

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

Section-I Academic Year: 2022-23 S.No TOPIC Date Mode of Delivery Unit - 1: Review of Semiconductor Physics and Junction Diode Characteristics CO1: Analyze the behavior of PN junction under deferent bias conditions and characteristics of diode TB1: Electronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw Hill, Second Edition. TB2: Electronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata Mc-Graw Hill, Second Edition. Energy band diagram of PN junction Diode 2 From: 3 Open circuited p-n junction Biased p-n diode 05-9-2022 4 V-I Characteristics Lecture 5 Current components in PN junction Diode Interspersed 6 Diode equation With 7 discussions Temperature dependence on VI characteristics To: 8 Diode resistance, Diode capacitance 30-9-2022 9 Hall effect Continuity equation 10 11 Fermi Dirac function 12 Fermi level in intrinsic and extrinsic Semiconductors Unit - 2: Special Semiconductor Devices , Rectifiers and filters CO2: Classify different types of special diode and rectifiers, describe their operation TB1: Electronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw Hill, Second Edition. TB2: Electronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata Mc-Graw Hill, Second Edition 13 Breakdown mechanisms, Zener Diode, tunnel diode 14 Zener diode applications 15 16 Varactor Diode, Photodiode 17 UJT From: 18 SCR- Construction, operation and V-I characteristics. 1-10-2022 19 Basic Rectifier setup 20 Half wave rectifier Lecture 21 Full wave rectifier interspersed 22 Bridge rectifier



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23	Filters: Inductor filter	To: 29-10-2022	with
24	Capacitor filter		discussions
25	LC filter, π- Filter		
26	Comparison of various filter circuits in terms of ripple factors.		
CO3: Desc	ransistor Characteristics ribe construction, working and VI characteristics of BJTs and JFETs ronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw H ronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata M	ill, Second	Edition. Hill, Second
27	Junction transistor, transistor current components		
28	Transistor equation		
29	transistor configurations		
30	transistor configurations transistor as an amplifier	From:	
31	Characteristics of CE and CB configuration	01-11-2022	Lecture intersperses with discussions
32	Characteristics of CC, Punch through	01-11-2022	
33	Ebers-Moll model of a transistor, Typical transistor junction voltage values	To:	
34	Comparison between CE, CB, CC configurations		
35	Problems, Photo transistor	03-12-2022	
36	FET types		
37	Construction, Operation of JFET		
38	Characteristics of JFET		
39	μ, gm, rd parameters		
40	Depletion MOSFET-types, construction, operation, characteristics		
41	Enhancement MOSFET-types, construction, operation, characteristics		
42	Comparison between JFET and MOSFET	10000	
43	Problems		
CO4: Anal FB1: Electr FB2: Electr	Transistor Biasing and Thermal Stabilization yze various biasing, stabilization and compensation techniques for B ronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw H ronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata M	ill, Second	Edition.
dition.			
44	Need for biasing, operating point, load line analysis	From:	
45	BJT biasing methods: fixed bias	06-12-2022	
46	Collector to base bias		13
47	Self bias		Lecture



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48	Stabilization against variations in V _{BE} ,lc, and β	To:	interspersed
49	Bias compensation	20-12-2022	with
50	Thermal runaway, Thermal stability		discussions
51	FET Biasing methods		
52	Stabilization		
amplifiers TB1: Elect	gn transistor amplifiers using small signal model and compute va- ronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw H ronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata M	lill, Second	Edition. Hill, Second
Edition	DET. T		
53	BJT: Two port network, Transistor hybrid model,		
	determination of h-parameters,		
55	Conversion of h parameters		111
56	generalized analysis of transistor amplifier model using h- parameters,	From: 23-12-2022	les l'e
57	Analysis of CB amplifier using exact and approximate analysis		
58	Analysis of CE amplifiers using exact and approximate analysis	James .	02
59	Analysis of CC amplifiers using exact and approximate analysis		Lecture interspersed
60	Comparison of transistor amplifiers	To:	with
61	FET: Generalized analysis of small signal model,	31-12-2022	discussions
62	Analysis of CG amplifier		
63	Analysis of CS amplifier	1	
		4	

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Analysis of CD amplifier comparison of FET amplifiers

64

65



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Tentative Lesson Plan

Course / Code: Electronic Devices and Circuits / R2021041

Year / Semester: II / I

sec-IT

Academic Year: 2022-23

Tools: Black Board

No. of Periods	TOPIC	Date	Mode of Delivery
CO1: Anal TB1: Elect	Review of Semiconductor Physics and Junction Diode Chara yze the behavior of PN junction under deferent bias conditions ronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Gr. ronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, T.	and characteristics aw Hill, Second	of diode Edition. Hill, Second
1	Energy band diagram of PN junction Diode		
2	basics		
3	Open circuited p-n junction Biased p-n diode	From:	
4	V-I Characteristics	05-9-2022	Lecture
5	Current components in PN junction Diode		Interspersed
6	Diode equation		With
7	Temperature dependence on VI characteristics		
8	Diode resistance, Diode capacitance	To:	
9	Hall effect	30-9-2022	
10	Continuity equation		
11	Fermi Dirac function		
12	Fermi level in intrinsic and extrinsic Semiconductors		
CO2: Class TB1: Elect TB2: Elect Edition	pecial Semiconductor Devices, Rectifiers and filters sify different types of special diode and rectifiers, describe their ronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Gra ronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Ta	aw Hill, Second	Edition. Hill, Second
13	Breakdown mechanisms, Zener Diode, tunnel diode		
14	Zener diode applications		
15	LED		
16	Varactor Diode, Photodiode		
17	UJT		



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15	LED		
16	Varactor Diode, Photodiode		
17	UJT		
18	SCR- Construction, operation and V-I characteristics.	From:	
19	Basic Rectifier setup	1-10-2022	
20	Half wave rectifier		***********
21	Full wave rectifier		Lecture interspersed with
22	Bridge rectifier		
23	Filters: Inductor filter	To:	discussions
24	Capacitor filter	29-10-2022	discussions
25	LC filter, π- Filter	29-10-2022	
26	Comparison of various filter circuits in terms of ripple factors.		
	ronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw H		Edition.
TB2: Elect Edition	ronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata M		Edition. Hill, Second
TB2: Elect Edition 27	Junction transistor, transistor current components		
TB2: Elect Edition 27 28	Junction transistor, transistor current components Transistor equation		
TB2: Elect Edition 27 28 29	Junction transistor, transistor current components Transistor equation transistor configurations		
TB2: Elect Edition 27 28 29 30	Junction transistor, transistor current components Transistor equation transistor configurations transistor as an amplifier	le-Graw	
TB2: Elect Edition 27 28 29 30 31	Junction transistor, transistor current components Transistor equation transistor configurations transistor as an amplifier Characteristics of CE and CB configuration	fc-Graw From:	Hill, Second
TB2: Elect Edition 27 28 29 30	Junction transistor, transistor current components Transistor equation transistor configurations transistor as an amplifier Characteristics of CE and CB configuration Characteristics of CC, Punch through Ebers-Moll model of a transistor, Typical transistor junction	fc-Graw From:	Hill, Second
TB2: Elect Edition 27 28 29 30 31 32 33	Junction transistor, transistor current components Transistor equation transistor configurations transistor as an amplifier Characteristics of CE and CB configuration Characteristics of CC, Punch through Ebers-Moll model of a transistor, Typical transistor junction voltage values	From: 01-11-2022	Lecture interspersed with
TB2: Elect Edition 27 28 29 30 31 32 33	Junction transistor, transistor current components Transistor equation transistor configurations transistor as an amplifier Characteristics of CE and CB configuration Characteristics of CC, Punch through Ebers-Moll model of a transistor, Typical transistor junction voltage values Comparison between CE, CB, CC configurations	From: 01-11-2022	Lecture interspersed with
TB2: Elect Edition 27 28 29 30 31 32 33 34 35	Junction transistor, transistor current components Transistor equation transistor configurations transistor as an amplifier Characteristics of CE and CB configuration Characteristics of CC, Punch through Ebers-Moll model of a transistor, Typical transistor junction voltage values Comparison between CE, CB, CC configurations Problems, Photo transistor	From: 01-11-2022	Lecture interspersed with
TB2: Elect Edition 27 28 29 30 31 32 33	Junction transistor, transistor current components Transistor equation transistor configurations transistor as an amplifier Characteristics of CE and CB configuration Characteristics of CC, Punch through Ebers-Moll model of a transistor, Typical transistor junction voltage values Comparison between CE, CB, CC configurations	From: 01-11-2022	Lecture interspersed with
TB2: Elect Edition 27 28 29 30 31 32 33 34 35 36	Junction transistor, transistor current components Transistor equation transistor configurations transistor as an amplifier Characteristics of CE and CB configuration Characteristics of CC, Punch through Ebers-Moll model of a transistor, Typical transistor junction voltage values Comparison between CE, CB, CC configurations Problems, Photo transistor FET types	From: 01-11-2022	Lecture interspersed with
TB2: Elect Edition 27 28 29 30 31 32 33 34 35 36 37	Junction transistor, transistor current components Transistor equation transistor configurations transistor as an amplifier Characteristics of CE and CB configuration Characteristics of CC, Punch through Ebers-Moll model of a transistor, Typical transistor junction voltage values Comparison between CE, CB, CC configurations Problems, Photo transistor FET types Construction, Operation of JFET	From: 01-11-2022	Lecture interspersed with
TB2: Elect Edition 27 28 29 30 31 32 33 34 35 36 37 38	Junction transistor, transistor current components Transistor equation transistor configurations transistor as an amplifier Characteristics of CE and CB configuration Characteristics of CC, Punch through Ebers-Moll model of a transistor, Typical transistor junction voltage values Comparison between CE, CB, CC configurations Problems, Photo transistor FET types Construction, Operation of JFET Characteristics of JFET	From: 01-11-2022	Lecture interspersed with
TB2: Elect Edition 27 28 29 30 31 32 33 34 35 36 37 38 39	Junction transistor, transistor current components Transistor equation transistor configurations transistor as an amplifier Characteristics of CE and CB configuration Characteristics of CC, Punch through Ebers-Moll model of a transistor, Typical transistor junction voltage values Comparison between CE, CB, CC configurations Problems, Photo transistor FET types Construction, Operation of JFET Characteristics of JFET μ, gm, rd parameters Depletion MOSFET-types, construction, operation,	From: 01-11-2022 To: 03-12-2022	Lecture interspersed with
TB2: Elect Edition 27 28 29 30 31 32 33 34 35 36 37 38 39 40	Junction transistor, transistor current components Transistor equation transistor configurations transistor as an amplifier Characteristics of CE and CB configuration Characteristics of CC, Punch through Ebers-Moll model of a transistor, Typical transistor junction voltage values Comparison between CE, CB, CC configurations Problems, Photo transistor FET types Construction, Operation of JFET Characteristics of JFET µ, gm, rd parameters Depletion MOSFET-types, construction, operation, characteristics Enhancement MOSFET-types, construction, operation, operation,	From: 01-11-2022 To: 03-12-2022	Lecture interspersed with



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CO4: Analyze various biasing, stabilization and compensation techniques for BJT and JFET

TB1: Electronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw Hill, Second

Edition.

TB2: Electronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata Mc-Graw

Hill, Second

Edition.

44	Need for biasing, operating point, load line analysis	From:	
45	BJT biasing methods: fixed bias	06-12-2022	
46	Collector to base bias		Lecture
47	Self bias	and the second	interspersed
48	Stabilization against variations in V _{BE} ,Ic, and β	To:	with
49	Bias compensation	20-12-2022	discussions

UNIT-V: Small Signal Low Frequency Transistor Amplifier Models

CO5: Design transistor amplifiers using small signal model and compute various parameters related to amplifiers

TB1: Electronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw Hill, Second

Edition.

TB2: Electronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata Mc-Graw

Hill, Second

Edition

Thermal runaway, Thermal stability		
FET Biasing methods		
Stabilization	1 12 1	
BJT: Two port network, Transistor hybrid model,	From: 23-12-2022	
determination of h-parameters,		
Conversion of h parameters	74.00	
generalized analysis of transistor amplifier model using h- parameters,		Lecture interspersed with discussions
Analysis of CB amplifier using exact and approximate analysis		
Analysis of CE amplifiers using exact and approximate analysis	To:	
Analysis of CC amplifiers using exact and approximate analysis	31-12-2022	
Comparison of transistor amplifiers		
FET: Generalized analysis of small signal model,		
Analysis of CG amplifier		
Analysis of CS amplifier		
Analysis of CD amplifier		
comparison of FET amplifiers		
	BJT: Two port network, Transistor hybrid model, determination of h-parameters, Conversion of h parameters generalized analysis of transistor amplifier model using h- parameters, Analysis of CB amplifier using exact and approximate analysis Analysis of CE amplifiers using exact and approximate analysis Analysis of CC amplifiers using exact and approximate analysis Comparison of transistor amplifiers FET: Generalized analysis of small signal model, Analysis of CG amplifier Analysis of CS amplifier Analysis of CD amplifier	FET Biasing methods Stabilization BJT: Two port network, Transistor hybrid model, determination of h-parameters, Conversion of h parameters generalized analysis of transistor amplifier model using h- parameters, Analysis of CB amplifier using exact and approximate analysis Analysis of CE amplifiers using exact and approximate analysis Analysis of CC amplifiers using exact and approximate analysis Comparison of transistor amplifiers FET: Generalized analysis of small signal model, Analysis of CG amplifier Analysis of CD amplifier Analysis of CD amplifier

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Date: 3/9/22

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Date: 3)9/21



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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 A.Y: 2022-23

No. o Perio	ods	Date	Mode of Delivery
100	RATIONS:		
repres	An ability to define different number systems, bir sentation and operations with this representation. Digital Design, 5/e, M. Morris Mano, Michael D Cilet	THE CONTRACT OF THE CONTRACT O	2's complemen
1	Review of Number Systems & Codes		
2	Representation of Numbers of Different Radix		
3	Conversion from One Radix to Another Radix		
4	R-1's Compliments		
5	R's Compliments of Signed Numbers		
6	Gray Code		
7	4 - Bit Codes		
8	BCD Codes and Arithmetic		Lecture
9	Excess – 3 Code and Arithmetic	From:	interspersed with discussions
10	2421, 84-2-1 codes	5-9-2022	
11	Error Detection Codes	To:	
12	Error Correction Codes	22-9-2022	
13	Parity Checking		
14	Even Parity		
15	Odd Parity		
16	Hamming code		1
17	Boolean Theorems and Logic Operations		
18	Postulates of Boolean Algebra		
19	Principle of Complementation & Duality		
20	De-Morgan Theorems		
21	Basic Logic Operations -NOT, OR		
22	AND, Universal Logic operations		
23	EX-OR, EX-NOR Operations		



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24	Standard SOP and POS Forms		
25	Standard POS Forms		
26	NAND-NAND And NOR-NOR Realizations		
27	Realization of three level logic circuits		
28	Study the pin diagram and obtain truth table for the following relevant ICs 7400,7402,7404.	From: 5-9-2022	Lecture
29	Study the pin diagram and obtain truth table for the following relevant ICs 7408,7432,7486.	To: 22-9-2022	interspersed with

UNIT-II MINIMIZATION TECHNIQUES AND COMBINATIONAL LOGIC CIRCUITS DESIGN:

CO2: An ability to understand the different switching algebra theorems and apply them for logic functions.

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

30	Minimization and realization of switching functions using Boolean theorems		
31	Problems on Minimization		
32	K-Map (up to 6 variables)		
33	Tabular Method (Quine-McCluskey Method) With Only Four Variables		
34	Design of Half adder, full adder		
35	Design of half subtractor, full subtractor		
36	Applications of Full Adders		Lecture interspersed with discussions
37	4-bit adder-subtractor circuit, BCD adder circuit	From: 27-9-2022 To: 22-10-2022	
38	Excess 3 adder circuit and carry look-a-head adder circuit		
39	Design code converts using Karnaugh method and draw the complete circuit diagrams		discussions

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

CO3: An ability to define the Karnaugh map for a few variables and perform an algorithmic reduction of logic functions.

