-09-2023 To: 25-10-2023	Lecture interspersed with discussions
45	Consequences of Not Addressing the Weakness in Information Technology Act		
46	Digital Signatures and the Indian IT Act		
47	Information Security Planning and Governance		
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	From: 26-10-2023 To: 25-11-2023	Lecture interspersed with discussions
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		
60	Chain of Custody Concept		
61	Network Forensics		
62	Approaching a Computer Forensics Investigation		
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		
69	Forensics Auditing		
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	From: 17-07-2023 To: 10-08-2023	Lecture interspersed with discussions
2	Cybercrime and Information Security		
3	Cybercriminals, Classification of Cybercrimes		
4	Cybercrime: The Legal Perspectives		
5	Cybercrimes: An Indian Perspective		
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		
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	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	To: 31-08-2023	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		
24	Mobile Devices: Security Implications for Organizations		
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	From: 01-09-2023 To: 26-09-2023	Lecture interspersed with discussions
29	Proxy Servers and Anonymizers		
30	Phishing		
31	Password Cracking		
32	Key loggers and Spywares		
33	Virus and Worms		
34	Trojan Horses and Backdoors		
35	Steganography		
36	DoS and DDoS Attacks		
37	SQL Injection		
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: 27-09-2023 To: 25-10-2023	Lecture interspersed with discussions
46	Digital Signatures and the Indian IT Act		
47	Information Security Planning and Governance		
48	Information Security Policy Standards, Practices		
49	The information Security Blueprint		
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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
UNIT –I Introduction of Cloud Computing **CO1: Understand and analyze the architecture of cloud.** **TB: Judith Hurwitz, M.Kanfman, F. Halper "Cloud Computing for Dummies", wiley india edition, First edition**			
1	What is cloud computing	**From: 24.07.2023** **To: 4.08.2023**	Lecture interspersed with discussions
2	How it works		
3	Types of cloud		
4	Goals & Challenges		
5	Leveraging cloud computing		
6	Cloud economics		
7	Total cost of ownership		
8	**Tutorial**		
UNIT-II Cloud Service Models **CO2: Analyze the deployment of cloud service models.** **TB: Judith Hurwitz, M.Kanfman, F. Halper "Cloud Computing for Dummies", wiley india edition, First edition**			
9	Software as a service introduction	**From: 07.08.2023** **To: 31.08.2023**	Lecture interspersed with discussions
10	Challenges in SaaS model		
11	SaaS Integration Services		
12	Advantages and Disadvantages		
13	Infrastructure as a service introduction		
14	Virtual machines		
15	VM Migration services		
16	Advantages and Disadvantages		
17	Platform as a service introduction		
18	Integration on private and public cloud		
19	Advantages and Disadvantages		
20	**Tutorial**		

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-III Virtualization and Abstraction **CO3: Analyze the virtualization and abstraction in cloud computing.** **TB: Judith Hurwitz, M.Kanfman, F. Halper "Cloud Computing for Dummies", wiley india edition, First edition**			
21	What is virtualization	**From: 01.09.2023** **To: 23.09.2023**	Lecture interspersed with discussions
22	How abstraction is provided in cloud		
23	Advantages and Disadvantages		
24	Types of hypervisor		
25	Loadbalancing		
26	**Tutorial**		
UNIT-IV Amazon Web Services **CO4: Identify and apply deployment and management options of AWS cloud services.** **TB: Rajkumar Buyya, James Broberg, Andrej M.Goscinski, "Cloud Computing: Principles and Paradigms", Wiley Publication,2011.**			
27	Getting started with AWS	**From: 25.09.2023** **To: 18.10.2023**	Lecture interspersed with discussions
28	AWS compute		
29	Storage		
30	Networking		
31	AWS security		
32	Identity and Access Management		
33	AWS database options		
34	AWS elasticity		
35	Management tools		
36	**Tutorial**		
UNIT-V Architecting on AWS **CO5: Design architectures to decouple infrastructure and reduce interdependencies.** **TB: Rajkumar Buyya, James Broberg, Andrej M.Goscinski, "Cloud Computing: Principles and Paradigms", Wiley Publication,2011.**			
37	AWS essentials review	**From: 19.10.2023** **To: 11.11.2023**	Lecture interspersed with discussions
38	System design for high availability		
39	Automation and serverless architectures		
40	Event-Driven scaling		
41	Well architected best practices		
42	Security		
43	Reliability		
44	Performance efficiency		
45	Cost optimization		
46	Deployment and implementation		
47	Design patterns		
48	Sample architectures		
49	**Tutorial**		

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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
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49	**Tutorial**		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: UNIVERSAL HUMAN VALUES-2

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

No. of Periods	TOPIC	Date	Remarks
UNIT 1 – COURSE INTRODUCTION - NEED, BASIC GUIDELINES, CONTENT AND PROCESS FOR VALUE EDUCATION **CO1: To train the student for Development of a holistic perspective based on self-exploration about themselves human being), family, society and nature/existence.** **TB :: "A foundational course in Human Values and Professional** Ethics by RR Gaur, R Sangal, GP Bagaria , " Excel Books".			
1	Introduction	From: 17-07-2023 To: 10-08-2023	Lecture Interspersed with discussions
2	Need ,Basic Guide lines for Value Education		
3	Content and Process for Value Education		
4	Introduction to Self-Exploration		
5	Self-Exploration content and process		
6	Personality Traits		
7	Self Excellence, Natural Acceptance" and Experiential Validation"		
8	The process for self-exploration		
9	Adaptability, Belief and Understanding- Self discipline		
10	Continuous Happiness and Prosperity		
11	A look at basic Human Aspirations		
12	Right understanding, Relationship and Physical Facility		
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.		
16	Myers-Briggs Type Indicator (MBTI) Personality test		
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	From: 14-08-2023 To: 31-08-2023	Lecture Interspersed with discussions
18	Understanding human being as a co-existence of the sentient I" and the material „Body"		
19	Understanding the needs of Self (I) and Body " - happiness and physical facility"		
20	Understanding the Body as an instrument of I		
21	I being the doer, seer and enjoyer		
22	Habits and Hobbies		
23	SWOT Analysis (Activity)		
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	From: 01-09-2023 To: 26-09-2023	Lecture Interspersed with discussions
33	Harmony in Human-Human Relationship		
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		
37	Understanding the meaning of Respect, Difference between respect and differentiation		
38	The other salient values in relationship, Friends and Foes, Empathy, False Prestige.		
39	Concept of an Ideal family- Marriage as an Institution		
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.		
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 ," " Excel Books".			
43	Introduction to Understanding Harmony in the Nature and Existence	From: 27-09-2023 To: 18-10-2023	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		
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		

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	From: 19-10-2023 To: 11-11-2023	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		
58	Case studies of typical holistic technologies, management models and production systems		
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
UNIT 1 – COURSE INTRODUCTION - NEED, BASIC GUIDELINES, CONTENT AND PROCESS FOR VALUE EDUCATION **CO1: To train the student for Development of a holistic perspective based on self-exploration about themselves human being), family, society and nature/existence.** **TB :: "A foundational course in Human Values and Professional** Ethics by RR Gaur, R Sangal, GP Bagaria , " Excel Books".			
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