K S INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Mrs. YESHWINI V

SUBJECT CODE/NAME : 18EC33/ELECTRONIC DEVICES

SEMESTER/SEC : III 'A'/II

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
Module 1: Semiconductors						
1	Introduction	L+D	Laptop	1	1	1/09/2020
2	Bonding forces in solids	L+D	Laptop	1	2	3/09/2020
3	Energy bands	L+D	Laptop	1	3	4/09/2020
4	Metals, Semiconductors and Insulators	L+D	Laptop	1	4	5/09/2020
5	Direct and Indirect semiconductors, Electrons and Holes	L+D+PS	Laptop	1	5	7/09/2020
6	Intrinsic and Extrinsic materials	L+D	Laptop	1	6	8/09/2020
7	Conductivity and Mobility, Drift and resistance	L+D+PS	Laptop	1	7	8/09/2020
8	Effects of temperature and doping on mobility	L+D	Laptop	1	8	11/09/2020
9	Hall effect	L+D+PS	Laptop	1	9	12/09/2020
Module 2:P-N Junctions						
10	Forward and reverse biased junctions	L+ D	Laptop	1	10	14/09/2020
11	Qualitative description of current flow at a junction, reverse bias	L+ D+PS	Laptop	1	11	18/09/2020
12	Reverse bias breakdown-Zener breakdown	L+D	Laptop	1	12	22/09/2020
13	Avalanche breakdown	L+D+PS	Laptop	1	13	22/09/2020

14	Rectifiers	L+D+PS	Laptop	1	14	24/09/2020
15	Optoelectronic devices	L+D	Laptop	1	15	25/09/2020
16	Photodiodes	L+D	Laptop	1	16	26/09/2020
17	Current and voltage in an illuminated junction	L+D	Laptop	1	17	1/10/2020
18	Solar cells	L+D	Laptop	1	18	3/10/2020
19	Photo detectors	L+D	Laptop	1	19	5/10/2020
20	Light emitting diode: light emitting materials	L+D	Laptop	1	20	6/10/2020

Module 3: Bipolar Junction Transistor

21	Fundamentals of BJT operation	L+D	Laptop	1	21	8/10/2020
22	Amplification with BJTS	L+D	Laptop	1	22	9/10/2020
23	BJT fabrication	L+D	Laptop	1	23	12/10/2020
24	The coupled diode model (Ebers-Moll Model)	L+D	Laptop	1	24	13/10/2020
25	Switching operation of a transistor	L+D	Laptop	1	25	13/10/2020
26	Cutoff, saturation	L+D+PS	Laptop	1	26	16/10/2020
27	Switching cycle, Specifications	L+D	Laptop	1	27	22/10/2020
28	Drift in the base region	L+D	Laptop	1	28	23/10/2020
29	Base narrowing	L+D	Laptop	1	29	24/10/2020
30	Avalanche breakdown	L+D	Laptop	1	30	27/10/2020
31	Base Resistance and Emitter crowding	L+D	Laptop	1	31	27/10/2020

Module 4: Field Effect Transistor

32	Basic pn JFET Operation	L+AV	Laptop	1	32	29/10/2020
33	Equivalent Circuit and Frequency Limitations	L+D	Laptop	1	33	2/11/2020
34	MOSFET- Two terminal MOS structure-Energy band diagram	L+D	Laptop	1	34	3/11/2020
35	Ideal Capacitance	L+D	Laptop	1	35	3/11/2020
36	Voltage characteristics and Frequency effects	L+D	Laptop	1	36	5/11/2020
37	Basic MOSFET Operation	L+D	Laptop	1	37	6/11/2020
38	MOSFET Structure	L+D	Laptop	1	38	12/11/2020
39	Current voltage characteristics	L+D	Laptop	1	39	13/11/2020

Module 5: Fabrication of p-n junctions						
40	Thermal Oxidation	L+D	Laptop	1	40	17/11/2020
41	Diffusion	L+D	Laptop	1	41	19/11/2020
42	Rapid Thermal Processing	L+D	Laptop	1	42	21/11/2020
43	Ion Implantation	L+D	Laptop	1	43	23/11/2020
44	Chemical vapour deposition	L+D	Laptop	1	44	24/11/2020
45	Photolithography	L+D	Laptop	1	45	24/11/2020
46	Etching	L+D	Laptop	1	46	26/11/2020
47	Metallization	L+D	Laptop	1	47	27/11/2020
48	CMOS process Integration	L+D	Laptop	1	48	30/11/2020
49	Integration of other circuit Elements	L+D	Laptop	1	49	1/12/2020
50	Revision	L+D	Laptop	5	54	8/12/2020

Signature of Course In charge

Signature of Module Coordinator

Signature of HOD

K S INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Mrs. YESHWINI V

SUBJECT CODE/NAME : 18EC33/ELECTRONIC DEVICES

SEMESTER/SEC : III 'B'/II

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	Module 1: Semiconductors					
1	Introduction	L+D	Laptop	1	1	1/09/2020
2	Bonding forces in solids	L+D	Laptop	1	2	2/09/2020
3	Energy bands	L+D	Laptop	1	3	3/09/2020
4	Metals, Semiconductors and Insulators	L+D	Laptop	1	4	4/09/2020
5	Direct and Indirect semiconductors, Electrons and Holes	L+D+PS	Laptop	1	5	5/09/2020
6	Intrinsic and Extrinsic materials	L+D	Laptop	1	6	8/09/2020
7	Conductivity and Mobility, Drift and resistance	L+D+PS	Laptop	1	7	9/09/2020
8	Effects of temperature and doping on mobility	L+D	Laptop	1	8	11/09/2020
9	Hall effect	L+D+PS	Laptop	1	9	12/09/2020
	Module 2:P-N Junctions					
10	Forward and reverse biased junctions	L+ D	Laptop	1	10	16/09/2020
11	Qualitative description of current flow at a junction, reverse bias	L+ D+PS	Laptop	1	11	18/09/2020
12	Reverse bias breakdown-Zener breakdown	L+D	Laptop	1	12	22/09/2020
13	Avalanche breakdown	L+D+PS	Laptop	1	13	24/09/2020
14	Rectifiers	L+D+PS	Laptop	1	14	25/09/2020
15	Optoelectronic devices: Photodiodes	L+D	Laptop	1	15	26/09/2020
16	Current and voltage in an illuminated junction	L+D	Laptop	1	16	1/10/2020
17	Solar cells	L+D	Laptop	1	17	3/10/2020
18	Photo detectors	L+D	Laptop	1	18	6/10/2020
19	Light emitting diode: light emitting materials	L+D	Laptop	1	19	7/10/2020