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



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

40	Design of Encoder, Decoder		
41	Multiplexer and De-Multiplexers		1
42	Implementation of higher order circuits using lower order circuits		
43	Realization of Boolean functions using decoders and multiplexers		
44	Realization of Boolean functions using decoders and multiplexers		
45	Study the relevant ICs pin diagrams and their functions 7442,7447,7485,74154	From:	Lecture
46	PLDs; PROM, PAL, PLA -Basics structures	25-10-2022	interspersed with
47	Realization of Boolean functions	To:	discussions
48	Programming table.	10-11-2022	
50	asynchronous) operation of NAND & NOR Latches and flip-flops; truth tables and excitation tables of RS flip-flop		
CO4: Al devices &	le to design various logic gates starting from simple ordinary gates arrays.	ites to complex pro	grammable logic
50			
51	JK flip-flop, T flip-flop, D flip-flop with reset and clear terminals		
52	6 1 6 0 0 1 0 1 0 0		
	Conversion from one flip-flop to another flip-flop		
53	Design of 5ripple counters		Lecture
53 54		From: 19-11-2022	Lecture interspersed with
	Design of 5ripple counters Design of synchronous counters, Johnson counter, ring		interspersed
54	Design of 5ripple counters Design of synchronous counters, Johnson counter, ring counter	19-11-2022	interspersed with
54	Design of 5ripple counters Design of synchronous counters, Johnson counter, ring counter Design of registers - Buffer register, control buffer register	19-11-2022 To:	interspersed with
54 55 56	Design of 5ripple counters Design of synchronous counters, Johnson counter, ring counter Design of registers - Buffer register, control buffer register Shift register, Bi-Directional shift register	19-11-2022 To:	interspersed with
54 55 56 57 58 UNIT-V CO5; Al	Design of 5ripple counters Design of synchronous counters, Johnson counter, ring counter Design of registers - Buffer register, control buffer register Shift register, Bi-Directional shift register Universal Shift Register Study the following relevant ICs and their relevant functions 7474,7475,7476,7490,7493,74121 SEQUENTIAL CIRCUITS II:	19-11-2022 To: 16-12-2022	interspersed with discussions
54 55 56 57 58 UNIT-V CO5: Al	Design of 5ripple counters Design of synchronous counters, Johnson counter, ring counter Design of registers - Buffer register, control buffer register Shift register, Bi-Directional shift register Universal Shift Register Study the following relevant ICs and their relevant functions 7474,7475,7476,7490,7493,74121 SEQUENTIAL CIRCUITS II:	19-11-2022 To: 16-12-2022	interspersed with discussions
54 55 56 57 58 UNIT-V CO5: Al	Design of 5ripple counters Design of synchronous counters, Johnson counter, ring counter Design of registers - Buffer register, control buffer register Shift register, Bi-Directional shift register Universal Shift Register Study the following relevant ICs and their relevant functions 7474,7475,7476,7490,7493,74121 SEQUENTIAL CIRCUITS II: le to design various sequential circuits starting from flip-flop to regital Logic and Computer Design, M. Morris Mano, PEA.	19-11-2022 To: 16-12-2022	interspersed with discussions



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62	Realization of sequence generator		
63	Design of Clocked Sequential Circuit to detect the given sequence (with overlapping)		
64	Design of Clocked Sequential Circuit to detect the given sequence (without overlapping)	From: 17-12-2022	Lecture interspersed
65	State Diagrams & State Table	To: 31-12-2022	with discussions
66	Revision		
67	Revision		
68	Revision		
69	Revision		
70	Revision		
71	Revision		
72	Revision		
73	Revision		
74	Revision		
75	Revision		
76	Revision		
77	Revision	1	

TB1: Digital Design, 5/e, M. Morris Mano, Michael D Ciletti, PEA. TB2: Digital Logic and Computer Design, M. Morris Mano, PEA.

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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: II A.Y: 2022-23

No. e Perio	77.7	TOPIC	Date	Mode of Delivery
COI:	RAT	REVIEW OF NUMBER SYSTEMS & CODES AND TONS: ability to define different number systems, binary at tion and operations with this representation.		
TB1:	-	ital Design, 5/e, M. Morris Mano, Michael D Ciletti, PE	Λ.	
1	-	eview of Number Systems & Codes		
2		epresentation of Numbers of Different Radix		
3	-	onversion from One Radix to Another Radix		
4	-	1's Compliments		
5		s Compliments of Signed Numbers		-
6	-	ray Code		
7	11.	- Bit Codes		
8	BC	CD Codes and Arithmetic		Lecture interspersed with discussions
9	Ex	cess – 3 Code and Arithmetic	From: 5-9-2022	
10	24	21, 84-2-1 codes	To:	
11	Er	ror Detection Codes	22-9-2022	
12	Er	ror Correction Codes	22-9-2022	
13	Pa	nrity Checking		
14	Ev	ven Parity		
15	O	dd Parity		
16	H	amming code		
17	Bo	oolean Theorems and Logic Operations		
18	Po	ostulates of Boolean Algebra		
19	Pr	rinciple of Complementation & Duality		
20	De	e-Morgan Theorems		
21	Ba	asic Logic Operations -NOT, OR		1 1 1 1 1 1
22	A	ND, Universal Logic operations		
23	E	X-OR, EX-NOR Operations		



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24	Standard SOP and POS Forms		Lecture interspersed with discussions
25	Standard POS Forms		
26	NAND-NAND And NOR-NOR Realizations		
27	Realization of three level logic circuits		
28	Study the pin diagram and obtain truth table for the following relevant ICs 7400,7402,7404.	From: 5-9-2022	
29	Study the pin diagram and obtain truth table for the following relevant ICs 7408,7432,7486.	To: 22-9-2022	
	An ability to understand the different switching algebra theorems ar Digital Design, 5/e, M. Morris Mano, Michael D Ciletti, PEA.		
	using Boolean theorems		
3	Problems on Minimization		
33	K-Map (up to 6 variables)		
3	Tabular Method (Quine-McCluskey Method) With Only	1	

Design of half subtractor, full subtractor
 Applications of Full Adders

Design of Half adder, full adder

34

37

38

39

4-bit adder-subtractor circuit, BCD adder circuit Excess 3 adder circuit and carry look-a-head adder

Design code converts using Karnaugh method and draw the complete circuit diagrams From: 27-9-2022

To: 22-10-2022 Lecture interspersed with discussions

UNIT-III COMBINATIONAL LOGIC CIRCUITS DESIGN USING MSI &LSI AND

INTRODUCTION OF PLD's:

CO3: An ability to define the Karnaugh map for a few variables and perform an algorithmic reduction of logic functions.

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



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40	Design of Encoder, Decoder		
41	Multiplexer and De-Multiplexers		17
42	Implementation of higher order circuits using lower order circuits		Lecture interspersed with discussions
43	Realization of Boolean functions using decoders and multiplexers		
44	Realization of Boolean functions using decoders and multiplexers		
45	Study the relevant ICs pin diagrams and their functions 7442,7447,7485,74154	From:	
46	PLDs: PROM, PAL, PLA -Basics structures	25-10-2022	
47	Realization of Boolean functions	To:	
48	Programming table.	10-11-2022	
NIT-IV	SPOUENTIAL CIRCUITS I:		

UNIT-IV SEQUENTIAL CIRCUITS I:

CO4: Able to design various logic gates starting from simple ordinary gates to complex programmable logic devices & arrays.

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

Classification of sequential circuits (synchronous and asynchronous)		
operation of NAND & NOR Latches and flip-flops; truth tables and excitation tables of RS flip-flop		Lecture interspersed with discussions
JK flip-flop, T flip-flop, D flip-flop with reset and clear terminals		
Conversion from one flip-flop to another flip-flop		
Design of 5ripple counters		
Design of synchronous counters, Johnson counter, ring counter	From: 19-11-2022	
Design of registers - Buffer register, control buffer register	To:	
Shift register, Bi-Directional shift register	16-12-2022	
Universal Shift Register		
Study the following relevant ICs and their relevant functions 7474,7475,7476,7490,7493,74121		
	asynchronous) operation of NAND & NOR Latches and flip-flops; truth tables and excitation tables of RS flip-flop JK flip-flop, T flip-flop, D flip-flop with reset and clear terminals Conversion from one flip-flop to another flip-flop Design of 5ripple counters Design of synchronous counters, Johnson counter, ring counter Design of registers - Buffer register, control buffer register Shift register, Bi-Directional shift register Universal Shift Register Study the following relevant ICs and their relevant	asynchronous) operation of NAND & NOR Latches and flip-flops; truth tables and excitation tables of RS flip-flop JK flip-flop, T flip-flop, D flip-flop with reset and clear terminals Conversion from one flip-flop to another flip-flop Design of 5ripple counters Design of synchronous counters, Johnson counter, ring counter Design of registers - Buffer register, control buffer register To: Shift register, Bi-Directional shift register Universal Shift Register Study the following relevant ICs and their relevant

UNIT-V SEQUENTIAL CIRCUITS II:

CO5: Able to design various sequential circuits starting from flip-flop to registers and counters.

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

59	Finite State Machine; State Diagrams, State Tables	
60	Reduction of state tables	
61	Analysis of clocked sequential circuits Mealy to Moore conversion and vice-versa	

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

62	Realization of sequence generator		
63	Design of Clocked Sequential Circuit to detect the given sequence (with overlapping)	From: 17-12-2022	Lecture interspersed
64	Design of Clocked Sequential Circuit to detect the given sequence (without overlapping)		
65	State Diagrams & State Table	To: 31-12-2022	with discussions
66	Revision		
67	Revision		
68	Revision		
69	Revision		
70	Revision		
71	Revision		
72	Revision		
73	Revision		
74	Revision		
75	Revision		
76	Revision		
77	Revision	-	

TB1: Digital Design, 5/e, M. Morris Mano, Michael D Ciletti, PEA. TB2: Digital Logic and Computer Design, M. Morris Mano, PEA.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Signals and Systems / R2021043

Year / Semester: II/I Section: I A.Y: 2022-23

S.NO.	TOPIC	Date	Mode of Delivery	
	INTRODUCTION Analyze the characteristics of signals, systems gnals and Systems by A. Anand Kumar, PHI	and principles	of vector space	
1	Introduction, Definition of Signals and Systems			
2	Classification of Signals, problems on classification			
3	Basic Elementary Signals		- 1	
4	Operations on signals: on time and amplitude	From:		
5	Problems on time scaling and amplitude scaling	05 /09/22 To:	Lecture	
6	Problems on time scaling and amplitude scaling	21/09/22	interspersed with discussions	
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, Tutorial			
CO2: E	T FOURIER SERIES AND FOURIER TRANSF examine the continues time signals and continues urier Transform. ignals and Systems by A. Anand Kumar, PHI Fourier Series Representation of CT signals, Dirichlet's conditions		g Fourier series	
12	Trigonometric Fourier Series			

13	Exponential Fourier Series		
14	Relation between TFS and EFS		2 1
15	Complex Fourier Spectrum		
16	Properties of Fourier Series		
17	Related Problems		Lecture
18	Fourier Transform from Fourier Series	From:	
19	Fourier Transform for standard signals	23/09/22 To	interspersed with
20	Properties of Fourier Transforms	11/10/22	discussions
21	Inverse Fourier Transform and related problems		
22	Fourier Transform for periodic signals		
23	Fourier Transform Involving impulse function and signum function		
	1		
CO3: A	Apply sampling theorem and evaluate the concept of and Power density spectrum and their relationshi		orrelation
UNIT- CO3: A	problems III SAMPLING THEOREM Apply sampling theorem and evaluate the concept of		orrelation
UNIT- CO3: / Energy TB1: S	problems III SAMPLING THEOREM Apply sampling theorem and evaluate the concept of and Power density spectrum and their relationshiftignals and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse		orrelation
UNIT- CO3: / Energy IB1: S	problems III SAMPLING THEOREM Apply sampling theorem and evaluate the concept of and Power density spectrum and their relationshifting and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse response of linear systems.		orrelation
UNIT- CO3: / Energy TB1: S 25	problems III SAMPLING THEOREM Apply sampling theorem and evaluate the concept of and Power density spectrum and their relationshifting als and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse response of linear systems. LTI and LTV systems Concept of convolution in time and frequency	From: 12/10/22	Lecture
UNIT- CO3: / Energy FB1: S 25 26 27	III SAMPLING THEOREM Apply sampling theorem and evaluate the concept of and Power density spectrum and their relationshi signals and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse response of linear systems. LTI and LTV systems Concept of convolution in time and frequency domain Transfer function of LTI system, Related	P From:	Lecture interspersed with
UNIT- CO3: A Energy TB1: S 25 26 27	III SAMPLING THEOREM Apply sampling theorem and evaluate the concept of and Power density spectrum and their relationship ignals and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse response of linear systems. LTI and LTV systems Concept of convolution in time and frequency domain Transfer function of LTI system, Related problem	From: 12/10/22 To:	Lecture interspersed
UNIT- CO3: / Energy IB1: S 25 26 27 28	III SAMPLING THEOREM Apply sampling theorem and evaluate the concept of and Power density spectrum and their relationshi ignals and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse response of linear systems. LTI and LTV systems Concept of convolution in time and frequency domain Transfer function of LTI system, Related problem Filter Characteristics of Linear System	From: 12/10/22 To:	Lecture interspersed with
UNIT- CO3: A Energy TB1: S 25 26 27 28 29 30	III SAMPLING THEOREM Apply sampling theorem and evaluate the concept of and Power density spectrum and their relationship ignals and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse response of linear systems. LTI and LTV systems Concept of convolution in time and frequency domain Transfer function of LTI system, Related problem Filter Characteristics of Linear System Distortion less Transmission Through a System Signal bandwidth, System bandwidth, Ideal	From: 12/10/22 To:	Lecture interspersed with

	,problems		
34	Convolution by graphical method		
35	Problems		
36	Tutorials		
37	Problems		
UNIT- CO4: I TB1: S	IV ANALYSIS OF LINEAR SYSTEMS Determine relationship among the various represe signals and Systems by A. Anand Kumar, PHI	ntations of LTI s	ystems.
38	Auto and Cross Correlation function		_
39	Properties of Correlation function		
40	Problems		
41	Energy density Spectrum, Parsevals theorem		Lecture interspersed with discussions
42	Power density spectrum, relation between auto and cross	From: 12/11/21 To: 02/12/22	
43	Detection of periodic signals in noise		
44	Extraction of signals from noise by filtering	02/12/22	
45	Introduction to sampling theorem		
46	Effect of under sampling ,Band pass sampling		
47	Related problems		
UNIT- CO5: A	pply Laplace Transform and z-transforms to analyze	continues and disc	rete time signal
48	gnals and Systems by A. Anand Kumar, PHI Introduction to LT		
48 49	Introduction to LT Region of convergence	Ti San	
48 49 50	Introduction to LT Region of convergence Properties of Laplace Transform		
48 49 50 51	Introduction to LT Region of convergence Properties of Laplace Transform Inverse Laplace Transform		
48 49 50 51 52	Introduction to LT Region of convergence Properties of Laplace Transform Inverse Laplace Transform Relation between L.T and F.T		
48 49 50 51 52 53	Introduction to LT Region of convergence Properties of Laplace Transform Inverse Laplace Transform Relation between L.T and F.T L.T using wave form synthesis	From	
48 49 50 51 52 53	Introduction to LT Region of convergence Properties of Laplace Transform Inverse Laplace Transform Relation between L.T and F.T L.T using wave form synthesis Concept of Z-transforms	From: 3/12/22	Lecture
48 49 50 51 52 53 54 55	Introduction to LT Region of convergence Properties of Laplace Transform Inverse Laplace Transform Relation between L.T and F.T L.T using wave form synthesis Concept of Z-transforms Region of convergence	From: 3/12/22 To:	Lecture
48 49 50 51 52 53 54 55 56	Introduction to LT Region of convergence Properties of Laplace Transform Inverse Laplace Transform Relation between L.T and F.T L.T using wave form synthesis Concept of Z-transforms Region of convergence Relation between L.T and F.T	3/12/22	Lecture interspersed with
48 49 50 51 52 53 54 55 56 57	Introduction to LT Region of convergence Properties of Laplace Transform Inverse Laplace Transform Relation between L.T and F.T L.T using wave form synthesis Concept of Z-transforms Region of convergence Relation between L.T and F.T L.T using wave form synthesis	3/12/22 To:	Lecture interspersed with
50 51 52 53 54 55 56	Introduction to LT Region of convergence Properties of Laplace Transform Inverse Laplace Transform Relation between L.T and F.T L.T using wave form synthesis Concept of Z-transforms Region of convergence Relation between L.T and F.T L.T using wave form synthesis Concept of Z-transforms	3/12/22 To:	Lecture interspersed with
50 51 52 53 54 55 56 57	Introduction to LT Region of convergence Properties of Laplace Transform Inverse Laplace Transform Relation between L.T and F.T L.T using wave form synthesis Concept of Z-transforms Region of convergence Relation between L.T and F.T L.T using wave form synthesis Concept of Z-transforms Inverse Z-transforms Inverse Z-transforms	3/12/22 To:	Lecture interspersed
50 51 52 53 54 55 56 57 58 59	Introduction to LT Region of convergence Properties of Laplace Transform Inverse Laplace Transform Relation between L.T and F.T L.T using wave form synthesis Concept of Z-transforms Region of convergence Relation between L.T and F.T L.T using wave form synthesis Concept of Z-transforms	3/12/22 To:	Lecture interspersed with

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

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TENTATIVE LESSON PLAN

Course/Code:	Signals	and S	vstems	/R2021043
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Year / Semester : II/I Section: II A.Y: 2022-23

0.110		,	.1. 2022-23
S.NO.	TOPIC	Date	Mode of Delivery
CO1: Anal	TRODUCTION yze the characteristics of signals, systems and place and Systems by A. Anand Kumar, PHI	principles of	The second second
1	Introduction, Definition of Signals and Systems		T
2	Classification of Signals, problems on classification		
3	Basic Elementary Signals		
4	Operations on signals: on time and amplitude	1	Lecture interspersed with discussions
5	Problems on time scaling and amplitude scaling	From:	
6	Problems on time scaling and amplitude scaling	05 /09/22 To: 20/09/22	
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, Tutorial		15.0
CO2: Examinated Fourier	OURIER SERIES AND FOURIER TRANSFORM ne the continues time signals and continues time syste Transform. and Systems by A. Anand Kumar, PHI	ems using Four	ier series
11	Fourier Series Representation of CT signals, Dirichlet's conditions		HIER X
12	Trigonometric Fourier Series		

1.2			
13	Exponential Fourier Series		I
14	Relation between TFS and EFS	From: 23/09/22 To	
15	Complex Fourier Spectrum		
16	Properties of Fourier Series		Lecture interspersed with
17	Related Problems		
18	Fourier Transform from Fourier Series		
19	Fourier Transform for standard signals		
20	Properties of Fourier Transforms	12/10/22	discussions
21	Inverse Fourier Transform and related problems	-	
22	Fourier Transform for periodic signals	-	
23	Fourier Transform Involving impulse function and signum function		
CO3: Apply	Introduction to Hilbert Transform, Related problems SAMPLING THEOREM sampling theorem and evaluate the concept of Conve	olution, correla	ation Energy
UNIT-III S CO3: Apply and Power d	SAMPLING THEOREM sampling theorem and evaluate the concept of Conversity spectrum and their relationship and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse	olution, correla	tion Energy
NIT-III S O3: Apply nd Power d 'B1: Signals	SAMPLING THEOREM sampling theorem and evaluate the concept of Convergence of Systems and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse response of linear systems	olution, correla	tion Energy
NIT-III S CO3: Apply nd Power d 'B1: Signals 25	SAMPLING THEOREM sampling theorem and evaluate the concept of Conversity spectrum and their relationship and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse	olution, correla	tion Energy
JNIT-III S CO3: Apply nd Power d TB1: Signals 25	SAMPLING THEOREM sampling theorem and evaluate the concept of Convergency spectrum and their relationship and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse response of linear systems LTI and LTV systems Concept of convolution in time and frequency domain	From:12/10	
JNIT-III S CO3: Apply nd Power d 'B1: Signals 25	SAMPLING THEOREM sampling theorem and evaluate the concept of Convergency spectrum and their relationship and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse response of linear systems LTI and LTV systems Concept of convolution in time and frequency		Lecture interspersed
JNIT-III S CO3: Apply and Power d TB1: Signals 25 26 27	SAMPLING THEOREM sampling theorem and evaluate the concept of Convergencity spectrum and their relationship and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse response of linear systems LTI and LTV systems Concept of convolution in time and frequency domain Transfer function of LTI system, Related problem	From:12/10 /22	Lecture
UNIT-III S CO3: Apply and Power d TB1: Signals 25 26 27 28	SAMPLING THEOREM sampling theorem and evaluate the concept of Convergencity spectrum and their relationship and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse response of linear systems LTI and LTV systems Concept of convolution in time and frequency domain Transfer function of LTI system, Related problem Filter Characteristics of Linear System	From:12/10 /22	Lecture interspersed with
UNIT-III S CO3: Apply and Power d TB1: Signals 25 26 27 28 29 30	SAMPLING THEOREM sampling theorem and evaluate the concept of Conversity spectrum and their relationship and Systems by A. Anand Kumar, PHI Unit.3 Introduction, linear systems, Impulse response of linear systems LTI and LTV systems Concept of convolution in time and frequency domain Transfer function of LTI system, Related problem Filter Characteristics of Linear System Distortion less Transmission Through a System Signal bandwith, System bandwidth, Ideal	From:12/10 /22	Lecture interspersed with

	,problems -		
34	Convolution by graphical method		
35	Problems		
36	Tutorials		
37	Problems		
CO4: Deter TB1: Signals	NALYSIS OF LINEAR SYSTEMS rmine relationship among the various represent and Systems by A. Anand Kumar, PHI	ations of	LTI systems
38	Auto and Cross Correlation function		
39	Properties of Correlation function		
40	Problems	From: 11/11/21 To: 02/12/22	Lecture interspersed with discussions
41	Energy density Spectrum, Parsevals theorem		
42	Power density spectrum, relation between auto and cross		
43	Detection of periodic signals in noise		
44	Extraction of signals from noise by filtering		
45	Introduction to sampling theorem		
46	Effect of under sampling ,Bandpass sampling		
47	Related problems		
CO5: Apply I	PLACE TRANSFORMS AND Z – TRANSFORMS aplace Transform and z-transforms to analyze continues and Systems by A. Anand Kumar, PHI Introduction to LT	and discrete t	ime signals.
49	Region of convergence		
50	Properties of Laplace Transform		
51	Inverse Laplace Transform		
52	Relation between L.T and F.T		
53	L.T using wave form synthesis		
54	Concept of Z-transforms	From: 3/12/22	Lecture
55	Region of convergence	To:	interspersed
56	Relation between L.T and F.T	23/12/22	with
57	L.T using wave form synthesis	23/12/22	discussions
58	Concept of Z-transforms		
59	Inverse Z-transforms		
60	Properties of Z-transforms		
61	Distribution between L.T,Z.T and F.T		
62	Problems		

62 Problems
TB1: Signal and Systems by A. Anand Kumar, PHI

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Random Variables and Stochastic Processes / R2021044

S.No	TOPIC	Date	Mode of
	TOTAL	Date	Delivery
CO1: D distribu TB : Pr	THE RANDOM VARIABLE escribe the concept of Random Variable, functions based tion and density functions. obability, Random Variables & Random Signal Principles, Petion, 2001.		
1	Introduction, Definition of a Random Variable, Conditions for a Function to be a Random Variable.		
2	Discrete, Continuous and Mixed random variable		
3	Density Function, Properties	From:	
4	Distribution function, Properties	05/09/2022	Lecture
5	Binomial, Poisson density functions		interspersed with discussions
6	Uniform, Gaussian Density functions	To:	
7	Exponential, Rayleigh Density functions	29/09/2022	
8	Conditional distribution and properties, conditional density		
9	Related problems.		
10	Tutorial		
transfor TB : Pro 4 th Edi	Determine the expected value, moments on one rand mations. bbability, Random Variables & Random Signal Principles, Peytion, 2001.		
11	Introduction, Expected value of a Random Variable, Functions		
12	Moments about the origin, Central moments		
13	Central moments ,Variance and skew		
14	Characteristic function	From:	2 10
15	Moment generation function	29/09/2022	Lecture
16	Chebychev's Inequality	To: 26/10/2022	interspersed
17	Transformations of a random variable: Monotonic transformations for a continuous random variable		discussions
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		
20	Joint Distribution Function, Properties of Joint Distribution		Lecture interspersed with discussions
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	From: 27/10/2022	
25	Problems		
26	Revision		
	OPERATIONS ON MULTIPLE RANDOM VARIABLES		
27	Joint moments about the origin	To:	
28	joint central moments	30/11/2022	
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		X
35	Tutorial		

UNIT -IV RANDOM PROCESSES - TEMPORAL CHARACTERISTICS

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

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

Random process concept		
Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions	France	
Statistically independent process	MARKET AND DOM:	Lecture
Stationary processes-First order, 2nd order, Wide-sense, strict- sense stationary	To:	with
Time averages, Ergodicity	14/12/2022	discussions
Autocorrelation Function and properties		
Cross-correlation function & properties, Covariance functions		
Gaussian random process, Poisson random process, problems		
	Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions Statistically independent process Stationary processes-First order, 2nd order, Wide-sense, strict-sense stationary Time averages, Ergodicity Autocorrelation Function and properties Cross-correlation function & properties, Covariance functions	Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions Statistically independent process Stationary processes-First order, 2nd order, Wide-sense, strict-sense stationary Time averages, Ergodicity Autocorrelation Function and properties Cross-correlation function & properties, Covariance functions

UNIT - V RANDOM PROCESSES- SPECTRAL CHARACTERISTICS

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

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

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

	Relationship between Cross power spectrum and cross correlation function	From:	Lecture
46	Linear systems with Random inputs	15/12/2022	interspersed with discussions
47	Random signal response of linear system		
48	Auto correlation and cross correlation	To: 26/12/2022	
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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Mode of

Date

TENTATIVE LESSON PLAN

Course/Code: Random Variables and Stochastic Processes / R2021044

Year / Semester: II/I Section: II A.Y: 2022-23

TOPIC

Periods	Toric	(500)	Delivery
CO1: I distribu TB: Pr	THE RANDOM VARIABLE Describe the concept of Random Variable, functions based tion and density functions. obability, Random Variables & Random Signal Principles, Petion, 2001.		
1	Introduction, Definition of a Random Variable, Conditions for a Function to be a Random Variable.		
2	Discrete, Continuous and Mixed random variable	_	Lecture interspersed with discussions
3	Density Function, Properties	From:	
4	Distribution function, Properties	05/09/2022	
5	Binomial, Poisson density functions	94400	
6	Uniform , Gaussian Density functions	To:	
7	Exponential, Rayleigh Density functions	21/09/2022	
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: 23/09/2022	
12	Moments about the origin, Central moments		
13	Central moments ,Variance and skew		The second
14	Characteristic function		Lecture interspersed with
15	Moment generation function		
16	Chebychev's Inequality	To:	
17	Transformations of a random variable: Monotonic transformations for a continuous random variable	15/10/2022	discussions
18	Non-monotonic transformations of continuous random variable, Problems		

	The Cross Power Density Spectrum	From:	Lecture interspersed with discussions
45	Relationship between Cross power spectrum and cross correlation function		
46	Linear systems with Random inputs	14/12/2022	
47	Random signal response of linear system		
48	Auto correlation and cross correlation	To:	
49	Mean and mean- squared value of system response	26/12/2022	
50	Cross power density spectra of input and output		
51	Narrow band processes, properties, Problems		

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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		
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	From:	Lecture
	OPERATIONS ON MULTIPLE RANDOM VARIABLES	17/10/2022	interspersed with discussions
27	Joint moments about the origin	1//////	
28	joint central moments	To:	
29	Joint characteristic function	29/11/2022	
30	Jointly Gaussian Random Variables, N Random Variable		
31	Transformations of multiple random variables		
32	Problems on moments, Linear Transformations of Gaussian		
33	Jointly moment generating function	1	716
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: 3/12/2022	
37	Classification of process, Deterministic and Non- deterministic processes, Distribution and density functions		
38	Statistically independent process		Lecture interspersed with
39	Stationary processes-First order, 2nd order, Wide-sense, strict- sense stationary		
40	Time averages, Ergodicity	To:	
41	Autocorrelation Function and properties	13/12/2022	discussions
42	Cross-correlation function and its properties, Covariance functions		100
43	Gaussian random process, Poisson random process, Problems		175

UNIT – V RANDOM PROCESSES- SPECTRAL CHARACTERISTICS

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

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

44	The power spectrum: properties, Relationship between Power Spectrum and Autocorrelation Function	26
44	Spectrum and Autocorrelation Function	



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Constitution of India

Year / Semester: 11/11 Section: 1 A.Y: 2022-23

S.No	торіс	Date	Mode of Delivery
CO1: To	I Introduction to Indian constitution o unable the student to understand the importance of orga das Basu, Introduction to the constitution of Indi or Delhi		lia Pvt
1	Introduction to Indian Constitution		
2	Meaning and term of Indian Constitution		Lecture interspersed with discussions
3	Constitutional History		
4	Brief history of Dr.Br Ambedkar	From:	
5	Sources of Constitution	05/09/2022	
6	Citizenship and its features		
7	Preamble	To:	
8	Fundamental Rights	29/09/2022	
9	Fundamental Duties		
	Directive Principles of State policy		

UNIT -II Union govt and its administration

CO2: Understand the structure of Indian Govt

TB :Subashkashyap, Indian Constitution National book trust

11	Union Government and its Administration		
12	Structure of the Indian Union		Lecture interspersed with discussions
13	President Role and powers	From:	
14	Prime Minister Role and power	29/09/2022	
15	Council of ministers	ere ere	
16	Cabinet and central secretariat	To:	
17	Loksabha and its role	26/10/2022	
18	Rajyasabha and its role		

20 21 22	State government and its administration Governor role and Position Role of CM	From	
	Pole of CM	From: 27/10/2022	Lecture interspersed
22	Role of CM		
	Role of Council of Ministers		with
23	State Secretariat Organization	To: 30/11/2022	discussions
24	Structure and functions of State Secretariat	30/11/2022	
25 26	District administration Head Role and Importance Role of Municipalities	From:	
4.00	nderstand the local administration Raj, Indian govt and Politics		
	And the second s		Lecture interspersed with discussions
27	Role of Mayor	5.71.50.50.0	
28	Role of Elected Representative	3/12/2022	
29	CEO of Municipal Corporation	To:	
30	Panchayat raj its functions	14/12/2022	
31	Role of Zila Panchayat		
32	Importance of grass root democracy		
	V now the role of Election Commission Johari , Indian Government & Politics		
33	Role of Chief Election Commissioner		Lecture interspersed
-	Role of State Election Commission	From:	
34		15/12/2022	
34 35 36	Functions of commissions of SC/ST/OBC	15/12/2022 To:	intersperse with

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Mode of

Date

TENTATIVE LESSON PLAN

Course/Code: Constitution of India

A.Y: 2022-23 Year / Semester: II/II Section: II

TOPIC

COI: To	I Introduction to Indian constitution o unable the student to understand the importance orga das Basu, Introduction to the constitution of In Delhi	of Constitution ndia, Prentice-Hall of Inc	Delivery lia Pvt
1	Introduction to Indian Constitution		
2	Meaning and term of Indian Constitution		Lecture interspersed with discussions
3	Constitutional History	From:	
4	Brief history of Dr.Br Ambedkar	05/09/2022	
5	Sources of Constitution	05/05/2022	
6	Citizenship and its features	To:	
7	Preamble	29/09/2022	
8	Fundamental Rights	27/07/2022	
9	Fundamental Duties		
10	Directive Principles of State policy		

CO2: Understand the structure of Indian Govt

TB :Subashkashyap, Indian Constitution National book trust

11			Lecture interspersed with discussions
12	Structure of the Indian Union		
13	President Role and powers	From:	
14	Prime Minister Role and power	29/09/2022	
15	Council of ministers	To:	
16	Cabinet and central secretariat	26/10/2022	
17	Loksabha and its role	20/10/2022	
18	Rajyasabha and its role		

19	State government and its administration	28	88
20	Governor role and Position	From:	Lecture
21	Role of CM	27/10/2022	interspersed
22	Role of Council of Ministers	T	with
23	State Secretariat Organization	To: 30/11/2022	discussions
24	Structure and functions of State Secretariat	30/11/2022	
25 26	Raj, Indian govt and Politics District administration Head Role and Importance Role of Municipalities	Frame	
	nderstand the local administration		
			Lecture interspersed with discussions
27	Role of Mayor	From: 3/12/2022	
28	Role of Elected Representative	3/12/2022	
29	CEO of Municipal Corporation	To:	
30	Panchayat raj its functions	14/12/2022	
31	Role of Zila Panchayat		
32	Importance of grass root democracy		20
	V Cnow the role of Election Commission C Johari , Indian Government & Politics		
33	Role of Chief Election Commissioner		
34	Role of State Election Commission	From:	Lecture
35	Functions of commissiononerate	15/12/2022	intersperse
36	Functions of commissions of SC/ST/OBC	To:	with
37	Welfare of women	26/12/2022	discussions

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S.Sn'Gown' Signature of HOD



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Mathematics - III / R2021011

Year / Semester: II/I Section: 1 A.Y: 2022-23

No. of Periods	TOPIC	Date	Mode of Delivery
CO1: To Int	ECTOR CALCULUS erpret the physical meaning of different operators Estimate the work done against a field, circulation ering Mathematics", Dr. T.K.V.Iyengar; S.Chano	and flux using vecto	
1	Vector Differentiation: Introduction		
2	Properties of vectors and scalars		
3	Derivative of vector – definition		
4	Vector differential operator		
5	Gradient of a vector		
6	Divergence of a vector		
7	Curl of a vector		Lecture interspersed with discussions
8	Properties of gradient		
9	Vector identities	From:	
10	Vector identities	05/09/2022	
11	Problems on application of gradient	To	
12	Problems on divergence and curl	22/09/2022	
13	Vector Integration: Introduction		
14	Problems on line integral		
15	Problems on line integral		
16	Problems on surface integrals		
17	Problems on volume integrals		
18	Problems on Greens theorem		
19	Problems on Green theorem		
20	Problems on Gauss divergence theorem		
21	Problems on stokes theorem		
CO2: To ap	APLACE TRANSFORMS ply the Laplace transform for solving differential ering Mathematics", Dr. T.K.V.Iyengar; S.Chano		
22	Laplace Transforms: Definitions, Existence	367	
23	Laplace Transform of standard functions	access and a second	
24	Linearity property; Shifting properties Change of scale property		
25	Laplace Transforms of derivatives; Integrals		
26	$L(t^n f(t))$		