Module 3: Bipolar Junction Transistor						
20	Fundamentals of BJT operation	L+D	Laptop	1	20	8/10/2020
21	Amplification with BJTS	L+D	Laptop	1	21	9/10/2020
22	BJT fabrication	L+D	Laptop	1	22	13/10/2020
23	The coupled diode model (Ebers-Moll Model)	L+D	Laptop	1	23	14/10/2020
24	Switching operation of a transistor	L+D	Laptop	1	24	16/10/2020
25	Cutoff, saturation	L+D+PS	Laptop	1	25	21/10/2020
26	Switching cycle, Specifications	L+D	Laptop	1	26	22/10/2020
27	Drift in the base region	L+D	Laptop	1	27	23/10/2020
28	Base narrowing	L+D	Laptop	1	28	24/10/2020
29	Avalanche breakdown	L+D	Laptop	1	29	27/10/2020
30	Base Resistance and Emitter crowding	L+D	Laptop	1	30	28/10/2020
Module 4: Field Effect Transistor						
31	Basic pn JFET Operation	L+AV	Laptop	1	31	29/10/2020
32	Equivalent Circuit and Frequency Limitations	L+D	Laptop	1	32	3/11/2020
33	MOSFET- Two terminal MOS structure-Energy band diagram	L+D	Laptop	1	33	4/11/2020
34	Ideal Capacitance	L+D	Laptop	1	34	5/11/2020
35	Voltage characteristics and Frequency effects	L+D	Laptop	1	35	6/11/2020
36	Basic MOSFET Operation, MOSFET Structure	L+D	Laptop	1	36	7/11/2020
37	Current voltage characteristics	L+D	Laptop	1	37	12/11/2020
Module 5: Fabrication of p-n junctions						
38	Thermal Oxidation	L+D	Laptop	1	38	13/11/2020
39	Diffusion	L+D	Laptop	1	39	17/11/2020
40	Rapid Thermal Processing	L+D	Laptop	1	40	18/11/2020
41	Ion Implantation	L+D	Laptop	1	41	19/11/2020
42	Chemical vapour deposition	L+D	Laptop	1	42	21/11/2020
43	Photolithography	L+D	Laptop	1	43	24/11/2020
44	Etching	L+D	Laptop	1	44	25/11/2020
45	Metallization	L+D	Laptop	1	45	26/11/2020
46	CMOS process Integration	L+D	Laptop	1	46	27/11/2020
47	Integration of other circuit Elements	L+D	Laptop	1	47	1/12/2020
48	Revision	L+D	Laptop	4	51	8/12/2020

Signature of Course In charge **Signature of Module Coordinator** **Signature of HOD**

KS INSTITUTE OF TECHNOLOGY, BANGALORE

14, Raghuvanahalli, Kanakapura Main Road, Bengaluru-5600109

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : SANTHOSH KUMAR B.R.

SUBJECT CODE/NAME : 18EC34/ DIGITAL ELECTRONICS

SEMESTER/YEAR : III 'B' / II

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1: Principles of Combination Logic						
1	Basics of digital electronics	L+D	BB	1	1	02-09-20
2	Principles of Combination Logic: Definition	L+D	BB	2	3	04-09-20 05-09-20
3	Canonical forms	L+D	BB	1	4	07-09-20
4	Generation of switching equations from Truth-Table	L+PS	BB	1	5	08-09-20
5	Problem statement	L+PS	BB	1	6	09-09-20
6	Karnaugh Map - 3 & 4 variables	L+PS	BB	1	7	11-09-20
7	Karnaugh Map - 3 variable minterm&maxterm	L+PS	BB	1	8	12-09-20
8	Karnaugh Map - 4 variable minterm&maxterm	L+PS	BB	1	9	14-09-20
9	Karnaugh Map with 'Don't Care' Conditions	L+PS	BB	1	10	15-09-20
10	Karnaugh Map - 5 variable minterm&maxterm	L+PS	BB	1	11	16-09-20
11	Quine-McCluskeyMinimisation Technique	L+PS	BB	2	13	18-09-20
12	Quine-McCluskey using don't care terms	L+PS	BB	1	14	19-09-20
MODULE 2: Analysis and design of combinational logic						
13	Analysis and design of combinational logic	L+ D	BB	1	15	21-09-20

14	Decoders	L+D	BB	3	18	22-09-20 23-09-20 25-09-20
15	Encoders	L+D	BB	2	20	26-09-20 03-10-20
16	Digital multiplexers	L+D	BB	2	22	05-10-20 06-10-20
17	Using multiplexers as Boolean function generators	PS	BB	1	23	07-10-20
18	Adders, Look ahead carry	L+PS	BB	1	24	09-10-20
19	Subtractors	L+PS	BB	1	25	10-10-20
20	Binary comparators	L+D	BB	1	26	12-10-20
21	Programmable Logic Devices	L+AV	LCD	1	27	13-10-20
22	Complex PLD, FPGA	L+D	BB	1	28	14-10-20
MODULE 3: Flip-Flops						
23	Basic Bistable element, Latches	L+D	BB	1	29	16-10-20
24	Latches, Timing considerations	L+D	BB	1	30	19-10-20
25	SR & JK flip-flops	L+D	BB	1	31	20-10-20
26	The master-slave flip-flops(pulse-triggered flip-flops):	L+D	BB	1	32	21-10-20
27	Edge triggered flip-flops	L+D	BB	1	33	23-10-20
28	Characteristic equations			1	34	24-10-20
29	Registers	L+D	BB	1	35	27-10-20
30	Binary ripple counters	L+D	BB	1	36	28-10-20
31	synchronous binary counters	L+D	BB	1	37	02-11-20
MODULE 4: Sequential Circuit Design						
32	Design of a synchronous counters	L+D, PS	BB	1	38	03-11-20

33	Design of a synchronous mod-n counter using clocked SR	L+D, PS	BB	1	39	04-11-20
34	Design of a synchronous mod-n counter using clocked JK	L+D, PS	BB	1	40	06-11-20
35	Design of a synchronous mod-n counter using clocked T and D	L+D, PS	BB	1	41	12-11-20
36	Mealy and Moore models	L+D, PS	BB	1	42	13-11-20
37	State machine notation	L+D, PS	BB	1	43	17-11-20
38	Construction of state diagrams for Mealy and Moore models	L+D, PS	BB	1	44	18-11-202
MODULE 5: Applications of Digital Circuits						
39	Design of a Sequence Detector	L+AV	LCD	2	46	20-11-20 21-11-20
40	Guidelines for construction of state graphs	L+AV	LCD	1	47	23-11-20
41	Design Example – Code Converter	L+D, PS	BB	2	49	24-11-20 25-11-20
42	Design of Iterative Circuits (Comparator)	L+D, PS	BB	1	50	27-11-20
43	Design of Sequential Circuits using ROMs and PLAs, CPLDs and FPGAs, Serial Adder with Accumulator	L+D, PS	BB	1	51	30-11-20 01-12-20
44	Design of Binary Multiplier, Design of Binary Divider	L+D, PS	BB	1	52	02-12-20 04-12-20

Text Books:

1. John M Yarbrough,-Digital Logic Applications and Design, Thomson Learning,2001.
2. Donald D. Givone, —Digital Principles and Designl, McGraw Hill, 2002.
3. Charles H Roth Jr., Larry L. Kinney —Fundamentals of Logic Design, CengageLearning, 7th Edition.

Reference Books:

1. D. P. Kothari and J. S Dhillon, —Digital Circuits and Designl, Pearson, 2016,
2. Morris Mano, —Digital Designl, Prentice Hall of India, Third Edition.
3. K. A. Navas, —Electronics Lab Manuall, Volume I, PHI, 5th Edition, 2015.

WEB MATERIALS:

1. https://nptel.ac.in/courses/117106086/
2. https://www.openlearning.com/courses/SKEE1223x/
3. https://freevideolectures.com/course/3164/digital-electronics
4. http://diginotes.in/notesecesem3.html

Details for the teaching Aids

1. Black Board
2. LCD projector
3. Quiz
4. Project exhibition
5. Guest lecture

Signature of Course In charge **Signature of Module Coordinator** **Signature of HOD**

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : SANTHOSH KUMAR B.R.