27	Laplace Transforms of division by t	From	Lecture interspersed with discussions
28	Evaluation of integrals	23/09/2022 To 12/10/2022	
29	Laplace Transforms of periodic functions; unit step functions; Unit impulse functions		
30	Inverse Laplace Transforms: Finding L ⁻¹ using partial fractions		
31	Properties of inverse transform		
32	Convolution theorem		
33	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

34	Introduction		
35	Periodic functions		
36	Fourier series of periodic function		
37	Dirchlets conditions	11 -20	
38	Even and odd functions	From	Lecture interspersed with discussions
39	Change of interval	13/10/2022	
40	Half range sine and cosine series	To	
41	Fourier transforms	22/10/2022	
42	Fourier integral theorem	. &	
43	Fourier sine and cosine integrals	From	
44	Sine and cosine transforms	31/10/2022	
45	Properties	To 12/11/2022	
46	Inverse transforms	12/11/2022	
47	Finite Fourier transforms		

UNIT - IV: PDE OF FIRST ORDER

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

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

48	Introduction		
49	Formation of PDE by eliminating arbitrary constants		
50	Formation of PDE by eliminating arbitrary functions		
51	Solutions of PDE		Lecture interspersed with discussions
52	Method of grouping	22	
53	Method of multipliers	From 14/11/2022 To 26/11/2022	
54	Nonlinear PDE $f(p,q) = 0$		
55	Nonlinear PDE $f(p,q,z) = 0$		
56	Nonlinear PDE $f(p,x) = g(q,y)$		
57	Clairaut's equation		
58	PDE reducible to standard form		
59	$f(px^m,qy^n)=0$		
60	$f(pz^m, qz^m) = 0$		

APPLICATI CO5: Identifi proces	y solution methods for partial differential equations	that model physic	al
61	Introduction; Homogeneous Linear P.D.E with constant coefficients; finding CF Finding PI: RHS term of the type $e^{(ax+by)}$	From	Lecture
62	$\sin(ax + by)$; $\cos(ax + by)$	28/11/2022	interspersed with discussions
63	x ^m y ⁿ	To	
64	Method of separation of variables	17/12/2022	
65	Solution of one dimensional wave equation		
66	Heat equation		
67	Two dimensional Laplace equation		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Mathematics - III / R2021011

Year / Semester: II/I Section: II A.Y: 2022-23

No. of Periods	TOPIC	Date	Mode of Delivery
CO1: To Int divergence.	ECTOR CALCULUS terpret the physical meaning of different operators Estimate the work done against a field, circulation tering Mathematics", Dr. T.K.V.Iyengar; S.Chand	and flux using vector	
1	Vector Differentiation: Introduction		
2	Properties of vectors and scalars		
3	Derivative of vector – definition		1 7 7 7 1
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	From:	Lecture interspersed with discussions
10	Vector identities	05/09/2022	
11	Problems on application of gradient	To	
12	Problems on divergence and curl	22/09/2022	
13	Vector Integration: Introduction		
14	Problems on line integral		
15	Problems on line integral		
16	Problems on surface integrals		
17	Problems on volume integrals		
18	Problems on Greens theorem		
19	Problems on Green theorem		
20	Problems on Gauss divergence theorem		
21	Problems on stokes theorem		
CO2: To ap TB:" Engine	APLACE TRANSFORMS oply the Laplace transform for solving differential electing Mathematics", Dr. T.K.V. Iyengar; S.Chand		
22	Laplace Transforms: Definitions, Existence	A CONTRACTOR	
23	Laplace Transform of standard functions		
24	Linearity property; Shifting properties Change of scale property		
25	Laplace Transforms of derivatives; Integrals		
26	$L(t^n f(t))$		

27	Laplace Transforms of division by t	From	Lecture interspersed with discussions
28	Evaluation of integrals	23/09/2022 To 12/10/2022	
29	Laplace Transforms of periodic functions; unit step functions; Unit impulse functions		
30	Inverse Laplace Transforms: Finding L ⁻¹ using partial fractions		
31	Properties of inverse transform		
32	Convolution theorem		
33	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

34	Introduction		Lecture interspersed with discussions
35	Periodic functions		
36	Fourier series of periodic function		
37	Dirchlets conditions		
38	Even and odd functions	From	
39	Change of interval	13/10/2022	
40	Half range sine and cosine series	To	
41	Fourier transforms	22/10/2022	
42	Fourier integral theorem	&	
43	Fourier sine and cosine integrals	From	
44	Sine and cosine transforms	31/10/2022	
45	Properties	To	
46	Inverse transforms	12/11/2022	
47	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

48	Introduction		Lecture interspersed with discussions
49	Formation of PDE by eliminating arbitrary constants	From 14/11/2022 To 26/11/2022	
50	Formation of PDE by eliminating arbitrary functions		
51	Solutions of PDE		
52	Method of grouping		
53	Method of multipliers		
54	Nonlinear PDE $f(p,q) = 0$		
55	Nonlinear PDE $f(p,q,z) = 0$		
56	Nonlinear PDE $f(p,x) = g(q,y)$		
57	Clairaut's equation		
58	PDE reducible to standard form		
59	$f(px^m,qy^n)=0$		
60	$f(pz^m,qz^m)=0$		

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.lyengar; S.Chand publications

61	Introduction; Homogeneous Linear P.D.E with constant coefficients; finding CF Finding PI: RHS term of the type $e^{(ax+by)}$	From	Lecture interspersed with discussions
62	sin(ax + by); cos(ax + by)	28/11/2022 To 17/12/2022	
63	$x^m y^n$		
64	Method of separation of variables		
65	Solution of one dimensional wave equation		
66	Heat equation		
67	Two dimensional Laplace equation		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: ANALOG IC'S AND APPLICATIONS /R2031041

Year / Semester : III/I

Section: 1

A.Y: 2022-23

No. of Periods	TOPIC	Date	Mode of Delivery
amplifiers. T1: OP-AN	Introduction To Operational Amplifier lent can Analyze various parameters of Differential amp MPS and Linear Integrated Circuits, Ramakanth A Gay Integrated Circuits, D. Roy Choudary, Sahil B jain, Ne	akwad, PHI.	
1.	Introduction		
2,	Op amp block diagram Characteristics of Op-Amp	1	1
3.	Ideal and Practical Op-Amp specifications	7	
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	1	
8.	AC Characteristics-Frequency Response, Stability	From:	Lecture interspersed with discussions
9.	AC Characteristics-Frequency Response, Stability	01-08-2022	
10.	AC Characteristics-Frequency Compensation		
11.	Tutorial	To:	
12.	Measurements of Op-Amp Parameters	20-08-2022	
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	1	6236
20.	Dual Power Supply with 78xx &79xx	1	1
21.	Problems		
Γ1: OP-AM Γ2: Linear	OP-AMP APPLICATIONS ent can implement OPAMP in real time applications. IPS and Linear Integrated Circuits, Ramakanth A Gay: Integrated Circuits, D. Roy Choudary, Sahil B jain, Ne	ikwad, PHI. w Age Internat	ional.
22.	Introduction		
23.	Basic Op-Amp Applications	From:	
24.	Instrumentation amplifier	22-08-2022	Lecture
25.	AC amplifier		interspersed
26.	V to I converter	To:	with
27.	I to V converter	10-09-2022	discussions
28.	Sample and Hold Circuit		

29,	Tutorial		
30.	Log Amplifiers		
31.	Anti log Amplifiers		Lecture interspersed with discussions
32.	Multiplier and Divider	1	
33.	Integrator	From:	
34.	Differentiator	22-08-2022	
35.	Comparators And Waveform Generators	To:	
36.	Square Wave Generators- Comparator	10-09-2022	
37.	Schmitt Trigger	10-07-2022	uiscussions
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		
		-	
	Tutorial ACTIVE FILTERS ty to use OP Amp as Filter.		
UNIT - III CO3: Abil T1: OP-AN T2: Linear	1		tional
UNIT - III CO3: Abil T1: OP-AN	ACTIVE FILTERS ty to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G		tional
UNIT - III CO3: Abil T1: OP-AN T2: Linear	ACTIVE FILTERS ity to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain,	New Age Interna	tional
UNIT - III CO3: Abil T1: OP-AN T2: Linear 44.	ACTIVE FILTERS ity to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters	New Age Interna From:	tional
UNIT - III CO3: Abil T1: OP-AN T2: Linear 44.	ACTIVE FILTERS ity to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters Ist order LPF	From: 12-09-2022	
UNIT - III CO3: Abil T1: OP-AM T2: Linear 44.	ACTIVE FILTERS ity to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters 1st order LPF 2nd order LPF	From: 12-09-2022 To:	Lecture
UNIT - III CO3: Abil T1: OP-AN T2: Linear 44. 45. 46. 47.	ACTIVE FILTERS ity to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters Ist order LPF 2nd order LPF Ist order HPF filters	From: 12-09-2022 To:	Lecture
UNIT - III CO3: Abil T1: OP-AN T2: Linear 44. 45. 46. 47. 48.	ACTIVE FILTERS ity to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters 1st order LPF 2nd order LPF 1st order HPF filters 2nd order HPF	From: 12-09-2022 To: 24-09-2022 From: 03-10-2022	Lecture interspersed with
UNIT - III CO3: Abil T1: OP-AM T2: Linear 44. 45. 46. 47. 48. 49.	ACTIVE FILTERS Ity to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters 1st order LPF 2nd order LPF 1st order HPF filters 2nd order HPF Tutorial	From: 12-09-2022 To: 24-09-2022 From: 03-10-2022 To:	Lecture
UNIT - III CO3: Abil T1: OP-AN T2: Linear 44. 45. 46. 47. 48. 49. 50. 51.	ACTIVE FILTERS ity to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters Ist order LPF 2nd order LPF Ist order HPF filters 2nd order HPF Tutorial Narrow Band Pass Filter	From: 12-09-2022 To: 24-09-2022 From: 03-10-2022	Lecture interspersed with
UNIT - III CO3: Abil T1: OP-AN T2: Linear 44. 45. 46. 47. 48. 49. 50. 51.	ACTIVE FILTERS ity to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters 1st order LPF 2nd order LPF 1st order HPF filters 2nd order HPF Tutorial Narrow Band Pass Filter Wide Band Pass Filter	From: 12-09-2022 To: 24-09-2022 From: 03-10-2022 To:	Lecture interspersed with

No. of Periods	TOPIC	DATE	Mode of Delivery
CO 4: Able to	MERS AND PLL use OP Amp in generation of different waveforms egrated Circuits, D. Roy Choudary, Sahil B jain, 1	and as PLL, Ti	mer.
55.	Introduction to 555 timer		
56.	Functional Diagram		Lecture interspersed with discussions
57.	Monostable operation		
58.	Applications of Monostable multivibrator	From:	
59.	Ramp generator	17-10-2022	
60.	Frequency divider and multiplier		
61.	Astable operation	To:	
62.	Applications of Astable mode	05-11-2022	
63.	PLL - Introduction, block schematic		
64.	Principles and description of individual blocks	1	

65.	565 PLL		
66.	Applications of PLL - frequency multiplication	1 .	
67.	Frequency translation	From: 17-10-2022	
68.	AM and FM demodulators	17410-2022	Lecture
69.	Tutorial	To:	interspersed
70.	FSK demodulators	05-11-2022	with discussions
71.	Applications of VCO (566)		- 1177111
72.	Tutorial		E. m.

UNIT – V DIGITAL TO ANALOG AND ANALOG TO DIGITAL CONVERTERS CO 5: Able to use OPAMP in analog to digital and digital to analog converter. T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHL

73.	Introduction		
74.	Basic DAC techniques - Weighted resistor DAC		
75.	Weighted resistor DAC		
76.	Tutorial		
77.	R-2R ladder DAC		
78.	Inverted R-2R DAC	From:	Lecture
79.	Tutorial	07-11-2022	interspersed
80.	DAC Specifications	To:	with discussions
81.	ADCs - Parallel Comparator ADC	26-11-2022	
82.	Counter type ADC		
83.	Successive Approximation ADC		
84.	Dual slope ADC		
85.	ADC Specifications		
86.	Problems	1 x	

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Signature of the HoD



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

A.Y: 2022-23

TENTATIVE LESSON PLAN

Course/Code: ANALOG IC'S AND APPLICATIONS /R2031041

Year / Semester : III/I Section: II

Sample and Hold Circuit

No. of Periods	TOPIC	Date	Mode of Delivery
amplifiers. T1: OP-AM	Introduction To Operational Amplifier ent can Analyze various parameters of Differential amp IPS and Linear Integrated Circuits, Ramakanth A Gay: Integrated Circuits, D. Roy Choudary, Sahil B jain, Ne	akwad, PHI.	
1.	Introduction		
2.	Op amp block diagram Characteristics of Op-Amp		
3.	Ideal and Practical Op-Amp specifications		
4.	DC Characteristics- Input and Output Off-set voltages		
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	From:	Lecture interspersed with discussions
9.	AC Characteristics-Frequency Response, Stability	01-08-2022	
10.	AC Characteristics-Frequency Compensation		
11.	Tutorial	To:	
12.	Measurements of Op-Amp Parameters	20-08-2022	
13.	AC Characteristics		
14.	Slew Rate		
15.	CMRR	1	
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		
	OP-AMP APPLICATIONS ent can implement OPAMP in real time applications.	- Land Control of the] 6- 111
T2: Linear	PS and Linear Integrated Circuits, Ramakanth A Gay: Integrated Circuits, D. Roy Choudary, Sahil B jain, Ne		ional.
22.	Introduction	High Section	
23.	Basic Op-Amp Applications	From:	
24.	Instrumentation amplifier	22-08-2022	Lecture
25.	AC amplifier	17550-1	interspersed
26.	V to I converter	To:	with
27.	I to V converter	10-09-2022 discuss	discussions

29,	Tutorial		
30,	Log Amplifiers		
31.	Anti log Amplifiers		Lecture interspersed with discussions
32.	Multiplier and Divider		
33.	Integrator	From:	
34.	Differentiator	22-08-2022	
35.	Comparators And Waveform Generators	To:	
36.	Square Wave Generators- Comparator	10-09-2022	
37.	Schmitt Trigger	10-03-2022	uiscussioni
38.	Astable Multivibrator		
39.	Monostable Multivibrator		
40.	Triangular Wave Generator		
41.	Sine Wave Generators-RC Phase Shift Oscillator		
42.	Sine Wave Generators- Wein Bridge Oscillator		
43.	Tutorial		
	ACTIVE FILTERS ty to use OP Amp as Filter.		
CO3: AЫ Г1: ОР-АМ	ty to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G		tional
CO3: АЫ Г1: ОР-АМ	ty to use OP Amp as Filter.		tional
CO3: Abil 1: OP-AN 2: Linear	ty to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain,	New Age Interna	tional
CO3: Abil 1: OP-AN 2: Linear 44.	ty to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters	New Age Interna From:	tional
CO3: Abil 1: OP-AN 12: Linear 44. 45.	ty to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters 1st order LPF	From: 12-09-2022	tional
CO3: Abil 1: OP-AN 2: Linear 44. 45. 46.	ty to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters 1st order LPF 2nd order LPF	From: 12-09-2022 To: 24-09-2022	Lecture
CO3: Abil 11: OP-AN 12: Linear 44. 45. 46. 47.	ty to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters 1st order LPF 2nd order LPF 1st order HPF filters	From: 12-09-2022 To: 24-09-2022 From:	Lecture
CO3: Abil 1: OP-AN 2: Linear 44. 45. 46. 47. 48.	ty to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters 1st order LPF 2nd order LPF 1st order HPF filters 2nd order HPF	From: 12-09-2022 To: 24-09-2022 From: 03-10-2022	Lecture intersperse with
CO3: Abil F1: OP-AM F2: Linear 44. 45. 46. 47. 48. 49.	Ity to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters 1st order LPF 2nd order LPF 1st order HPF filters 2nd order HPF Tutorial	From: 12-09-2022 To: 24-09-2022 From: 03-10-2022 To:	Lecture intersperses with
CO3: Abil F1: OP-AN F2: Linear 44. 45. 46. 47. 48. 49. 50.	ty to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters 1st order LPF 2nd order LPF 1st order HPF filters 2nd order HPF Tutorial Narrow Band Pass Filter	From: 12-09-2022 To: 24-09-2022 From: 03-10-2022	Lecture intersperse
CO3: Abil F1: OP-AN F2: Linear 44. 45. 46. 47. 48. 49. 50. 51.	ty to use OP Amp as Filter. IPS and Linear Integrated Circuits, Ramakanth A G Integrated Circuits, D. Roy Choudary, Sahil B jain, Design & Analysis of active filters 1st order LPF 2nd order LPF 1st order HPF filters 2nd order HPF Tutorial Narrow Band Pass Filter Wide Band Pass Filter	From: 12-09-2022 To: 24-09-2022 From: 03-10-2022 To:	Lecture intersperse with

No. of Periods	TOPIC	DATE	Mode of Delivery
CO 4: Able to	MERS AND PLL ase OP Amp in generation of different waveforms egrated Circuits, D. Roy Choudary, Sahil B jain, I		
55.	Introduction to 555 timer		
56.	Functional Diagram		Lecture interspersed with discussions
57.	Monostable operation		
58.	Applications of Monostable multivibrator	From:	
59.	Ramp generator	17-10-2022	
60.	Frequency divider and multiplier		
61.	Astable operation	To:	
62.	Applications of Astable mode	05-11-2022	
63.	PLL - Introduction, block schematic		
64.	Principles and description of individual blocks	1	0,

65.	565 PLL		
66.	Applications of PLL - frequency multiplication		
67.	Frequency translation	From: 17-10-2022	
68.	AM and FM demodulators	17-10-2022	Lecture
69.	Tutorial	To:	interspersed with discussions
70.	FSK demodulators	05-11-2022	
71.	Applications of VCO (566)		
72.	Tutorial		
NIT-V D	IGITAL TO ANALOG AND ANALOG TO DIGIT.	AL CONVERT	ERS

UNIT – V DIGITAL TO ANALOG AND ANALOG TO DIGITAL CONVERTERS CO 5: Able to use OPAMP in analog to digital and digital to analog converter. T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHL

73.	Introduction		
74.	Basic DAC techniques - Weighted resistor DAC		Lecture
75.	Weighted resistor DAC		
76.	Tutorial		
77.	R-2R ladder DAC		
78.	Inverted R-2R DAC	From:	
79.	Tutorial	07-11-2022	interspersed
80.	DAC Specifications	To:	with discussions
81.	ADCs - Parallel Comparator ADC	26-11-2022	
82.	Counter type ADC		
83.	Successive Approximation ADC		
84.	Dual slope ADC		
85.	ADC Specifications		
86.	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: 1

A.Y: 2022-23

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I	TRANSMISSION LINES-I		
smith cha	monstrate and compute various parameters f rt or classical theory. ements of Electromagnetics", Matthew N.O. S		200
1	Types, Parameters		
2	T & π equivalent circuits		
3	Transmission Line Equations		
4	Primary & Secondary Constants		
5	Expression for Characteristic Impedance	F 10 07 2022	On Black Board
6	Propagation Constant	From: 18.07.2022	
7	Phase & group Velocities		
8	Infinite Line Concepts	To: 03.08.2022	
9	Lossless lines/Low Loss Characterization	10: 03.06.2022	
10	Distortion – Condition for Distortion less lines and Minimum Attenuation		
11	Loading - Types of Loading		
12	Illustrative Problems		
UNIT-II	TRANSMISSION LINES-II		-
	ferentiate matching networks for loaded trans- ments of Electromagnetics", Matthew N.O. S.		
13	Input Impedance Relations, SC and OC Lines		
14	Reflection Coefficient, VSWR		
15	Low loss radio frequency lines	NAME OF TAXABLE PARTY.	0. 01. 1
16	UHF Transmission lines	From: 10.08.2022	On Black Board
17	λ/4, λ /2, λ/8 Lines – Impedance Transformations	115	Board
18	Smith Chart - Construction and Applications		
19	Smith Chart - Construction and Applications		

20	Quarter wave transformer		
21	Single and Double Stub Matching	To: 03.09.2022	
22	Illustrative Problems		
UNIT-II	I ELECTROSTATICS		•
	termine E using various laws and applications of ements of Electromagnetics", Matthew N.O. Sa		ess, 3rd ed.,
23	Review of Coordinate System		
24	Coulomb's Law		
25	Electric Field Intensity, Electric Flux Density		
26	Gauss Law and Applications		
27	Electric Potential, Maxwell's Two Equations for ESF		
28	Energy Density, Illustrative Problems	From: 05.09.2022	
29	Convection and Conduction Currents		On Black Board
30	Dielectric Constant, Continuity Equation, Relaxation Time	То: 20.10.2022	
31	Poisson's and Laplace's Equations		
32	Capacitance: Parallel Plate, Coaxial capacitors		
33	Illustrative Problems		
	Transfer to the transfer to th		
34 UNIT-IV	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATERMINE H using various laws and applications		
34 UNIT-IV O4: Det Maxwell	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUA	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell FB: " EI	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATERMINE H using various laws and applications Equations in Time Varying Fields.	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell FB: " EI	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATERMINE H using various laws and applications Equations in Time Varying Fields.	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell FB: " El 2001.	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER TO THE PROBLEM OF THE PRO	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " El 2001.	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " El 2001. 35	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER TO THE PROBLEM OF THE PRO	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER AND ARRIVE AND ARRIVED AND ARRIV	of magneto static fie	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36 37 38	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic	s of magneto static fie adiku, Oxford Univ. P	on Black
34 UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36 37 38 39	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER ermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy	s of magneto static fie adiku, Oxford Univ. P From: 21/10/22	lds & Deriv
34 UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36 37 38 39 40	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER AND ARRIVE AND ARRIVED AND ARRIVE AND ARRIVED AND	s of magneto static fie adiku, Oxford Univ. P	on Black
34 UNIT-IV O4: Det Maxwell IB: " El 2001. 35 36 37 38 39 40 41	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER The ermine H using various laws and applications Equations in Time Varying Fields. The ermine H using various laws and applications Equations in Time Varying Fields. The ermine H using various laws and applications in Time Varying Fields. The ermine H using various laws and applications in Time Varying Fields. Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy Illustrative Problems Faraday's Law and Transformer emf	s of magneto static fie adiku, Oxford Univ. P From: 21/10/22	on Black
34 UNIT-IV CO4: Det Maxwell TB: " El 2001. 35 36 37 38 39 40 41 42	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER AND ARRIVE AND ARRIVED AND	s of magneto static fie adiku, Oxford Univ. P From: 21/10/22	Ids & Deriv
34 UNIT-IV CO4: Det Maxwell IB: " El 2001. 35 36 37 38 39 40 41 42 43	MAGNETOSTATICS & MAXWELL EQUATERING H using various laws and applications Equations in Time Varying Fields. Ements of Electromagnetics", Matthew N.O. Saments of Electromagnetics, Matthew N.O. Samen	s of magneto static fie adiku, Oxford Univ. P From: 21/10/22	Ids & Deriv

UNIT-V EM WAVE CHARACTERISTICS

CO5: Demonstrate the reflection and refraction of waves at boundaries & interpret the effects of lossy and low loss dielectries 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.

.001.				
47	Wave Equations for Conducting and Dielectric Media			
48	Wave Equations Dielectric Media			
49	Uniform Plane Waves – Definition, All Relations Between E & H, Sinusoidal Variations			
50	Wave Propagation in Lossy and Lossless Dielectrics			
51	Wave Propagation in free space			
52	Wave Propagation in good conductors	F	On Black Board	
53	Skin depth, Polarization & Types	From: 10/11/22		
54	Illustrative Problems	T. 25/11/22		
55	Reflection and Refraction of Plane Waves	To: 25/11/22		
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		1	

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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: 11

A.Y: 2022-23

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I	TRANSMISSION LINES-I		
smith cha	monstrate and compute various parameters for rt or classical theory. ements of Electromagnetics", Matthew N.O. S		
1	Types, Parameters		
2	T & π equivalent circuits		
3	Transmission Line Equations		
4	Primary & Secondary Constants		
5	Expression for Characteristic Impedance	F 18 07 2022	
6	Propagation Constant	From: 18.07.2022	On Black Board
7	Phase & group Velocities		
8	Infinite Line Concepts	To: 10.08.2022	
9	Lossless lines/Low Loss Characterization	10: 10:08.2022	
10	Distortion – Condition for Distortion less lines and Minimum Attenuation		
11	Loading - Types of Loading		
12	Illustrative Problems		
UNIT-II CO2: Diff	TRANSMISSION LINES-II ferentiate matching networks for loaded transm	nission lines for OC an	d SC.
TB: " Ele 2001.	ments of Electromagnetics", Matthew N.O. Sa	idiku, Oxford Univ. P	ress, 3rd ed
13	Input Impedance Relations, SC and OC Lines		
14	Reflection Coefficient, VSWR		
15	Low loss radio frequency lines		On Black
16	UHF Transmission lines		Board
17	λ/4, λ/2, λ/8 Lines – Impedance Transformations	From: 11.08.2022	Board
18	Smith Chart - Construction and Applications		
19	Smith Chart - Construction and Applications		

	Quarter wave transformer	To: 02.09,2022			
21	Single and Double Stub Matching				
22	Illustrative Problems				
UNIT-II	I ELECTROSTATICS				
CO3: De	termine E using various laws and applications of	of electro static fields.			
TB: " El 2001	ements of Electromagnetics", Matthew N.O. Sac	diku, Oxford Univ. Pro	ess, 3rd ed.,		
23	Review of Coordinate System				
24	Coulomb's Law				
25	Electric Field Intensity, Electric Flux Density				
26	Gauss Law and Applications				
27	Electric Potential, Maxwell's Two Equations for ESF				
28	Energy Density, Illustrative Problems	From: 05.09.2022			
29	Convection and Conduction Currents		On Black		
30	Dielectric Constant, Continuity Equation, Relaxation Time	To: 17.10.2022	Board		
31	Poisson's and Laplace's Equations				
32	Capacitance: Parallel Plate, Coaxial capacitors				
33	Illustrative Problems				
34 UNIT-IV	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER TO THE PROBLEM OF THE PRO				
34 UNIT-IV CO4: De Maxwell	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER etermine H using various laws and applications Equations in Time Varying Fields.	s of magneto static fie	lds & Deriv		
34 UNIT-IV CO4: De Maxwell	Illustrative Problems V MAGNETOSTATICS & MAXWELL EQUATE etermine H using various laws and applications	s of magneto static fie	lds & Deriv		
34 UNIT-IV CO4: De Maxwell TB: " El	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER Etermine H using various laws and applications Equations in Time Varying Fields. ements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law	s of magneto static fie	lds & Deriv		
34 UNIT-IV CO4: De Maxwell FB: " El 2001.	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATE etermine H using various laws and applications Equations in Time Varying Fields, ements of Electromagnetics", Matthew N.O. Sa	s of magneto static fie	lds & Deriv		
J4 UNIT-IV CO4: De Maxwell FB: " El 2001.	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER The Main of Main of Market Problems Equations in Time Varying Fields. Ements of Electromagnetics", Matthew N.O. Samuel Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF	s of magneto static fie	lds & Deriv		
UNIT-IV CO4: De Maxwell TB: " EI 2001. 35	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER Etermine H using various laws and applications Equations in Time Varying Fields, ements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations	s of magneto static fie	lds & Deriv		
34 UNIT-IV CO4: De Maxwell TB: " El 2001. 35 36	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATE Etermine H using various laws and applications Equations in Time Varying Fields. Ements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials	s of magneto static fie	lds & Deriv		
34 UNIT-IV CO4: De Maxwell FB: " El 2001. 35 36 37 38	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER To Magnetic Husing various laws and applications Equations in Time Varying Fields. Ements of Electromagnetics", Matthew N.O. Same Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic	s of magneto static fie	lds & Deriv		
34 UNIT-IV CO4: De Maxwell FB: " El 2001. 35 36 37 38 39	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATE Etermine H using various laws and applications Equations in Time Varying Fields. Ements of Electromagnetics", Matthew N.O. Sa Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy	s of magneto static fie adiku, Oxford Univ. P From: 18/10/22	lds & Deriv		
34 UNIT-IV CO4: De Maxwell TB: " El 2001. 35 36 37 38 39 40	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER To Magnetic Husing various laws and applications Equations in Time Varying Fields, ements of Electromagnetics", Matthew N.O. Samuel Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy Illustrative Problems	s of magneto static fie	lds & Deriv		
34 UNIT-IV CO4: De Maxwell TB: " EI 2001. 35 36 37 38 39 40 41	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER To Magnetic Husing various laws and applications Equations in Time Varying Fields. Ements of Electromagnetics", Matthew N.O. Same Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy Illustrative Problems Faraday's Law and Transformer emf	s of magneto static fie adiku, Oxford Univ. P From: 18/10/22	lds & Deriv		
34 UNIT-IV CO4: De Maxwell TB: " El 2001. 35 36 37 38 39 40 41 42	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATE STATICS & Magnetics of Electromagnetics, Matthew N.O. Satisfies and Applications of Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy Illustrative Problems Faraday's Law and Transformer emf Inconsistency of Ampere's Law	s of magneto static fie adiku, Oxford Univ. P From: 18/10/22	lds & Deriv		
34 UNIT-IV CO4: De Maxwell TB: " El 2001. 35 36 37 38 39 40 41 42 43	Illustrative Problems MAGNETOSTATICS & MAXWELL EQUATER To Magnetic H using various laws and applications Equations in Time Varying Fields. Ements of Electromagnetics", Matthew N.O. Same Biot-Savart Law, Ampere's Circuital Law and Applications Magnetic Flux Density, Maxwell Equations for MSF Magnetic Scalar and Vector Potentials Forces due to Magnetic Fields Ampere's Force Law, Inductances, Magnetic Energy Illustrative Problems Faraday's Law and Transformer emf Inconsistency of Ampere's Law Displacement Current Density Maxwell's Equations in Different Final	s of magneto static fie adiku, Oxford Univ. P From: 18/10/22	lds & Deriv		

UNIT-V EM WAVE CHARACTERISTICS

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

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

47	Wave Equations for Conducting and Dielectric Media		
48	Wave Equations Dielectric Media		
49	Uniform Plane Waves – Definition, All Relations Between E & H, Sinusoidal Variations		
50	Wave Propagation in Lossy and Lossless Dielectrics		
51	Wave Propagation in free space	From:	
52	Wave Propagation in good conductors	14/11/22	
53	Skin depth, Polarization & Types		On Black
54	Illustrative Problems		Board
55	Reflection and Refraction of Plane Waves	To:	34,345,000
56	Normal and Oblique Incidences for both Perfect Conductor and Perfect Dielectrics	25/11/22	
57	Brewster Angle, Critical Angle, Total Reflection	- 6	
58	Surface Impedance		
59	Poynting Vector , Poynting Theorem – Applications		
60	Power Loss in a Plane Conductor		
61	Illustrative Problems		

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TENTATIVE LESSON PLAN

Course/Code: Digital Communications / R2031043

Year / Semester: III/I

QPSK:

M-ary PSK

20.

21.

A.Y: 2022-23

No. of Periods	TOPIC	Date	Mode of Delivery
CO1: Explain t Communicatio TB: 1. Commu	ulse Digital Modulation the working of pulse digital modulation systems such n Systems. nication Systems - Simon Haykin, John Wiley, 3/e. nunications - Simon Haykin, John Wiley, 2005		CM and DM.
1.	Elements of digital communication systems		
2.	Advantages of digital communication systems		
3.	Elements of PCM: Sampling		
4.	Quantization and coding		
5.	Quantization error	_	
6.	Companding in PCM systems	From: 18/07/2022	Lecture
7.	Differential PCM	To	interspersed with discussions
8.	Delta Modulation and its drawbacks	30/07/2022	
9.	Adaptive Delta Modulation		
10.	Adaptive Delta Modulation		
11.	Comparison of PCM and DM systems		
12.	Noise in PCM and DM systems		
CO2 Learn va DPSK and M-a TB: 1. Commu 2. Digital comn	igital Modulation Techniques prious digital passband modulations techniques sory modulation techniques. prious Systems - Simon Haykin, John Wiley, 3/e. priousitions - Simon Haykin, John Wiley, 2005. priousition Systems-Analog & Digital - Singh & Sapre, The		FSK, PSK, QPS
13.	Introduction		
14.	Introduction		
15.	ASK		
16.	FSK		
17.	PSK	1	
	The strain of the later and the strain of th	4	
18.	DPSK		



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

VURNAROA VURNAROA	DEPARTMENT OF ELECTRONICS AND C	OMMUNICATION	ENGINEERING
22.	M-ary ASK		
23.	M-ary FSK	From:	Lecture interspersed with discussions
24.	Similarity of BFSK and BPSK	01/08/22 To 11/08/22	
CO3: Analyze error. TB: 1. Commu	Data Transmission the performance of various Digital Modulation inication Systems - Simon Haykin, John Wiley nunications - Simon Haykin, John Wiley, 2005	, 3/e.	ns of probability
25.	Baseband signal receiver		
26.	Probability of error		
27.	The optimum filter		
28.	Matched filter		
29.	Matched filter		Lecture interspersed with discussions
30.	Probability of error using Matched filter	From:	
31.	Coherent reception	24/08/22 To	
32.	Non-coherent detection of FSK	09/09/22	
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		
CO4: Understa	nformation Theory and the concepts of Information Theory and the nication Systems - Simon Haykin, John Wiley, Discrete messages		oding.
38.	Concept of amount of information and its properties		
39.	Average Information	From:	
40.	Average Information	14/10/2022	Lecture interspersed with
41.	Entropy and its properties	To 22/10/2022	discussions
42.	Information rate		
43.	Mutual Information and its properties		
44.	Mutual Information and its properties		
CO5: Learn the eff TB: 1. Commu	urce Coding the theorems governing the transmission of inficiency calculations. The distribution of the transmission of the control of the co		noisy channel an
45.	Introduction, Advantages		