SUBJECT CODE/NAME : 18EC34/ DIGITAL ELECTRONICS

SEMESTER/YEAR : III 'B' / II

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1: Principles of Combination Logic						
1	Basics of digital electronics	L+D	BB	1	1	02-09-20
2	Principles of Combination Logic: Definition	L+D	BB	2	3	04-09-20 05-09-20
3	Canonical forms	L+D	BB	1	4	07-09-20
4	Generation of switching equations from Truth-Table	L+PS	BB	1	5	08-09-20
5	Problem statement	L+PS	BB	1	6	09-09-20
6	Karnaugh Map - 3 & 4 variables	L+PS	BB	1	7	11-09-20
7	Karnaugh Map - 3 variable minterm&maxterm	L+PS	BB	1	8	12-09-20
8	Karnaugh Map - 4 variable minterm&maxterm	L+PS	BB	1	9	14-09-20
9	Karnaugh Map with 'Don't Care' Conditions	L+PS	BB	1	10	15-09-20
10	Karnaugh Map - 5 variable minterm&maxterm	L+PS	BB	1	11	16-09-20
11	Quine-McCluskeyMinimisation Technique	L+PS	BB	2	13	18-09-20
12	Quine-McCluskey using don't care terms	L+PS	BB	1	14	19-09-20
MODULE 2: Analysis and design of combinational logic						
13	Analysis and design of combinational logic	L+ D	BB	1	15	21-09-20

14	Decoders	L+D	BB	3	18	22-09-20 23-09-20 25-09-20
15	Encoders	L+D	BB	2	20	26-09-20 03-10-20
16	Digital multiplexers	L+D	BB	2	22	05-10-20 06-10-20
17	Using multiplexers as Boolean function generators	PS	BB	1	23	07-10-20
18	Adders, Look ahead carry	L+PS	BB	1	24	09-10-20
19	Subtractors	L+PS	BB	1	25	10-10-20
20	Binary comparators	L+D	BB	1	26	12-10-20
21	Programmable Logic Devices	L+AV	LCD	1	27	13-10-20
22	Complex PLD, FPGA	L+D	BB	1	28	14-10-20
MODULE 3: Flip-Flops						
23	Basic Bistable element, Latches	L+D	BB	1	29	16-10-20
24	Latches, Timing considerations	L+D	BB	1	30	19-10-20
25	SR & JK flip-flops	L+D	BB	1	31	20-10-20
26	The master-slave flip-flops(pulse-triggered flip-flops):	L+D	BB	1	32	21-10-20
27	Edge triggered flip-flops	L+D	BB	1	33	23-10-20
28	Characteristic equations			1	34	24-10-20
29	Registers	L+D	BB	1	35	27-10-20
30	Binary ripple counters	L+D	BB	1	36	28-10-20
31	synchronous binary counters	L+D	BB	1	37	02-11-20
MODULE 4: Sequential Circuit Design						
32	Design of a synchronous counters	L+D, PS	BB	1	38	03-11-20

33	Design of a synchronous mod-n counter using clocked SR	L+D, PS	BB	1	39	04-11-20
34	Design of a synchronous mod-n counter using clocked JK	L+D, PS	BB	1	40	06-11-20
35	Design of a synchronous mod-n counter using clocked T and D	L+D, PS	BB	1	41	12-11-20
36	Mealy and Moore models	L+D, PS	BB	1	42	13-11-20
37	State machine notation	L+D, PS	BB	1	43	17-11-20
38	Construction of state diagrams for Mealy and Moore models	L+D, PS	BB	1	44	18-11-202
MODULE 5: Applications of Digital Circuits						
39	Design of a Sequence Detector	L+AV	LCD	2	46	20-11-20 21-11-20
40	Guidelines for construction of state graphs	L+AV	LCD	1	47	23-11-20
41	Design Example – Code Converter	L+D, PS	BB	2	49	24-11-20 25-11-20
42	Design of Iterative Circuits (Comparator)	L+D, PS	BB	1	50	27-11-20
43	Design of Sequential Circuits using ROMs and PLAs, CPLDs and FPGAs, Serial Adder with Accumulator	L+D, PS	BB	1	51	30-11-20 01-12-20
44	Design of Binary Multiplier, Design of Binary Divider	L+D, PS	BB	1	52	02-12-20 04-12-20

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2. Donald D. Givone, —Digital Principles and Designl, McGraw Hill, 2002.
3. Charles H Roth Jr., Larry L. Kinney —Fundamentals of Logic Design, CengageLearning, 7th Edition.

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2. https://www.openlearning.com/courses/SKEE1223x/
3. https://freevideolectures.com/course/3164/digital-electronics
4. http://diginotes.in/notesecesem3.html

Details for the teaching Aids

1. Black Board
2. LCD projector
3. Quiz
4. Project exhibition
5. Guest lecture

Signature of Course In charge **Signature of Module Coordinator** **Signature of HOD**

K.S. INSTITUTE OF TECHNOLOGY BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : P.PRAGATI

SUBJECT CODE/NAME : 18EC32/NETWORK THEORY

SEMESTER/YEAR : III / II A & B

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1						
1	Basic Concepts	L+D	BB/WB	1	1	1-9-20
2	Basic Concepts: Practical sources	L+D	BB/WB	1	2	2-9-20
3	Problems	L+D	BB/WB	1	3	3-9-20
4	Source Transformation	L+PS	BB/WB	1	4	4-9-20
5	Network reduction using Star – Delta	L+PS	BB/WB	1	5	5-9-20
6	Problems	L+PS	BB/WB	1	6	7-9-20
7	Loop and node analysis With linearly independent sources	L+D	BB/WB	1	7	8-9-20
8	Problems	L+PS	BB/WB	1	8	9-9-20
9	Loop and node analysis With linearly dependent sources	L+PS	BB/WB	1	9	10-9-20
10	Problems	L+D	BB/WB	1	10	11-9-20
11	Super node analysis	L+PS	BB/WB	1	11	14-9-20
12	Problems	L+D	BB/WB	1	12	15-9-20
13	Super node analysis	L+PS	BB/WB	1	13	16-9-20
14	Problems/ Pedagogy activity	PS	BB/WB	1	14	18-9-20

MODULE 2						
15	**Network Theorems Basic**	L+D	BB/WB	1	15	21-9-20
16	Superposition for DC	L+D	BB/WB	1	16	22-9-20
17	Superposition for AC	L+D	BB/WB	1	17	23-9-20
18	Problems	L+PS	BB/WB	1	18	24-9-20
19	Millman's theorems	L+PS	BB/WB	1	19	25-9-20
20	Problems	L+D	BB/WB	1	20	28-9-20
21	Thevinin's	L+PS	BB/WB	1	21	29-9-20
22	Problems	L+PS	BB/WB	1	22	30-9-20
23	Norton's theorems	L+PS	BB/WB	1	23	12-10-20
24	Problems	L+PS	BB/WB	1	24	13-10-20
25	Problems	L+PS	BB/WB	1	25	15-10-20
26	Maximum Power transfer theorem	L+PS	BB/WB	1	26	16-10-20
27	Problems	PS	BB/WB	1	27	19-10-20
28	Problems	PS	BB/WB	1	28	20-10-20
29	Problems	PS	BB/WB	1	29	22-10-20

MODULE 3						
30	Transient behavior and initial conditions	L+D	BB/WB	1	30	23-10-20
31	Behavior of circuit elements at initial and final	L+D	BB/WB	1	31	24-10-20
32	Problems	L+PS	BB/WB	1	32	27-10-20
33	Evaluation of initial and final conditions in RL for DC &AC excitations	L+D	BB/WB	1	33	29-10-20
34	Evaluation of initial and final conditions in RL for DC &AC excitations	L+D	BB/WB	1	34	2-11-20
35	Problems	L+PS	BB/WB	1	35	3-11-20
36	Evaluation of initial and final conditions in RC for DC &AC excitations	L+PS	BB/WB	1	36	5-11-20
37	Problems	L+PS	BB/WB	1	37	6-11-20
38	Evaluation of initial and final conditions	L+PS	BB/WB	1	38	7-11-20
39	Problems/ Pedagogy activity	L+PS	BB/WB	1	39	9-11-20
MODULE 4						
40	Definitions of Parameters	L+D	BB/WB	1	40	10-11-20
41	Problems	L+PS	BB/WB	1	41	11-11-20
42	z,y,h &t Modeling with these parameters	L+PS	BB/WB	1	42	12-11-20
43	Problems, Relationship between parameters sets.	L+PS	BB/WB	1	43	13-11-20