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

46.	Shannon's Theorem		
47.	Shannon-Fano Coding		
48.	Huffman Coding		
49.	Efficiency calculations		Lecture interspersed with discussions
50.	Channel capacity of discrete and analog channels		
51.	Capacity of a Gaussian channel	1	
52.	Bandwidth-S/N trade-off		
53.	Introduction to Linear Block Codes	1	
54.	Matrix description of linear block codes		
55.	Error detection and correction capabilities of LBC		
56.	Hamming codes	From: 30/10/2022	
57.	Revision	To	
58.	Binary cyclic codes	22/11/2022	
59.	Classification cyclic codes	1	
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: 2022-23

No. of Periods	TOPIC	Date	Mode of Deliver
UNIT -I	Pulse Digital Modulation		
CO1: Exp Commun	plain the working of pulse digital modulation systems so ication Systems.		and DM.
	ommunication Systems - Simon Haykin, John Wiley, 3/e communications - Simon Haykin, John Wiley, 2005		
1.	Elements of digital communication systems		
2.	Advantages of digital communication systems		
3.	Elements of PCM: Sampling		
4.	Quantization and coding		
5.	Quantization error		
6,	Companding in PCM systems	From: 18/07/2022	5915
7.	Differential PCM	To	Lecture interspersed with discussion
8.	Delta Modulation and its drawbacks	30/07/2022	
9.	Adaptive Delta Modulation		
10.	Adaptive Delta Modulation		
11.	Comparison of PCM and DM systems		
12.	Noise in PCM and DM systems		
and M-ar TB: 1. Co 2. Digital	Digital Modulation Techniques on various digital passband modulations techniques such y modulation techniques. mmunication Systems - Simon Haykin, John Wiley, 3/e communications - Simon Haykin, John Wiley, 2005. Inication Systems-Analog & Digital – Singh & Sapre, T		SK, QPSK, DPSI
13.	Introduction		
14.	Introduction		
15.	ASK		
16.	FSK	From:	Lecture
17.	PSK	01/08/22	interspersed
18.	DPSK	To 11/08/22	with discussion
19.	DEPSK	5.64676V58	
20.	QPSK	- 1	



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

95,4766	and the state of t		I I I I I I I I I I I I I I I I I I I
21.	M-ary PSK		
22.	M-ary ASK		
23.	M-ary FSK		
24.	Similarity of BFSK and BPSK		
error. TB:1.C	11 Data Transmission nalyze the performance of various Digital Modulation Communication Systems - Simon Haykin, John Wiley, 3/e I communications - Simon Haykin, John Wiley, 2005		of probability of
25.	Baseband signal receiver		
26.	Probability of error		
27.	The optimum filter		
28,	Matched filter		
29.	Matched filter		Lecture interspersed with discussion
30.	Probability of error using Matched filter	From:	
31.	Coherent reception	24/08/22 To	
32.	Non-coherent detection of FSK	09/09/22	
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		
	V Information Theory derstand the concepts of Information Theory and the neommunication Systems - Simon Haykin, John Wiley, 3/e.		eg.
37.	Discrete messages		
38.	Concept of amount of information and its properties		
39.	Average Information		
40.	Average Information	From: 14/10/2022	Lecture
41.	Entropy and its properties	To	interspersed with discussions
42.	Information rate	22/10/2022	with discussions
43.	Mutual Information and its properties		
44.	Mutual Information and its properties		
UNIT -V	Source Coding		
perform	earn the theorems governing the transmission of info the efficiency calculations. ommunication Systems - Simon Haykin, John Wiley, 3/e.		oisy channel and
45.	Introduction, Advantages		



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

46.	Shannon's Theorem		
47.	Huffman Coding		Lecture interspersed with discussions
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	From:	
55.	Hamming codes	30/10/2022	
56.	Binary cyclic codes	To 22/11/2022	
57.	Classification cyclic codes	227172022	
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: 1 A.Y: 2022-23

Periods	TOPIC	Date	Mode of Delivery
performa	arn and understand functioning of various measuring s ace analysis. ronic instrumentation, second edition - H.S.Kalsi, Tata		
1.	Performance characteristics of instruments		
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 Date (1997)	
7.	DC Voltmeters- Multi-range	From:	35
8.	Range extension/Solid state and differential voltmeters	01-08-2022 To:	Lecture
9.	AC voltmeters- multi range, range extension	12-08-2022	with
10.	Thermo couple type RF Ammeter		discussions
11.	Aryton shunt		
12,	Ohmmeters series type, shunt type using D'arsonval movement.		
13.	Multimeter for Voltage, Current and resistance elements		
	ciements		
14.	True rms meter.		
15. UNIT – II	True rms meter. Tutorial		
15. UNIT – II CO2:: Acc Instrumer	True rms meter. Tutorial		
15. UNIT – II CO2:: Acc Instrumer	True rms meter. Tutorial quire knowledge of principle of operation, working of outs viz. signal generators, signal analyzers		
15. UNIT – II CO2:: Acc Instrumer TB: Elect	True rms meter. Tutorial quire knowledge of principle of operation, working of outs viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tata		
15. UNIT – II CO2:: Acc Instrumer TB: Electr 16.	True rms meter. Tutorial quire knowledge of principle of operation, working of outs viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable		
15. UNIT – II CO2:: Acc Instrumer TB: Elect 16.	True rms meter. Tutorial quire knowledge of principle of operation, working of outs viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators	McGraw Hill,	2004.
15. UNIT – II CO2:: Acc Instrumer TB: Elect 16. 17.	True rms meter. Tutorial quire knowledge of principle of operation, working of outs viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators AF square wave signal generators	McGraw Hill,	Lecture intersperses
15. UNIT – II CO2:: Acc Instrumer TB: Electr 16. 17. 18.	True rms meter. Tutorial quire knowledge of principle of operation, working of outs viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise	From: 16-08-2022 To:	Lecture interspersed with
15. UNIT – II CO2:: Acc Instrumer 16. 17. 18. 19. 20.	True rms meter. Tutorial quire knowledge of principle of operation, working of outs viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tatal Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator	McGraw Hill, From: 16-08-2022	Lecture interspersed with
15. UNIT - II CO2:: Acc Instrumer 16. 17. 18. 19. 20. 21.	True rms meter. Tutorial quire knowledge of principle of operation, working of outs viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator Arbitrary waveform generator	From: 16-08-2022 To:	Lecture interspersed with
15. UNIT - II CO2:: Acc Instrumer 16. 17. 18. 19. 20. 21.	True rms meter. Tutorial quire knowledge of principle of operation, working of outs viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tatal Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator Arbitrary waveform generator Wave Analyzers	From: 16-08-2022 To:	Lecture interspersed
15. UNIT - II CO2:: Acc Instrumer 16. 17. 18. 19. 20. 21. 22. 23.	True rms meter. Tutorial quire knowledge of principle of operation, working of outs viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator Arbitrary waveform generator Wave Analyzers Harmonic Distortion Analyzers	From: 16-08-2022 To:	Lecture interspersed with

UN	

CO3:: Understand the design of oscilloscopes for different applications

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

27.	Oscilloscopes CRT features ,vertical amplifiers		
28.	Horizontal deflection system		Lecture interspersed with discussions
29.	Sweep, trigger pulse, delay line		
30.	Simple CRO	From:	
31.	Triggered sweep CRO	To: 24-09-2022	
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

CO4:: To 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.

	A COMPANY OF THE PROPERTY OF T		
39.	Bridge circuits- Wheat stone bridge		
40.	Measurement of very low resistance		
41.	AC Bridges Measurement of inductance- Maxwell's bridge.		
42.	Anderson bridge.		
43.	Measurement of capacitance -Shearing Bridge	From:	
44.	Wien's Bridge	10-10-2022	Lecture interspersed with discussions
45.	Errors and precautions in using bridges	To:	
46.	Q-meter principle of operation		
47.	Measurement methods and sources of errors.	29-10-2022	
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

CO5:: Learn and understand the use of various measuring techniques for measurement of different physical parameters using different classes oftransducers.

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

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

No. of Periods	TOPIC	DATE	Mode of Delivery
52.	active & passive transducers		Lecture interspersed with discussions
53.	Resistance, Capacitance,	From: 29-10-2022	
54.	Inductance		
55.	Strain gauges		
56.	LVDT	29-10-2022	
57.	Piezo Electric transducers		
58.	Measurement of physical parameters, temperature		

59	Measurement of pressure	To:
60	Measurement of velocity	NO PROPERTY OF A PROPERTY OF
61	Measurement of displacement	26-11-2022
62	Measurement of force	
63	Measurement of acceleration	
64	Tutorial	

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Electronic Measurements and Instrumentation /R203104B

Year / Semester: III/I Section: II A.Y: 2022-23

Periods	TOPIC	Date	Mode of Delivery
performan	rn and understand functioning of various measuring s ice analysis. onic instrumentation, second edition - H.S.Kalsi, Tata		
1.	Performance characteristics of instruments		
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.	From:	
7.	DC Voltmeters- Multi-range	01-08-2022	T. andrews
8.	Range extension/Solid state and differential voltmeters	To: 11-08-2022	Lecture interspersed with discussions
9.	AC voltmeters- multi range, range extension		
10.	Thermo couple type RF Ammeter		
11.	Aryton shunt		
12.	Ohmmeters series type, shunt type using D'arsonval movement.		
13.	Multimeter for Voltage, Current and resistance elements		
	The same and the sa	1	
14.	True rms meter.		
15. UNIT – II	Tutorial		
15. UNIT – II CO2:: Acc Instrumen TB: Elect	Tutorial Juire knowledge of principle of operation, working of outs viz. signal generators, signal analyzers onic instrumentation, second edition - H.S.Kalsi, Tata		
15. UNIT – II CO2:: Acc Instrumen	Tutorial Juire knowledge of principle of operation, working of its viz. signal generators, signal analyzers		
15. UNIT – II CO2:: Acc Instrumen TB: Elect	Tutorial Juire knowledge of principle of operation, working of outs viz. signal generators, signal analyzers onic instrumentation, second edition - H.S.Kalsi, Tata		
15. UNIT – II CO2:: Acc Instrumer TB: Electr 16.	Tutorial quire knowledge of principle of operation, working of ots viz. signal generators, signal analyzers onic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable		
15. UNIT – II CO2:: Acc Instrumer TB: Elect 16.	Tutorial quire knowledge of principle of operation, working of its viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators	McGraw Hill,	
15. UNIT – II CO2:: Acc Instrumer TB: Elect 16. 17.	Tutorial quire knowledge of principle of operation, working of its viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators AF square wave signal generators	McGraw Hill,	Lecture intersperse
15. UNIT – II CO2:: Acc Instrumer 16. 17. 18.	Tutorial Juire knowledge of principle of operation, working of its viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise	McGraw Hill, From: 16-08-2022 To:	Lecture interspersed with
15. UNIT - II CO2:: Acc Instrumer TB: Electr 16. 17. 18. 19. 20.	Tutorial quire knowledge of principle of operation, working of ots viz. signal generators, signal analyzers onic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator	McGraw Hill, From: 16-08-2022	Lecture intersperses
15. UNIT - II CO2:: Acc Instrumer 16. 17. 18. 19. 20. 21.	Tutorial puire knowledge of principle of operation, working of its viz. signal generators, signal analyzers conic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator Arbitrary waveform generator	McGraw Hill, From: 16-08-2022 To:	Lecture interspersed with
15. UNIT - II CO2:: Acc Instrumer 16. 17. 18. 19. 20. 21.	Tutorial Juire knowledge of principle of operation, working of its viz. signal generators, signal analyzers ronic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator Arbitrary waveform generator Wave Analyzers	McGraw Hill, From: 16-08-2022 To:	Lecture intersperses with
15. UNIT - II CO2:: Acc Instrumer 16. 17. 18. 19. 20. 21. 22. 23.	Tutorial puire knowledge of principle of operation, working of its viz. signal generators, signal analyzers conic instrumentation, second edition - H.S.Kalsi, Tata Signal Generator- fixed and variable AF oscillators, AF sine wave signal generators AF square wave signal generators Function Generators Square pulse, Random noise Sweep generator Arbitrary waveform generator Wave Analyzers Harmonic Distortion Analyzers	McGraw Hill, From: 16-08-2022 To:	Lecture intersperses with

UNIT - III

CO3:: Understand the design of oscilloscopes for different applications

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

27.	Oscilloscopes CRT features ,vertical amplifiers		
28.	Horizontal deflection system		Lecture interspersed with discussions
29.	Sweep, trigger pulse, delay line		
30.	Simple CRO	From:	
31.	Triggered sweep CRO	To: 24-09-2022	
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

CO4:: To Compare various measuring bridges and their balancing conditions

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

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

Pearson Education - 2005.

Bridge circuits- Wheat stone bridge		
Measurement of very low resistance		
AC Bridges Measurement of inductance- Maxwell's bridge.		
Anderson bridge.		
Measurement of capacitance -Shearing Bridge	From:	
Wien's Bridge	10-10-2022	Lecture interspersed with discussions
Errors and precautions in using bridges	To:	
Q-meter principle of operation		
Measurement methods and sources of errors.	29-10-2022	
Counters : principle of operation		
Modes of operation- totalizing mode,		
Frequency mode and time period mode- sources of errors.		
Tutorial		
	Measurement of very low resistance AC Bridges Measurement of inductance- Maxwell's bridge. Anderson bridge. Measurement of capacitance -Shearing Bridge Wien's Bridge Errors and precautions in using bridges Q-meter principle of operation Measurement methods and sources of errors. Counters: principle of operation Modes of operation- totalizing mode, Frequency mode and time period mode- sources of errors.	Measurement of very low resistance AC Bridges Measurement of inductance- Maxwell's bridge. Anderson bridge. Measurement of capacitance -Shearing Bridge Wien's Bridge Errors and precautions in using bridges Q-meter principle of operation Measurement methods and sources of errors. Counters: principle of operation Modes of operation- totalizing mode, Frequency mode and time period mode- sources of errors.

UNIT - V

CO5:: Learn and understand the use of various measuring techniques for measurement of different physical parameters using different classes oftransducers.

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

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

No. of Periods	TOPIC	DATE	Mode of Delivery
52.	Transducers		Lecture interspersed with discussions
53.	active & passive transducers		
54.	Resistance, Capacitance,		
55.	Inductance	From:	
56.	Strain gauges	31-10-2022	
57.	LVDT		
58.	Piezo Electric transducers		
59.	Measurement of physical parameters, temperature		

50.	Measurement of pressure	9388
61.	Measurement of velocity	To:
62.	Measurement of displacement	
63.	Measurement of force	26-11-2022
64.	Measurement of acceleration	CONTRACTOR AND ADDRESS OF THE CONTRA
65.	Tutorial	

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Computer Organization & Architecture / R203105K

Year / Semester : III/I

Section: 1

A.Y: 2022-23

Mode of Delivery: Onboard

No. of Periods	TOPIC	Date	Mode of Delivery	
AND LO CO1: Do Postulato	NUMBER SYSTEM AND DATA REPRESENTA GIC GATES emonstrate an understanding of the different es of Boolean algebra and minimize combinationa tal Logic and Computer Design, Moriss Mano, 13	number system I functions	ns, codes and Relat	
1	Introduction			
2	Numbering Systems			
3	Decimal to Binary Conversion			
4	Binary Coded Decimal Numbers			
5	Error Detecting Codes	From:	Lecture interspersed with discussions	
6	Error Correcting Codes	01.08.2022		
7	Hamming Code for Error Correction			
8	Karnaugh map representation	To:		
9	minimization of Boolean functions using K- maps up to 4-variable	20.08.2022		
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			

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		Lecture interspersed with discussions
16	Full adder	From: 22,08,2022	
17	Half subtractor	22.08.2022	
18	Full subtractor	100 HERENGER	
19	Design of decoder	To: 1.09.2022	
20	De-multiplexer		

No. of Periods	TOPIC	Date	Mode of Delivery	
21	Encoder	From: 22.08.2022		
22	Multiplexer			
23	Classification of sequential circuits (synchronous and asynchronous)		Lecture interspersed with discussions	
24	Basic flip-flops	22.00.2022		
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)	To: 1.09.2022		
27	Tutorial			

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

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

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

44	Tutorial		
43	Instruction cycle		Lecture interspersed with discussions
42	Computer instructions		
41	Computer registers		
40	Instruction codes		
39	Shift micro operations		
38	Logic micro operations		
37	Arithmetic Micro-operations	13.10.2022	
36	Register Transfer Bus and memory transfers	To:	
35	Register Transfer language	3.09.2022	
34	Multiprocessors and multi computers	From:	
33	Performance		
32	Software		
31	Bus structures		
30	Basic Operational concepts		
29	Functional unit		
28	Computer Types		

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		
46	Address sequencing	From: 15.10.2022 To: 3.11.2022	Lecture interspersed with discussions
47	micro program example		
48	design of control unit		
49	General Register Organization		

No. of Periods	TOPIC	Date	Mode of Delivery
50	Instruction Formats		Lecture interspersed with discussions
51	Addressing modes	From:	
52	Data Transfer and Manipulation	15.10.2022	
53	Program Control	То: 3.11.2022	
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		
56	Main Memory		
57	Auxiliary memory		
58	Associate Memory		
59	Cache Memory		Lecture interspersed with discussions
60	Virtual memories		
61	Introduction to Shift registers and RAID	From: 4.11.2022	
62	Input-Output Interface		
63	Asynchronous data transfer	To: 26,11,2022	
64	Modes of Transfer	20.11.2022	
65	Priority Interrupts		
66	DMA		
67	Input Output Processor		
68	Serial Communication		
69	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: II

A.Y: 2022-23

Mode of Delivery: Onboard

No. of Periods	TOPIC	Date	Mode of Delivery
AND LO CO1: D Postulat	NUMBER SYSTEM AND DATA REPRESENT. OGIC GATES emonstrate an understanding of the different es of Boolean algebra and minimize combinationa ital Logic and Computer Design, Moriss Mano, 1	number syster	ns, codes and Relate
1	Introduction		
2	Numbering Systems		
3	Decimal to Binary Conversion		
4	Binary Coded Decimal Numbers		Lecture interspersed with discussions
5	Error Detecting Codes	From:	
6	Error Correcting Codes	01.08.2022	
7	Hamming Code for Error Correction	1000000	
8	Karnaugh map representation	To:	
9	minimization of Boolean functions using K- maps up to 4-variable	17.08.2022	
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		

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	P	Lecture interspersed with discussions
16	Full adder	From: 18.08.2022	
17	Half subtractor		
18	Full subtractor	To:	
19	Design of decoder	30.08.2022	
20	De-multiplexer		

No. of Periods	TOPIC	Date	Mode of Delivery
21	Encoder		
22	Multiplexer		
23	Classification of sequential circuits (synchronous and asynchronous)		
24	Basic flip-flops		Lecture interspersed
25	Truth tables		with discussions
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, 5thed., Hamacher, Vranesicand Zaky, TMH, 2002.

28	Computer Types		
29	Functional unit		
30	Basic Operational concepts		
31	Bus structures		
32	Software		
33	Performance	72	
34	Multiprocessors and multi computers	From:	Lecture interspersed with discussions
35	Register Transfer language	2.09.2022 To: 24.9.2022	
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: 10.10.2022	Lecture interspersed with discussions
46	Address sequencing		
47	micro program example		
48	design of control unit	To: 26.10.2022	
49	General Register Organization	26.10.2022	

No. of Periods	TOPIC	Date	Mode of Delivery
50	Instruction Formats		
51	Addressing modes		Lecture interspersed with discussions
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		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	From: 27.10.2022	
62	Input-Output Interface		
63	Asynchronous data transfer	To:	
64	Modes of Transfer	26.11.2022	
65	Priority Interrupts		
66	DMA		
67	Input Output Processor		
68	Serial Communication		
69	Tutorial		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Microwave and Optical Communication Engineering: R1941041

Year/ Semester: IV/I Section: II		A.Y: 2022-23		
No. of Periods	TOPIC	Date	Mode of Delivery	
CO1:Desi	dicrowave Tubes ign different modes in waveguide structures rowave Devices and Circuits – Samuel Y. Liao, I	PHL 3rdEdition 199		
1	Cavities, Re-entrant Cavities	TH, STOCKHON, ES		
2	Two Cavity Klystrons-Structure			
3	Velocity Modulation and Bunching process			
4	Reflex Klystrons Structure, principle of working			
5	HELIX TWTS: Significance, Types and Characteristics of Slow Wave Structures		95.6	
6	Structure of TWT	From:	Lecture interspersed with discussions	
7	M-TYPE TUBES Introduction	04/07/2022		
8	Cross-field effects			
9	Magnetrons – 8-Cavity Cylindrical Travelling Wave Magnetron	To: 18/07/2022		
10	MICROWAVE SOLID STATE DEVICES: Introduction, Classification, Applications			
11	TEDs – Introduction, Gunn Diode – Principle, RWH Theory, Characteristics, LSA Mode of operation			
12	Tutorial			
CO2:Cale desired dir TB1: Micr	rowave Devices and Circuits - Samuel Y. Liao, P		200000000000000000000000000000000000000	
13	Waveguide Components And Applications Introduction		Lecture	
14	Waveguide Attenuators – Resistive Card	From:	interspersed	
15	Rotary Vane types	19/07/2022	with	
16	Scattering matrix parameters: Definition, Properties, Salient Features, S- parameters of Magic TEE	To: 01/08/2022	discussions	
17	S- parameters of two port Network			
18	S- parameters of two port Network			



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19	S- parameters of two port Network, Bethe Hole types		
20	Bethe Hole types		
21	Tutorial		
CO3: Dis	Over view of Optical Fiber Communication tinguish between Microwave tubes and Solid Statical Fiber Communications – Gerd Keiser, Mc Graw	ate Devices, calculation	on of efficiency device
22	Introduction about optical fiber		
23	Over view of Generation of optical fiber communication		
24	Total Internal Reflection, Numerical Aperture		Lecture interspersed with
25	Quarter wave Monopole and Half wave Dipole		
26	Graded index fibers, Multi Mode Graded index fibers	From: 01/08/2022	
27	OPTICAL FIBER CONNECTORS- introduction	To:	
28	Connector types	19/09/2022	discussions
29	Single mode fiber connectors, Types		
30	Mechanical Splicing &their types, single mode fiber joints		
31	Fusion splicing, Mechanical splicing		
32	Multimode fiber joints		
33	Couplers & Types		
34	Mixer & Star coupler		
35	Tutorial		
CO3:Disti B2: Option	Optical Sources And Detectors nguish between Microwave tubes and Solid Stat cal Fiber Communications – Gerd Keiser, Mc Graw-	e Devices, calculation Hill International editio	n of efficiency devices n,3rd Edition,2000.
36	OPTICAL SOURCES and Detectors Introduction, Surface emitting LED		
37	LASER diode	From:	Lecture
38	Working of LASER,PN diode	20/09/2022	interspersed
39	P-I-N detector	To:	with discussions
40	Quantum efficiency for optical source ,detector	12/10/2022	
41	Comparison of optical sources ,detectors		
42	Point to point links - Component Choice and considerations,Link power budget analysis		



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43	Problems solving		
44	Tutorial		
45	Line coding		30=
46	Characteristics of Line coding		
47	Components of optical communication		
48	WDM, Principle of fiber cable		
49	EYE pattern ,Semiconductor material		
50	Description Of Microwave Bench- Different Blocks		
TB2: Opt	asure various microwave parameters using a Mic ical Fiber Communications – Gerd Keiser, Mc Graw- Description Of Microwave Bench- Different Blocks		on,3rd Edition,2000.
51	Microwave Power Measurement- Bolometer Method, Attenuation measurement	From: 13/10/2022	Lecture interspersed with discussions
52	VSWR measurement	PROSESSES.	
53	Impedance Measurement, LOS and Radio Horizon	To: 21/10/2022	
54	OTDR, Attenuation		
55	Detector Characteristics		
	Tutorial	1	

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Microwave and Optical Communication Engineering: R1941041

Year/ Semester: IV /I Section: I A.Y: 2022-23

No. of Periods	TOPIC	Date	Mode of Delivery
CO1:Desi	ficrowave Tubes ign different modes in waveguide structures rowave Devices and Circuits – Samuel Y. Liao,	PHI, 3rdEdition,199	14.
1	Cavities, Re-entrant Cavities		
2	Two Cavity Klystrons-Structure		
3	Velocity Modulation and Bunching process		
4	Reflex Klystrons Structure, principle of working		
5	HELIX TWTS: Significance, Types and Characteristics of Slow Wave Structures		
6	Structure of TWT	From:	Lecture
7	M-TYPE TUBES Introduction	04/07/2022	interspersed
8	Cross-field effects		with
9	Magnetrons – 8-Cavity Cylindrical Travelling Wave Magnetron	To: dise 21/07/2022	discussions
10	MICROWAVE SOLID STATE DEVICES: Introduction, Classification, Applications		
11	TEDs – Introduction, Gunn Diode – Principle, RWH Theory, Characteristics, LSA Mode of operation		
12	Tutorial		
CO2:Calc desired dir TB1: Micr	rowave Devices and Circuits - Samuel Y. Liao,		0.75
13	Waveguide Components And Applications Introduction	From: 22/07/2022	Lecture interspersed
14	Waveguide Attenuators - Resistive Card	To:	with
15	Rotary Vane types	30/07/2022	discussions
16	Scattering matrix parameters: Definition, Properties, Salient Features, S- parameters of Magic TEE	3313113333	
17	S- parameters of two port Network		



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18	S- parameters of two port Network, Bethe Hole types		
19	Bethe Hole types		
20	Tutorial		
CO3:Dist	Over view of Optical Fiber Communication tinguish between Microwave tubes and Solid St ical Fiber Communications – Gerd Keiser, Mc Grav	ate Devices, calculation	n of efficiency device
21	Introduction about optical fiber		
22	Over view of Generation of optical fiber communication		
23	Total Internal Reflection		Lecture interspersed with
24	Numerical Aperture		
25	Quarter wave Monopole and Half wave Dipole		
26	Graded index fibers, Multi Mode Graded index fibers	From: 02/08/2022	
27	OPTICAL FIBER CONNECTORS- introduction	To:	
28	Connector types	20/09/2022	discussions
29	Single mode fiber connectors, Types		
30	Mechanical Splicing &their types		
31	single mode fiber joints		
32	Multimode fiber joints		
33	Couplers & Types		
34	Mixer & Star coupler		
35	Tutorial		
CO3:Disti FB2: Opti	Optical Sources And Detectors inguish between Microwave tubes and Solid Sta cal Fiber Communications – Gerd Keiser, Mc Graw OPTICAL SOURCES and Detectors	te Devices, calculation	of efficiency device n,3rd Edition,2000.
36	Introduction, Surface emitting LED		
37	LASER diode	From:	Lecture
38	Working of LASER,PN diode	20/09/2022	interspersed with discussions
39	P-I-N detector		
40	Quantum efficiency for optical source ,detector	To:13/10/2022	
41	Comparison of optical sources ,detectors		
42	Point to point links - Component Choice and considerations,Link power budget analysis		
43	Problems solving		



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44	Tutorial		
45	Line coding		
46	Characteristics of Line coding		
47	Components of optical communication		
48	WDM, Principle of fiber cable		
49	EYE pattern ,Semiconductor material		
50	Description Of Microwave Bench-	Hill International editio	n,3rd Edition,2000.
TB2: Opt	Different Blocks	Hill International edition	on,3rd Edition,2000,
51	Microwave Power Measurement- Bolometer Method, Attenuation	From: 13/10/2022	Lecture
	measurement		Lecture
52		13/10/2022	Lecture interspersed
52 53	measurement		interspersed with
	VSWR measurement Impedance Measurement, LOS and Radio	13/10/2022 To:	interspersed
53	WSWR measurement Impedance Measurement, LOS and Radio Horizon	13/10/2022 To:	interspersed with

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Digital Image and Video Processing/ R1941043

Year / Semester: IV/I Section: 1 A.Y: 2022-23

Commence of the contract of th	occurs. 1	A.1	. 2022-23
S.NO.	TOPIC	Date	Mode of Delivery
CO1: Defini transforms.	MDAMENTALS OF IMAGE PROCESSING AND I ing the digital image representation applications in in Image Processing – S.Jayaraman, S.Esakkirajan, T.Ve	mage processing	ORMS and various imag
1	Introduction		
2	Image sampling, Quantization, Resolution		
3	Image file formats	1	
4	Elements of image processing system	1	
5	Applications of Digital image processing		
6	Introduction, Need for transform		
7	Fourier transform 2 D Discrete Fourier transform and its transforms	From: 04.07.2022	Lectureintersper sed with discussions
8	Importance of phase		
9	Walsh transform		
10	Hadamard transform	To: 23.07.2022	
11	Haar transform	1	
12	slant transform	İ	
13	Discrete cosine transform	1	
14	KL transform	1	
15	singular value decomposition		
16	comparison of different image transforms		
	Tutorial class	1	
CO2: Discus echniques by FB1: Digital	AGE ENHANCEMENT: SPATIAL DOMAIN MET s how an image can be enhanced by using histogra- estimating Image degradation. Image Processing – S.Jayaraman, S.Esakkirajan, T.Vee	ım techniques. A	
17	point processing techniques		
18	Histogram processing	From: 25.07.2022	
19	Fundamentals of Spatial filtering		
20	smoothing spatial filters		Lecture
21	sharpening spatial filters		interspersed
22	Frequency domain methods: basics of filtering in frequency domain	To: 23.08.2022	withdiscussions
23	image smoothing		

24	image sharpening
25	Selective filtering
26	IMAGE RESTORATION:
27	Introduction to Image restoration
28	Image degradation
29	Types of image blur
30	Classification of image restoration techniques
31	Image restoration model
32	Linear and Nonlinear image restoration techniques
33	Blind de-convolution
	Tutorial

UNIT-III IMAGE SEGMENTATION

CO3:Detection of point, line and edges in images. Differentiate various image compression techniques by the redundancy in images.

TB1: Digital Image Processing - S.Jayaraman, S.Esakkirajan, T.Veera Kumar - TMH, 2009.

34	Point, Line and Edge Detection			
35	Region based segmentation	From: 23.08.2022 To: 27.08.2022		
36	Classification of segmentation techniques		23.08.2022	
37	Region approach to image segmentation			
38	clustering techniques			
39	Image segmentation based on thresholding			
40	Edge based segmentation, Edge detection and linking			
41	Hough transform			
42	IMAGE COMPRESSION: INTRODUCTION, NEED FOR IMAGE COMPRESSION			
43	Redundancy in images, Classification of redundancy in image		Lecture interspersed withdiscussions	
44	image compression scheme, Classification of image compression schemes			
45	Fundamentals of information theory			
46	Run length coding			
47	Shannon – Fano coding			
48	Huffman coding			
49	Arithmetic coding	4 400000		
50	Predictive coding	From:		
51	Transformed based compression	05.09.2022		
52	Image compression standard	To: 27.09.2022		
53	Wavelet-based image compression			
54	JPEG Standards			
	Tutorial			

UNIT IV: BASIC STEPS OF VIDEO PROCESSING

CO4: Differentiate analog colour TV system and to digital video system and explain filtering operations in video processing.

TB2: Video Processing and Communication - Yao Wang, JoemOstermann and Ya-quin Zhang. 1st Ed., PH Int, 2017.

55	Analog Video		
56	Digital Video	11	Lecture Interspersed withdiscussions
57	Time-Varying Image Formation models		
58	Three-Dimensional Motion Models	From:	
59	Geometric Image Formation	28.09.2022	
60	Photometric Image Formation	To: 15.10.2022	
61	Sampling of Video signals		
62	filtering operations		
	Tutorial		

UNIT-V MOTION ESTIMATION

CO5: Analyze the general methodologies for 2D motion estimation.

TB2: Video Processing and Communication – Yao Wang, JoemOstermann and Ya-quin Zhang. 1st Ed., PH Int,2017.

63	Optical flow		
64	General Methodologies		Lecture
65	Pixel Based Motion Estimation		
66	Block-Matching Algorithm		
67	Mesh based Motion Estimation		
68	Global Motion Estimation		
69	Region based Motion Estimation	From:	
70	Multi resolution motion estimation	17.10.2022	interspersed
71	Waveform based coding	To: 29.10.2022	withdiscussions
72	Block based transform coding		
73	Predictive coding	1	
74	Application of motion estimation in Video coding.		
	Tutorial class		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Digital Image and Video Processing / R1941043

Year / Semester: IV/I Section: II A.Y: 2022-23

S.NO.	TOPIC	Date	Mode of Delivery
CO1: Defin Transforms.	NDAMENTALS OF IMAGE PROCESSING AND IMA ning the digital image representation applications in image partial Image Processing – S.Jayaraman, S.Esakkirajan, T.Veera	processing and an	MS alyze various Imag
1	Introduction		
2	Image sampling, Quantization, Resolution	1	
3	Image file formats	1	
4	Elements of image processing system	1	
5	Applications of Digital image processing		
6	Introduction, Need for transform		
7	Fourier transform 2 D Discrete Fourier transform and its transforms	From: 04.07.2022	
8	Importance of phase		Lectureinterspers ed with discussions
9	Walsh transform	To: 23.07.2022	
10	Hadamard transform		
11	Haar transform		
12	slant transform		
13	Discrete cosine transform		
14	KL transform		
15	singular value decomposition		
16	comparison of different image transforms		
	Tutorial class		7
CO2: Detect edundancy i B1: Digital	Image Processing - S.Jayaraman, S.Esakkirajan, T.Veera K	image compressio	Alto de de la particiona
- 17	point processing techniques		
18	Histogram processing		
19	Fundamentals of Spatial filtering		
20	smoothing spatial filters		
21	sharpening spatial filters		
22	FREQUENCY DOMAIN METHODS: BASICS OF FILTERING IN FREQUENCY DOMAIN		

23	image smoothing	From: 25.07.2022 To: 13.08.2022	Lecture interspersed withdiscussions	
24	image sharpening			
25	Selective filtering			
26	IMAGE RESTORATION:			
27	Introduction to Image restoration			
28	Image degradation			
29	Types of image blur			
30	Classification of image restoration techniques			
31	Image restoration model			
32	Linear and Nonlinear image restoration techniques			
33	Blind de-convolution			
	Tutorial			

UNIT-III IMAGE SEGMENTATION

CO3:Detection of point, line and edges in images. Differentiate various image compression techniques by the redundancy in images.