44	Relationship between parameters sets	L+PS	BB/WB	1	44	20-11-20
45	Series and Parallel Resonance, Derivations and definitions	L+PS	BB/WB	1	45	21-11-20
46	Problems on series resonance	L+PS	BB/WB	1	46	23-11-20
47	Problems on Parallel resonance	L+PS	BB/WB	1	47	24-11-20
	MODULE 5					
48	Laplace Transformation & Applications	L+D	BB/WB	1	48	25-11-20
49	Laplace Transformation of basic signals	L+D	BB/WB	1	49	27-11-20
50	Problems	PS	BB/WB	1	50	30-11-20
51	Solution of networks	L+PS	BB/WB	1	51	1-12-20
52	Solution of networks to step response	L+PS	BB/WB	1	52	2-12-20
53	Solution of networks to ramp response	PS	BB/WB	1	53	5-12-20
54	Wave form Synthesis	L+PS	BB/WB	1	54	7-12-20
55	Problems	PS	BB/WB	1	55	8-12-20
56	Problems	PS	BB/WB	1	56	9-12-20
57	Problems/ Pedagogy activity	PS	BB/WB	1	57	11-12-20

Course Incharge **Module coordinator** **HOD**

K S INSTITUTE OF TECHNOLOGY BANGALORE

DEPARTMENT OF ELECRONICS & COMMUNICATION ENGINEERING

NAME OF THE STAFF : Dr. B Sudarshan

SUBJECT CODE/NAME : 18EC35/COMPUTER ORGANIZATION AND ARCHITECTURE

SEMESTER/YEAR/SEC : III / II/ A & B

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date A Section	Proposed Date B Section
MODULE 1: Basic Structure of Computers, Machine Instructions and Programs							
1	**Basic Structure of Computers:** Computer Types, Functional Units, Booting process	L+D	BB, LCD	1	1	2/9/20	1/9/20
2	Basic Operational Concepts, Bus Structures	L+D	BB	1	2	3/9/20	3/9/20
3	Software, Performance – Processor Clock	L+ D	BB	1	3	4/9/20	4/9/20
4	Basic Performance Equation	L+D	BB	1	4	5/9/20	5/9/20
5	**Machine Instructions and Programs:** Numbers, Arithmetic Operations and Characters	L+D	BB	1	5	9/9/20	8/9/20
6	Memory Location and Addresses, Memory Operations	L+D	BB	1	6	10/9/20	10/9/20
7	Instructions and Instruction Sequencing	L+D	BB	1	7	11/9/20	11/9/20
8	IEEE standard for Floating point Numbers	L+D	BB	1	8	12/9/20	12/9/20
9	Writing simple machine instruction	L+D	BB	1	9	16/9/20	15/9/20
10	Branching and condistion codes	L+D	BB	1	10	18/9/20	18/9/20

MODULE 2: Addressing Modes							
11	Addressing Modes	L+ D	BB	1	11	19/9/20	19/9/20
12	Addressing Modes	L+D	BB	1	12	23/9/20	22/9/20
13	Assembly Language	L+D	BB	1	13	24/9/20	24/9/20
14	Basic Input and Output Operations	L+D	BB	1	14	25/9/20	25/9/20
15	Basic Input and Output Operations	L+D	BB	1	15	26/9/20	26/9/20
16	Stacks and Queues	L+D	BB	1	16	01/10/20	01/10/20
17	Subroutines	L+D	BB	1	17	03/10/20	03/10/20
18	Suroutines – parameter passing using stack	L+D	BB	1	18	07/10/20	06/10/20
19	Additional Instructions-Logical-shift, Rotate & multiply/division instructions	L+D	BB	1	19	08/10/20	08/10/20
20	Solving problems on machine instructions with different addressing modes	L+D	BB	1	20	09/10/20	09/10/20
Module 3: Input/output Organization							
21	**Input/Output Organization:** Accessing I/O Devices	L+D	BB	1	21	10/10/20	10/10/20
22	Interrupts – Interrupt Hardware	L+D	BB	1	22	14/10/20	13/10/20
23	Interrupts – Interrupt Hardware	L+I	BB	1	23	15/10/20	15/10/20
24	Enabling and Disabling Interrupts	L+D	BB	1	24	16/10/20	16/10/20
25	Handling Multiple Devices	L+D	BB	1	25	17/10/20	17/10/20
26	Handling Multiple Devices	L+D	BB	1	26	21/10/20	20/10/20
27	Controlling Device Requests	L+D	BB	1	27	22/10/20	22/10/20
28	Controlling Device Requests	L+D	BB	1	28	23/10/20	23/10/20
29	Direct Memory Access	L+D	BB	1	29	24/10/20	24/10/20
30	Direct Memory Access	L+D	BB	1	30	28/10/20	27/10/20
Module 4: Memory System							
31	Basic Concepts	L+D	BB	1	31	29/10/20	29/10/20
32	Semiconductor RAM memories-Internal organization of memory chips	L+D	BB	1	32	5/11/20	5/11/20
33	Static memories	L+D	BB	1	33	6/11/20	6/11/20

34	Asynchronous DRAMs	L+D	BB	1	34	7/11/20	7/11/20
35	Read Only Memories	L+D	BB	1	35	11/11/20	10/11/20
36	Cache Memories	L+D	BB	1	36	12/11/20	12/11/20
37	Virtual Memories	L+D	BB	1	37	13/11/20	13/11/20
38	Secondary storage magnetic hard disks	L+D	BB	1	38	14/11/20	14/11/20
39	Videos on hard disks and its parts	L+I	LCD	1	39	18/11/20	17/11/20
40	Videos on hard disks and its parts	L+D	BB	1	40	19/11/20	19/11/20
MODULE 5: Basic Processing Unit							
41	Basic Processing Unit: Some fundamental concepts	L+D	BB	1	41	20/11/20	20/11/20
42	Execution of complete instruction	L+D	BB	1	42	21/11/20	21/11/20
43	Multiple bus organization	L+D	BB	1	43	25/11/20	24/11/20
44	Multiple bus organization	L+D	BB	1	44	26/11/20	26/11/20
45	Hardwired control	L+D	BB	1	45	27/11/20	27/11/20
46	Hardwired control	L+D	BB	1	46	28/11/20	28/11/20
47	Microprogrammed control	L+D	BB	1	47	2/12/20	1/12/20
48	Microprogrammed control	L+D	BB	1	48	4/12/20	4/12/20
49	Timing analysis of some simple programs	L+D	BB	1	49	5/12/20	5/12/20
50	Timing analysis of some simple programs	L+D	BB	1	50	16/12/20	15/12/20

Signature of Course Incharge **Signature of Module Coordinator** **Signature of HO**

K S INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE PLAN ODD SEM-2020-21

NAME OF THE STAFF : Mr. S.CHRISTO JAIN

SUBJECT CODE/NAME : 18EC36/POWER ELECTRONICS AND INSTRUMENTATION

SEMESTER/SEC : III SEM /A

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
Module -1: Introduction & Thyristors						
1	Introduction to power electronics	L+AV	LCD	1	1	1/9/2020
2	Discussion of concept of power electronics through block diagram.	L+ D	LCD +BB	1	2	1/9/2020
3	Classification of power electronics devices and its applications	L+ D	LCD +BB	1	3	2/9/2020
4	Introduction to thyristor: SCR	L+D	LCD +BB	1	4	4/9/2020
5	Construction details of SCR and VI characteristics of SCR	L+D	LCD +BB	1	5	5/9/2020
6	Discussion of Turn-On methods of SCR	L+D	LCD +BB	1	6	8/9/2020
7	Discussion of Turn-Off mechanisms of SCR	L+D	LCD +BB	1	7	8/9/2020
8	Discussion of commutation techniques: Natural and Forced Commutation – Class A and Class B types	L+D	LCD +BB	1	8	9/9/2020
9	Gate Trigger Circuit: Resistance Firing Circuit, Resistance capacitance firing circuit	L+D	BB	2	10	11/9/2020
10	Unijunction Transistor: Basic operation and UJT Firing Circuit	L+D	BB	1	11	12/9/2020
11	problems			1	12	16/9/2020
12	**Quiz and class test**	L+D	BB	1	13	18/9/2020

Module -2: Phase controlled converter & Choppers						
13	Introduction to converters	L+ D	BB	1	14	22/9/2020
14	Discussion of Control techniques	L+D	BB	1	15	22/9/2020
15	Explanation of Single-phase half wave rectifier with resistive and inductive loads	L+D, PS	BB	2	17	25/9/2020
16	Explanation of full wave-controlled rectifier with resistive and inductive loads	L+D, PS	BB	2	19	26/9/2020
17	Discussion of effect of freewheeling diode	L+D, PS	BB	1	20	3/10/2020
17	Introduction to Chopper	L+D, PS	BB	1	21	5/10/2020
18	Discussion on Chopper Classification	L+D, PS	BB	2	23	6/10/2020
19	Explanation of Basic Chopper operation	L+D	BB	1	24	7/10/2020
20	Explanation of step-down, step-up and step up/ down choppers	L+D	BB	2	26	9/10/2020
21	Problems	L+D	BB	1	27	13/10/2020
22	**Quiz and class test**			1	28	13/10/2020
Module -3: Inverters, SMPS & Principles of measurements						
23	Introduction to inverters and discussion on Classification	L+D	BB	1	29	13/10/2020
24	Explanation of Single-phase Half bridge and full bridge inverters with RL load.	L+D	BB	1	30	13/10/2020
25	problems	L+D	BB	1	31	14/10/2020
26	Explanation on Isolated Flyback Converter	L+D	BB	1	32	16/10/2020
27	Explanation on Isolated Forward Converter	L+D	BB	1	33	21/10/2020
28	**Introduction to Principles of Measurement**	L+D	BB	1	34	23/10/2020
29	Discussion about type of errors in measurements	L+D	BB	1	35	24/10/2020
30	Discussion of Multirange Ammeters, Multirange voltmeter.	L+D	BB	1	36	27/10/2020
31	problems	L+D	BB	1	37	27/10/2020
32	**Quiz and class test**	L+D	BB	1	38	28/10/2020
Module -4: Digital voltmeter, Digital multimeter &Bridges						
33	Introduction to digital voltmeter	L+AV	LCD	1	39	3/11/2020
34	Discussion of Ramp Technique & its limitations	L+D	BB	1	40	3/11/2020
35	Explanation on Dual slope integrating Type DVM, Direct Compensation type and Successive Approximations type DVM	L+D	BB	1	41	4/11/2020
36	Introduction to Digital Frequency Meter	L+D	BB	1	42	6/11/2020

37	Discussion on Digital Measurement of Time, Function Generator.	L+D	BB	1	43	7/11/2020
38	**Introduction to Bridges**	L+D	BB	1	44	13/11/2020
39	Discussion of Measurement of resistance	L+D	BB	1	45	17/11/2020
40	problems	L+D	BB	1	46	17/11/2020
41	Explanation of Wheatstone's Bridge	L+D	BB	1	47	19/11/2020
42	Discussion of AC Bridges-Capacitance and Inductance Comparison bridge	L+D	BB	1	48	21/11/2020
43	Explanation on Wien's bridge.	L+D	BB	1	49	24/11/2020
44	problems	L+D	BB	1	50	24/11/2020
45	Quiz	L+D	BB	1	51	25/11/2020
Module -5: Transducers & PLC's						
46	**Introduction to Transducers**, Resistive position Transducer,	L+AV	LCD	1	52	27/11/2020
47	Explanation of Electrical Transducer, Resistive Transducer	L+D	BB	1	53	01/12/2020
48	Discussion on Resistance Wire Strain Gauges, Resistance Thermometer, Thermistor	L+D	BB	1	54	01/12/2020
49	Explanation of operation of LVDT.	L+D	BB	1	55	04/12/2020
50	Introduction on Instrumentation Amplifier using Transducer Bridge	L+D	BB	1	56	05/12/2020
51	Explanation on Temperature indicators using Thermometer, Analog Weight Scale	L+D	BB	1	57	08/12/2020
52	**Introduction to Programmable Logic Controller:**	L+D	BB	1	58	08/12/2020
53	Discussion on Structure, Operation of PLC's	L+D	BB	1	59	09/12/2020
54	Explanation Relays and Register	L+D	BB	1	60	09/12/2020

Text Books:

1. M.D Singh and K B Khanchandani, Power Electronics, 2nd Edition, Tata Mc-Graw Hill, 2009, ISBN: 0070583897.

2. H. S. Kalsi, "Electronic Instrumentation", McGraw Hill, 3rd Edition, 2012, ISBN: 9780070702066.

Signature of Course In charge **Signature of Module Coordinator** **Signature of HOD**

K S INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE PLAN ODD SEM-2020-21

NAME OF THE STAFF : Mr. S.CHRISTO JAIN

SUBJECT CODE/NAME : 18EC36/POWER ELECTRONICS AND INSTRUMENTATION

SEMESTER/SEC : III SEM /B A&B

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	Module -1: Introduction & Thyristors					
1	Introduction to power electronics	L+AV	LCD	1	1	2/9/2020
2.	Discussion of concept of power electronics through block diagram.	L+ D	LCD +BB	1	2	3/9/2020
3	Classification of power electronics devices and its applications	L+ D	LCD +BB	1	3	4/9/2020
4	Introduction to thyristor: SCR	L+D	LCD +BB	1	4	4/9/2020
5	Construction details of SCR and VI characteristics of SCR	L+D	LCD +BB	1	5	5/9/2020
6	Discussion of Turn-On methods of SCR	L+D	LCD +BB	1	6	7/9/2020
7	Discussion of Turn-Off mechanisms of SCR	L+D	LCD +BB	1	7	7/9/2020
8	Discussion of commutation techniques: Natural and Forced Commutation – Class A and Class B types	L+D	LCD +BB	1	8	9/9/2020
9	Gate Trigger Circuit: Resistance Firing Circuit, Resistance capacitance firing circuit	L+D	BB	2	10	11/9/2020
10	Unijunction Transistor: Basic operation and UJT Firing Circuit	L+D	BB	1	11	12/9/2020
11	problems			1	12	14/9/2020
12	**Quiz and class test**	L+D	BB	1	13	16/9/2020