TB1: Digital Image Processing - S.Jayaraman, S.Esakkirajan, T.Veera Kumar - TMH,2009.

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UNIT IV: BASIC STEPS OF VIDEO PROCESSING

CO4: Differentiate analog colour TV systemand to digital video system and explain filtering operations in video processing.

TB2: Video Processing and Communication - Yao Wang, Joem Ostermann and Ya-quin Zhang.1st Ed., PH Int,2017.

55	Analog Video		
56	Digital Video		Lecture Interspersed Withdiscussions
57	Time-Varying Image Formation models	From:	
58	Three-Dimensional Motion Models	28.09.2022	
59	Geometric Image Formation	To: 15.10.202	
60	Photometric Image Formation	- Central Control Control	325-501/575/440/HD4000175
61	Sampling of Video signals		
62	filtering operations		
	Tutorial		

UNIT-V MOTION ESTIMATION

CO5: Analyze the general methodologies for 2D motion estimation.

TB2: Video Processing and Communication - Yao Wang, Joem Ostermann and Ya-quin Zhang.1st Ed., PH Int,2017.

63	Optical flow		
64	General Methodologies	From: 15.10.2022 To: 29.10.2022	Lecture interspersed withdiscussions
65	Pixel Based Motion Estimation		
66	Block-Matching Algorithm		
67	Mesh based Motion Estimation		
68	Global Motion Estimation		
69	Region based Motion Estimation		
70	Multi resolution motion estimation		
71	Waveform based coding		
72	Block based transform coding		
73	Predictive coding		
74	Application of motion estimation in Video coding.		
	Tutorial class		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Communication Standards & Protocols / (R194104A)

Year / Semester : IV/I

Section: I

Academic Year: 2022-2023

S.No.	TOPIC INTRODUCTION TO COMPANY	Date	Mode of Delivery
CO1::Acqui computer no TB :: 1. Intr McGraw Hi	INTRODUCTION TO COMMUNICATION AND More knowledge on the basic concepts of how digitations and identify the different types of network to oduction to data communication and networking by IlEducation, 2017. puter Networks — Andrew S Tanenbaum, 4th Editional Introduction, Communications	tal data is to pologies. Behrouz Foro	G ransferred acros uzan ,4thEdition
1	- Communications	The real son F.C	ucation/PHI.
2	Signal Types and its characteristics (Analog/Digital)		PPT, Onboard Lecture interspersed
3	Data Transmission Types (Serial/Parallel)	From:	
4	Communication Techniques (Asynchronous, Synchronous)	04.07.2022	
5	Data Transmission Modes (Simplex, Half/Full Duplex)	To: 23.07.2022	
6	Network Topologies (Star, Ring, Mesh, Point to Point, Tree, Bus, Daisy chain, Multi drop) and its applications	25.07.2022	with discussions
7	Modulation need and types		
8	Tutorial		
NIT -II O2::Compr	OSI LAYERS chend the concept of layered approach of compute ith transmission media. Compared to the compute	er networks o	

CO2::Comprehend the concept of layered approach of computer networks organization and familiarize with transmission media, flow control and analyze various error detection and correction techniques.

TB:: 1. Introduction to data communication and networking by Behrouz Forouzan ,4thEdition McGraw HillEducation,2017.

TB :: 2. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.

9	Communication Layers and its applications		
10	Communication media (Twisted Pair)	-	
11	Co-axial (1 wisted rait)	To: Lect	Onboard Lecture interspersed with discussions
12	Fiber Optics		
13	Introduction to Errors (Error types)		
14	Error detection		
15	Error correction		discussions

16	Flow Control and its applications	
17	Tutorial	
NIT - III	WIRED COMMUNICATION PROTOCOLS	

UNIT - III WIRED COMMUNICATION PROTOCOLS

CO3:: Illustrate the fundamental concepts of addressing, reliable transmission and working of wired communication protocols.

TB:: 1. Introduction to data communication and networking by Behrouz Forouzan ,4thEdition McGraw HillEducation,2017.

TB :: 2. System Design- A Unified Hardware and Software Introduction - Frank Vahid/Tony Girvargis-3rd edition,2009,John Wiley&Sons.

18	Ethernet (Types, Socket)		
19	MAC		
20	IP		
21	ARP		
22	ICMP	_	
23	TCP	From:	0.9500000000000000000000000000000000000
24	UDP	16.08.2022	PPT, Onboard
25	DHCP		Lecture
26	CAN		interspersed
27	Mod-bus(RTU, ASCII)	To:	with discussions
28	UART (RS485,RS232)	24.09.2022	
29	OFC and Advantages, Disadvantages and its applications		
30	Introduction to Dial up Modems		
31	Leased line modems		
32	Tutorial		
UNIT-IV	WIRELESS COMMUNICATION PRO		

UNIT-IV WIRELESS COMMUNICATION PROTOCOLS

CO4: Interpret the transferring of data using various wireless communication technologies and

TB:: 1. Introduction to data communication and networking by Behrouz Forouzan ,4thEdition McGraw HillEducation,2017.

TB :: 2. System Design- A Unified Hardware and Software Introduction - Frank Vahid/Tony Girvargis-3rd edition,2009,John Wiley&Sons.

33	Zigbee Zigbee		Classific
34	Bluetooth		
35	Wi-Fi	From:	
36	GPRS,	25,09,2022	PPT, Onboard
37	GSM		Lecture
38	NFC	To:	interspersed
39	IR	12.10.2022	with discussions
40	Satellite Communication, Advantages, Disadvantages and its applications		
41	Tutorial		
UNIT-V	NETWORK TYPES		

NETWORK TYPES

CO5: Analyze various network routing algorithms, congestion prevention policies and obtain an overview of the Internet and network security.

TB:: 1. Introduction to data communication and networking by Behrouz Forouzan ,4thEdition McGraw HillEducation,2017.

3 :: 2. Hoc S.Manoj,	Wireless Networks: Architectures and Protocols - 0 2004, PHI.	C. Siva RamMu	rthy and
42	Introduction to LAN, WAN, PAN		
43	Internet and Intranet	1	
44	sensor networks (wired/wireless) and its applications	From:	
45	Network Security :Introduction to NAT, PAT	13.10.2022	PPT, Onboard
46	DNS	- 1011012022	Lecture
47	Network Routing algorithms	To:	1 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
48	Introduction to Switch, Hub, Bridges and its working	26.10.2022	interspersed with discussion
49	Network Security	-	
50	Introduction to Firewall and its applications		
51	Tutorial		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Communication Standards & Protocols / (R194104A)

Year / Semester : IV/I

Section: II

Academic Year: 2022-2023

S.No.	TOPIC	Date	Mode of Delivery
CO1::Acqui computer ne TB :: 1. Intro McGraw Hil	INTRODUCTION TO COMMUNICATION AND Note knowledge on the basic concepts of how digitworks and identify the different types of network to eduction to data communication and networking by IEducation, 2017. Sputer Networks — Andrew S Tanenbaum, 4th Edition	tal data is tr pologies. Behrouz Foro	ansferred acros uzan ,4thEdition
1	Introduction, Communications	1	Tacadon/1111.
2	Signal Types and its characteristics (Analog/Digital)	From: 04.07.2022 To: 23.07.2022	PPT, Onboard Lecture interspersed with discussions
3	Data Transmission Types (Serial/Parallel),		
4	Communication Techniques (Asynchronous, Synchronous)		
5	Data Transmission Modes (Simplex, Half/Full Duplex)		
6	Network Topologies (Star, Ring, Mesh, Point to Point, Tree, Bus, Daisy chain, Multi drop) and its applications		
7	Modulation need and types		
8	Tutorial	-	
UNIT -II	OSI LAYERS		

CO2::Comprehend the concept of layered approach of computer networks organization and familiarize with transmission media, flow control and analyze various error detection and correction techniques.

TB:: 1. Introduction to data communication and networking by Behrouz Forouzan ,4thEdition McGraw HillEducation,2017.

TB:: 2. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.

9	Communication Layers and its applications		
10	Communication media (Twisted Pair)	From:	
11	Co-axial	25.07.2022	Onboard
12	Fiber Optics	25.07.2022	Lecture
13	Introduction to Errors (Error types)	To:	interspersed
14	Error detection	13.08.2022	with discussions
15	Error correction		- LB073

16	Flow Control and its applications	
17	Tutorial	

UNIT - III WIRED COMMUNICATION PROTOCOLS

CO3:: Illustrate the fundamental concepts of addressing, reliable transmission and working of wired communication protocols.

TB:: 1. Introduction to data communication and networking by Behrouz Forouzan ,4thEdition McGraw HillEducation,2017.

TB:: 2. System Design- A Unified Hardware and Software Introduction - Frank Vahid/Tony Girvargis-3rd edition,2009,John Wiley&Sons.

18	Ethernet (Types, Socket)		
19	MAC		
20	IP		
21	ARP		
22	ICMP		
23	TCP	From:	
24	UDP	16.08.2022	PPT, Onboard
25	DHCP		Lecture
26	CAN		interspersed
27	Mod-bus(RTU, ASCII)	To:	with discussions
28	UART (RS485,RS232)	24.09.2022	
29	OFC and Advantages, Disadvantages and its applications		
30	Introduction to Dial up Modems		
31	Leased line modems		
32	Tutorial		
TINTER TAL	***************************************		

UNIT -IV WIRELESS COMMUNICATION PROTOCOLS

CO4: Interpret the transferring of data using various wireless communication technologies and protocols.

TB:: 1. Introduction to data communication and networking by Behrouz Forouzan ,4thEdition McGraw HillEducation,2017.

TB:: 2. System Design- A Unified Hardware and Software Introduction - Frank Vahid/Tony Girvargis-3rd edition,2009,John Wiley&Sons.

33	Zigbee		
34	Bluetooth		
35	Wi-Fi	From:	
36	GPRS,	25.09.2022	PPT, Onboard
37	GSM		Lecture
38	NFC	To: 12.10.2022	interspersed
39	IR .	12.10.2022	with discussions
40	Satellite Communication, Advantages, Disadvantages and its applications		
41	Tutorial		

UNIT -V NETWORK TYPES

CO5: Analyze various network routing algorithms, congestion prevention policies and obtain an overview of the Internet and network security.

TB:: 1. Introduction to data communication and networking by Behrouz Forouzan ,4thEdition McGraw HillEducation,2017.

TB:: 2. Hoc Wireless Networks: Architectures and Protocols - C. Siva RamMurthy and B.S.Manoi, 2004. PHI.

42	Introduction to LAN, WAN, PAN		
43	Internet and Intranet	-	
44	sensor networks (wired/wireless) and its applications	From:	
45	Network Security :Introduction to NAT, PAT	13.10.2022	PPT, Onboard
46	DNS		Lecture
47	Network Routing algorithms	To:	interspersed
48	Introduction to Switch, Hub, Bridges and its working	26.10.2022	with discussions
49	Network Security	-	
50	Introduction to Firewall and its applications	-	7 7 7
51	Tutorial	-	

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Embedded Systems / R194104D

Year / Semester: IV/I Section: I A.Y: 2022-23

S.No	TOPIC	Date	Mode of Delivery
and mer	Understand the building blocks of typical embedded systems ar nory types. nbedded Systems by Shibu k.v.	nd different mem	ory technolog
1	Embedded System-Definition	-1	
2	History of Embedded systems		
3	Classification of Embedded systems	_	
4	Major application areas of embedded systems purpose of embedded systems		
5	The typical embedded system		
6	Core of the embedded system, Memory	From:	Lecture interspersed with discussions
7	Sensors and Actuators	12-07-2022	
8	Communication Interface	To:	
9	Embedded firmware ,PCB and passive components	26-07-2022	
10	Characteristics of an embedded system	-	
11	Quality attributes of embedded systems	-	
12	Application -specific embedded system-	-	
13	Domain-Specific examples of Embedded system	\dashv	
14	Tutorial	-	
CAICCS.	BEDDED SYSTEMS BY RAJ KAMAL SECOND EDITIO		cation
16	Analog and digital electronic components		
17	I/O types and examples Serial communication devices		9-2417-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-
18	Parallel device ports	From:	Lecture
19	· · · · · · · · · · · · · · · · · · ·	27-07-2022	interspersed
20	Wireless devices, Timer and counting devices Real time clock, Watchdog timer	Total	with
21	rear time clock, watchdog timer	To: 20-08-2022	discussions
-	Tutorial		

UNIT -III	EMBEDDED FIRMWARE DESIGN

CO3: Student can understand the firmware design approaches, ISR concept and interrupt sources.

TB: EMBEDDED SYSTEMS BY RAJ KAMAL SECOND EDITION.

22	Embedded Firmware design approaches	DITION.	
23	Embedded Firmware development languages		
24	ISR concept Interrupt sources Interrupt servicing mechanism	From: 22-08-2022	Lecture interspersed
25	Multiple interrupts, DMA	To:	with
26	Device driver programming	12-09-2022	discussions
27	Concepts of C versus Embedded C Compiler Vs Cross compiler		
28	Tutorial		
-			

UNIT -IV REAL TIME OPERATIONG SYSTEM AND HARDWARE SOFTWARE CO DESIGN

CO4: Student can understand the OS basics and RTOS and also the design of hardware and software interfaces

TB1: Embedded systems by Shibu k.v.

TB2: Embedded systems by Rajkamal second edition.

29	Operating system basics		
30	Types of operating systems		
31	Task, Process and Threads		31 91
32	Multiprocessing and Multitasking		100
33	Task Scheduling, Threads processes scheduling		
34	Task communication		3
35	Task synchronization	From:	Lecture
36	Device Drivers, How to choose an RTOS	13-09-2022	interspersed
37	HARDWARE SOFTWARE CO-DESIGN	To: 10-10-2022	with discussions
38	Fundamental Issues in hardware software co-design	10-10-2022	413443310113
39	Computational models in embedded design		
40	Hardware software trade-offs		
41	Integration of hardware and firmware, ICE		
42	Tutorial		

UNIT -V EMBEDDED SYSTEM DEVELOPMENT AND TESTING

CO5: Student can understand the concept of IDE and Hardware debugging, debugging tools and testing tools

TB: EMBEDDED SYSTEMS ARCHITECTURE BY TAMMY NEORGAARD.

48	The main software utility tool	15/12/2022	interspersed
47	Embedded Software development process and tools	From:	Lecture
46	Target hardware debugging, Boundary Scan		
45	Simulators, Emulators and Debugging		
44	Types of files generated on cross-compilation		
43	The integrated development environment		

CAD and the hardware , Translation tools-pre processor		with
	To:	discussions
Quality assurance and testing of the design, Testing	70.550	discussions
	CAD and the hardware ,Translation tools-pre processor Interpreters, Compilers and Linkers, Debugging tools Quality assurance and testing of the design, Testing Simulators ,Laboratory Tools, Tutorial	Interpreters, Compilers and Linkers, Debugging tools Quality assurance and testing of the design, Testing 26/12/2022

Signature of Faculty

Signature of HoD



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Accredited with NAAC 'A' grade

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: Embedded Systems / R194104D

Year / Semester: IV/I Section: II A.Y: 2022-23

1 car/S	Section: II	A.Y:	2022-23
S.No	TOPIC	Date	Mode of Delivery
and men	I INTRODUCTION Inderstand the building blocks of typical embedded systems are nory types. Inbedded Systems by Shibu k.v.	nd different mem	ory technolog
1	Embedded System-Definition		
2	History of Embedded systems		
3	Classification of Embedded systems		
4	Major application areas of embedded systems purpose of embedded systems	THE STATE OF	
5	The typical embedded system		-
6	Core of the embedded system, Memory	From:	Lecture interspersed with discussions
7	Sensors and Actuators	12-07-2022	
8	Communication Interface	To:	
9	Embedded firmware ,PCB and passive components	26-07-2022	
10	Characteristics of an embedded system		
11	Quality attributes of embedded systems		
12	Application -specific embedded system-		
13	Domain-Specific examples of Embedded system		
14	Tutorial		
TB: EM	udent can understand the principles and the implementation of BEDDED SYSTEMS BY RAJ KAMAL SECOND EDITIO		cation
15	Analog and digital electronic components		Lecture interspersed with
17	I/O types and examples		
18	Serial communication devices	From:	
	Parallel device ports	27-07-2022	
19	Wireless devices, Timer and counting devices	_	
20	Real time clock, Watchdog timer	To: 20-08-2022	discussions
21	Tutorial	20-08-2022	

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23	Embedded Firmware development languages	1992	
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26	Device driver programming	12-09-2022	discussions
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48	The main software utility tool	26/12/2022	

49	CAD and the hardware ,Translation tools-pre processor	299
50	Interpreters, Compilers and Linkers, Debugging tools	
51	Quality assurance and testing of the design, Testing	
52	Simulators ,Laboratory Tools, Tutorial	7.89

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