Module -2: Phase controlled converter & Choppers						
13	Introduction to converters	L+ D	BB	1	14	18/9/2020
14	Discussion of Control techniques	L+D	BB	1	15	22/9/2020
15	Explanation of Single-phase half wave rectifier with resistive and inductive loads	L+D, PS	BB	2	17	25/9/2020
16	Explanation of full wave-controlled rectifier with resistive and inductive loads	L+D, PS	BB	2	19	26/9/2020
17	Discussion of effect of freewheeling diode	L+D, PS	BB	1	20	3/10/2020
17	Introduction to Chopper	L+D, PS	BB	1	21	5/10/2020
18	Discussion on Chopper Classification	L+D, PS	BB	2	23	5/10/2020
19	Explanation of Basic Chopper operation	L+D	BB	1	24	8/10/2020
20	Explanation of step-down, step-up and step up/ down choppers	L+D	BB	2	26	9/10/2020
21	Problems	L+D	BB	1	27	13/10/2020
22	**Quiz and class test**			1	28	13/10/2020
Module -3: Inverters, SMPS & Principles of measurements						
23	Introduction to inverters and discussion on Classification	L+D	BB	1	29	13/10/2020
24	Explanation of Single-phase Half bridge and full bridge inverters with RL load.	L+D	BB	1	30	13/10/2020
25	problems	L+D	BB	1	31	14/10/2020
26	Explanation on Isolated Flyback Converter	L+D	BB	1	32	16/10/2020
27	Explanation on Isolated Forward Converter	L+D	BB	1	33	21/10/2020
28	**Introduction to Principles of Measurement**	L+D	BB	1	34	23/10/2020
29	Discussion about type of errors in measurements	L+D	BB	1	35	24/10/2020
30	Discussion of Multirange Ammeters, Multirange voltmeter.	L+D	BB	1	36	27/10/2020
31	problems	L+D	BB	1	37	27/10/2020
32	**Quiz and class test**	L+D	BB	1	38	28/10/2020
Module -4: Digital voltmeter, Digital multimeter &Bridges						
33	Introduction to digital voltmeter	L+AV	LCD	1	39	3/11/2020
34	Discussion of Ramp Technique & its limitations	L+D	BB	1	40	3/11/2020
35	Explanation on Dual slope integrating Type DVM, Direct Compensation type and Successive Approximations type DVM	L+D	BB	1	41	4/11/2020
36	Introduction to Digital Frequency Meter	L+D	BB	1	42	6/11/2020

37	Discussion on Digital Measurement of Time, Function Generator.	L+D	BB	1	43	7/11/2020
38	**Introduction to Bridges**	L+D	BB	1	44	13/11/2020
39	Discussion of Measurement of resistance	L+D	BB	1	45	17/11/2020
40	problems	L+D	BB	1	46	17/11/2020
41	Explanation of Wheatstone's Bridge	L+D	BB	1	47	19/11/2020
42	Discussion of AC Bridges-Capacitance and Inductance Comparison bridge	L+D	BB	1	48	21/11/2020
43	Explanation on Wien's bridge.	L+D	BB	1	49	24/11/2020
44	problems	L+D	BB	1	50	24/11/2020
45	Quiz	L+D	BB	1	51	25/11/2020
	Module -5: Transducers & PLC's					
46	**Introduction to Transducers,** Resistive position Transducer,	L+AV	LCD	1	52	27/11/2020
47	Explanation of Electrical Transducer, Resistive Transducer	L+D	BB	1	53	01/12/2020
48	Discussion on Resistance Wire Strain Gauges, Resistance Thermometer, Thermistor	L+D	BB	1	54	01/12/2020
49	Explanation of operation of LVDT.	L+D	BB	1	55	04/12/2020
50	Introduction on Instrumentation Amplifier using Transducer Bridge	L+D	BB	1	56	05/12/2020
51	Explanation on Temperature indicators using Thermometer, Analog Weight Scale	L+D	BB	1	57	08/12/2020
52	**Introduction to Programmable Logic Controller:**	L+D	BB	1	58	08/12/2020
53	Discussion on Structure, Operation of PLC's	L+D	BB	1	59	09/12/2020
54	Explanation Relays and Register	L+D	BB	1	60	09/12/2020

Text Books: 1. M.D Singh and K B Khanchandani, Power Electronics, 2nd Edition, Tata Mc-Graw Hill, 2009, ISBN: 0070583897.

2. H. S. Kalsi, "Electronic Instrumentation", McGraw Hill, 3rd Edition, 2012, ISBN: 9780070702066

Signature of Course In charge **Signature of Module Coordinator** **Signature of HOD**

K.S. INSTITUTE OF TECHNOLOGY BANGALORE

DEPARTMENT OF MATHEMATICS

LESSON PLAN

NAME OF THE STAFF : Mrs. LAKSHMI C

SUBJECT CODE/NAME : 18MAT41 /COMPLEX ANALYSIS, PROBABILITY AND STATISTICAL METHODS

SEMESTER/YEAR : IV/ II (EC-A)

ACADEMIC YEAR : 2020-2021 (EVEN SEMESTER)

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE1:CALCULUS OF COMPLEX FUNCTIONS						
1	Complex variable, Limit,	L+T	MSTEAMS	1	1	19-04-2021
2	Continuity, Differentiability,	L+T	MSTEAMS	1	2	20-04-2021
3	Ananalytical function	L+T	MSTEAMS	1	3	21-04-2021
4	C-R equations in Cartesian form and derivations	L+T	MSTEAMS	1	4	23-04-2021
5	C-R equations polar form	L+T	MSTEAMS	1	5	24-04-2021

6	Problems on C-R equations	L+T	MSTEAMS	1	6	26-04-2021
7	Construction of analytic function if U is given	L+T	MSTEAMS	1	7	27-04-2021
8	Construction of analytic function if V is given	L+T	MSTEAMS	1	8	28-04-2021
9	Construction of analytic function if U+V, U-V is given	L+T	MSTEAMS	1	9	30-04-2021
10	Properties of analytic functions	L+T	MSTEAMS	1	10	3-05-2021
	MODULE2: PROBABILITY DISTRIBUTIONS					
11	Discrete random variable	L+T	MSTEAMS	1	11	4-05-2021
12	Continuous random variable	L+T	MSTEAMS	1	12	5-05-2021
13	probability mass/density functions	L+T	MSTEAMS	1	13	7-05-2021
14	Binomial distribution	L+T	MSTEAMS	2	15	8-05-2021, 10-05-2021
15	Poisson distribution	L+T	MSTEAMS	2	17	11-05-2021, 12-05-2021
16	Exponential distribution	L+T	MSTEAMS	2	19	17-05-2021, 18-05-2021
17	Normal distribution	L+T	MSTEAMS	2	21	19-05-2021, 21-05-2021
	MODULE 3:STATISTICAL METHODS & CURVE FITTING					
18	Correlation and regression-Karl Pearson's coefficient of correlation problems	L+T	MSTEAMS	1	22	22-05-2021
19	rank correlation -problems	L+T	MSTEAMS	2	24	28-05-2021, 31-05-2021
20	Regression analysis- lines of regression – problems	L+T	MSTEAMS	2	26	1-06-2021, 2-06-2021
21	Curve fitting by the method of least squares- fitting the curves of the form- $y = ax+b$	L+T	MSTEAMS	1	27	4-06-2021
22	Curve fitting by the method of least squares- fitting the curves of the form- $y= ax^b$	L+T	MSTEAMS	1	28	5-06-2021

23	Curve fitting by the method of least squares- fitting the curves of the form- $y=ax^2+bx+c$	L+T	MSTEAMS	1	29	7-06-2021
MODULE 4:CONFORMAL TRANSFORMATIONS & COMPLEX INTEGRATION						
24	The transformations $w = z^2$	L+T	MSTEAMS	1	30	8-06-2021
25	The transformation $w=e^z$	L+T	MSTEAMS	1	31	9-06-2021
26	The transformation $w= z+(1/z)$	L+T	MSTEAMS	1	32	11-06-2021
27	Bilinear transformation	L+T	MSTEAMS	2	34	14-06-2021, 15-06-2021
28	Line integral	L+T	MSTEAMS	2	36	16-06-2021, 18-06-2021
29	Cauchy's theorem	L+T	MSTEAMS	2	38	19-06-2021, 21-06-2021
30	Cauchy's integral formula	L+T	MSTEAMS	2	40	22-06-2021, 23-06-2021
MODULE 5: JOINT PROBABILITY DISTRIBUTION & SAMPLING THEORY						
31	Joint Probability distribution for two discrete random variables	L+T	MSTEAMS	2	42	25-06-2021, 2-07-2021
32	expectation and covariance	L+T	MSTEAMS	2	44	5-07-2021, 6-07-2021
33	Introduction to sampling distributions	L+T	MSTEAMS	1	45	7-07-2021
34	standard error	L+T	MSTEAMS	1	46	9-07-2021
35	Definitions,Type – 1 error	L+T	MSTEAMS	1	47	12-07-2021
36	Type – II error	L+I	MSTEAMS	1	48	13-07-2021
37	Test of hypothesis for means	L+T	MSTEAMS	1	49	14-07-2021
38	Confidence limits of means	L+I	MSTEAMS	2	51	16-07-2021, 17-07-2021
39	Students t distribution	L+T	MSTEAMS	2	53	19-07-2021, 20-07-2021
40	Chi – square distribution	L+T	MSTEAMS	2	55	23-07-2021, 26-07-2021
41	Revision	L+T	MSTEAMS	1	56	27-07-2021
42	Revision	L+T	MSTEAMS	1	57	28-07-2021
43	Revision	L+T	MSTEAMS	1	58	6-07-2021
44	Revision	L+T	MSTEAMS	1	59	7-07-2021

Text Books:

- **B.S. Grewal**: Higher Engineering Mathematics, Khanna Publishers, 44th Edition,2017
- **E. Kreyszig**: Advanced Engineering Mathematics, John Wiley & Sons, 10thEdition, 2016

Reference Books:

- **B.V.Ramana**: "Higher Engineering Mathematics", Tata McGraw-Hill, 11th Edition ,2010.
- **S.S.Sastry**: "Introductory Methods of Numerical Analysis", Prentice Hall of India., 11th Edition ,2010.

Web links and Video Lectures:

- http://nptel.ac.in/courses.php?disciplineID=111
- http://www.class-central.com/subject/math(MOOCs)
- http://academicearth.org/
- VTU EDUSAT PROGRAMME - 20

Details for the teaching Aids :

1.ONLINE PLATFORM / MS TEAMS

2.SELF STUDY

Course in charge **Module Coordinator** **HOD** 16/7/2021 **Principal**

K.S. INSTITUTE OF TECHNOLOGY BANGALORE

DEPARTMENT OF MATHEMATICS

LESSON PLAN

NAME OF THE STAFF : CHOWDAPPA.M.R

SUBJECT CODE/NAME : 18MAT41 /COMPLEX ANALYSIS, PROBABILITY AND STATISTICAL METHODS

SEMESTER/YEAR : IV/ II (ECE B)

ACADEMIC YEAR : 2020-2021 (EVEN SEMESTER)

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE1:CALCULUS OF COMPLEX FUNCTIONS						
1	Complex variable, Limit,	L+T	MS-TEAMS	1	1	19.04.2021
2	Continuity, Differentiability,	L+T	MS- TEAMS	1	2	20.04.2021
3	Ananalytical function	L+T	MS- TEAMS	1	3	21.04.2021
4	C-R equations in Cartesian form and derivations	L+T	MS- TEAMS	1	4	22.04.2021

5	C-R equations polar form	L+T	MS- TEAMS	1	5	24.04.2021
6	Problems on C-R equations	L+T	MS- TEAMS	1	6	26.04.2021,
7	Construction of analytic function if U is given	L+T	MS- TEAMS	1	7	27.04.2021
8	Construction of analytic function if V is given	L+T	MS- TEAMS	1	8	28.04.2021
9	Construction of analytic function if U+V, U-V is given	L+T	MS- TEAMS	1	9	29.04.2021,
10	Properties of analytic functions	L+T	MS- TEAMS	1	10	04.05.2021
	MODULE 2 : PROBABILITY DISTRIBUTIONS					
11	Discrete random variable	L+T	MS- TEAMS	1	11	05.05.2021
12	Continuous random variable	L+T	MS- TEAMS	1	12	06.05.2021
13	probability mass/density functions	L+T	MS- TEAMS	1	13	08.05.2021
14	Binomial distribution	L+T	MS- TEAMS	2	15	10.05.2021,11.05.2021
15	Poisson distribution	L+T	MS- TEAMS	2	17	12.05.2021,17.05.2021
16	Exponential distribution	L+T	MS- TEAMS	2	19	18.05.2021, 19.05.2021
17	Normal distribution	L+T	MS- TEAMS	2	21	20.05.2021, 22.05.2021
	MODULE 3 :STATISTICAL METHODS & CURVE FITTING					
18	Correlation and regression-Karl Pearson's coefficient of correlation problems	L+T	MS- TEAMS	2	23	27.05.2021, 31.05.2021
19	rank correlation -problems	L+T	MS- TEAMS	1	24	01.06.2021
20	Regression analysis- lines of regression – problems	L+T	MS- TEAMS	2	26	02.06.2021, 03.06.2021
21	Curve fitting by the method of least squares-fitting the curves of the form- $y = ax+b$	L+T	MS- TEAMS	1	27	05.06.2021
22	Curve fitting by the method of least squares-fitting the curves of the form- $y= ax^b$	L+T	MS- TEAMS	1	28	07.06.2021
23	Curve fitting by the method of least squares-fitting the curves of the form- $y=ax^2+bx+c$	L+T	MS- TEAMS	1	29	08.06.2021

MODULE 4 :CONFORMAL TRANSFORMATIONS & COMPLEX INTEGRATION						
24	The transformations $w = z^2$	L+T	MS- TEAMS	1	30	09.06.2021
25	The transformation $w=e^z$	L+T	MS- TEAMS	1	31	10.06.2021
26	The transformation $w= z+(1/z)$	L+T	MS- TEAMS	1	32	14.06.2021
27	Bilinear transformation	L+T	MS- TEAMS	2	34	15.06.2021, 16.06.2021
28	Line integral	L+T	MS- TEAMS	2	36	17.06.2021 , 19.06.2021
29	Cauchy's theorem	L+T	MS- TEAMS	2	38	21.06.2021, 22.06.2021
30	Cauchy's integral formula	L+T	MS- TEAMS	2	40	23.06.2021, 24.06.2021
MODULE 5 : JOINT PROBABILITY DISTRIBUTION & SAMPLING THEORY						
31	Joint Probability distribution for two discrete random variables	L+T	MS- TEAMS	2	42	28.06.2021, 01.07.2021
32	expectation and covariance	L+T	MS- TEAMS	2	44	03.07.2021, 05.07.2021
33	Introduction to sampling distributions	L+T	MS- TEAMS	1	45	06.07.2021
34	standard error	L+T	MS- TEAMS	1	46	07.07.2021
35	Definitions,Type – 1 error	L+T	MS- TEAMS	1	47	08.07.2021
36	Type – II error	L+I	MS- TEAMS	1	48	09.07.2021
37	Test of hypothesis for means	L+T	MS- TEAMS	1	49	10.07.2021
38	Confidence limits of means	L+I	MS- TEAMS	2	51	12.07.2021, 13.07.2021
39	Students t distribution	L+T	MS- TEAMS	2	53	14.07.2021, 15.07.2021
40	Chi – square distribution	L+T	MS- TEAMS	2	55	16.07.2021, 17.07.2021
41	Revision	L+T	MS- TEAMS	1	56	19.07.2021
42	Revision	L+T	MS- TEAMS	1	57	20.07.2021
43	Revision	L+T	MS- TEAMS	1	58	22.07.2021
44	Revision	L+T	MS- TEAMS	1	59	23.07.2021
45	Revision	L+T	MS- TEAMS	1	60	26.07.2021
46	Revision	L+T	MS- TEAMS	1	61	27.08.2021
47	Revision	L+T	MS- TEAMS	1	62	07.08.2021

Text Books:

- **B.S. Grewal**: Higher Engineering Mathematics, Khanna Publishers, 44th Edition,2017
- **E. Kreyszig**: Advanced Engineering Mathematics, John Wiley & Sons, 10thEdition, 2016

Reference Books:

- **B.V.Ramana**: "Higher Engineering Mathematics", Tata McGraw-Hill, 11th Edition ,2010.
- **S.S.Sastry**: "Introductory Methods of Numerical Analysis", Prentice Hall of India., 11th Edition ,2010.

Web links and Video Lectures:

- http://nptel.ac.in/courses.php?disciplineID=111
- http://www.class-central.com/subject/math(MOOCs)
- http://academicearth.org/
- VTU EDUSAT PROGRAMME - 20

Details for the teaching Aids :

1. ON LINE PLATFORM -MICROSOFT TEAMS
2. SELF STUDY

Course in charge **Module Coordinator** **HOD** 16/7/2021 **Principal**

K.S. INSTITUTE OF TECHNOLOGY BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : SanthoshKumar.B.R

SUBJECT CODE/NAME : 18EC42/ Analog Circuits

SEMESTER/YEAR : IV/ II/A

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1					
1	**Introduction to Analog Circuits**	L+D	BB	1	1	19-04-21
1	**BJT Biasing: Biasing in BJT amplifier circuits:**The Classical Discrete circuit bias (Voltage divider bias)	L+D	BB	2	3	20-04-21 21-04-21
2	Biasing using a collector to base feedback resistor	L+D	BB	2	5	22-04-21 23-04-21
3	**Small signal operation and Models:**Collector current and transconductance	L+D	BB	2	7	24-04-21 26-04-21
4	Base current and input resistance, Emitter current and input resistance	L+D	BB	1	8	27-04-21
5	Voltage gain, Separating the signal and the DC quantities, The hybrid Π model	L+D	BB	2	10	28-04-21 29-04-21
6	**MOSFETs: Biasing in MOS amplifier circuits:**Fixing VGS, Fixing VG, Drain to Gate feedback resistor.	L+D	BB	2	12	30-04-21 03-05-21
7	**Small signal operation and modeling:**The DC bias point, Signal current in drain, voltage gain	L+D	BB	2	14	04-05-21 05-05-21
8	Small signal equivalent circuit models, transconductance	L+D	BB	1	16	06-05-21 08-05-21
9	Pedagogy Activity	L+D	Quiz	0	17	07-05-21
	MODULE 2					
11	**MOSFET Amplifier configuration:** Basic configurations, characterizing amplifiers	L+D	BB	1	18	10-05-21
12	CS amplifier with and without source resistance RS	L+D	BB	1	19	11-05-21
13	Source follower	L+D	BB	1	20	12-05-21
14	**MOSFET internal capacitances and High frequency model:**The gate capacitive effect. Junction capacitances, High frequency model.	L+D	BB	2	22	17-05-21 18-05-21
15	**Frequency response of the CS**	L+D	BB	1	23	19-05-21

	amplifier: The three frequency bands					
16	High frequency response, Low frequency response	L+D	BB	1	24	20-05-21
17	**Oscillators:**FET based Phase shift oscillator	L+D	BB	1	25	21-05-21
18	LC and Crystal Oscillators	L+D	BB	1	26	22-05-21
19	Tutorial	L+D	BB	1	27	27-05-21
20	Tutorial	L+D	BB	1	28	28-05-21
	MODULE 3					
21	**Feedback Amplifier:**General feedback structure	L+D	BB	1	29	31-05-21
22	Properties of negative feedback	L+D	BB	1	30	01-06-21
23	The Four Basic Feedback Topologies: The series-shunt, series-series	L+D	BB	1	32	02-06-21 03-06-21
24	shunt-shunt and shunt-series amplifiers	L+D	BB	1	34	05-06-21 07-06-21
25	**Output Stages and Power Amplifiers:** Introduction, Classification of output stages	L+D	BB	1	36	08-06-21 09-06-21
26	Class A output stage, Class B output stage: Transfer Characteristics, Power	L+D	BB	1	39	10-06-21 11-06-21
27	Dissipation, Power Conversion efficiency	L+D	BB	1	41	14-06-21 15-06-21
28	Class AB output stage, Class C tuned Amplifier	L+D	BB	1	43	16-06-21 17-08-21
	MODULE 4					
31	**Op-Amp with Negative Feedback and general applications:** Inverting	L+D	BB	1	45	18-06-21 19-06-21
32	Non inverting Amplifiers	L+D	BB	1	47	21-06-21 22-06-21
33	Input impedance, Output impedance	L+D	BB	1	50	23-06-21 24-06-21 25-06-21
34	Bandwidth with feedback	L+D	BB	1	51	01-07-21
35	DC and AC Amplifiers	L+D	BB	1	52	02-07-21
36	Summing, Scaling, Averaging Amplifiers	L+D	BB	1	53	03-07-21
37	Instrumentation amplifier	L+D	BB	1	54	05-07-21
38	Comparators, Zero Crossing Detector, Schmitt trigger	L+D	BB	1	55	06-07-21
39	Hands on	L+D		0	56	07-07-21
40	Tutorial	L+D	BB	0	57	08-07-21
	MODULE 5					
41	**Op-Amp Circuits:**DAC - Weighted resistor and R-2R ladder	L+D	BB	1	58	09-07-21
42	ADC- Successive approximation type	L+D	BB	1	59	12-07-21
43	Small Signal half wave rectifier	L+D	BB	1	60	13-07-21
44	First order Active Filter, Second order Filter	L+D	BB	1	61	14-07-21
45	Band Pass Filter, Band Reject Filter	L+D	BB	1	62	15-07-21

	555 Timer and its applications:					
47	Monostable Multivibrator	L+D	BB	1	63	16-07-21
		L+D	BB	1	64	17-07-21
48	Astable Multivibrator	L+D	BB	1	65	19-07-21 20-07-21
	REVISION					
49	Revision	L+D	BB	0		22-07-21

Text Books:

1. Microelectronic Circuits, Theory and Applications, Adel S Sedra, Kenneth C Smith, 6th Edition, Oxford, 2015.ISBN:978-0-19-808913-1

2. Op-Amps and Linear Integrated Circuits, Ramakant A Gayakwad, 4th Edition. Pearson Education, 2000. ISBN: 8120320581

Reference Books:

1. Electronic Devices and Circuit Theory, Robert L Boylestad and Louis Nashelsky, 11th Edition, Pearson Education, 2013, ISBN: 978-93-325-4260-0.

2. Fundamentals of Microelectronics, BehzadRazavi, 2nd Edition, John Weily, 2015, ISBN 978-81-265-7135-2

3. J.Millman&C.C.Halkias—Integrated Electronics, 2nd edition, 2010, TMH. ISBN 0-07-462245-5

Web Materials:
https://nptel.ac.in/courses/117/101/117101106/
https://www.youtube.com/watch?v=clTA0pONnMs
https://slideplayer.com/slide/13248771/

Course In charge **Module coordinator** **Head of the Department**

K.S. INSTITUTE OF TECHNOLOGY BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : SanthoshKumar.B.R

SUBJECT CODE/NAME : 18EC42/ **Analog Circuits**

SEMESTER/YEAR : IV/ II 'B' Section

ACADEMIC YEAR : 2019-2020

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1					
1	**Introduction to Analog Circuits**	L+D	BB	1	1	19-04-21
1	**BJT Biasing: Biasing in BJT amplifier circuits:**The Classical Discrete circuit bias (Voltage divider bias)	L+D	BB	2	3	20-04-21 21-04-21
2	Biasing using a collector to base feedback resistor	L+D	BB	2	5	22-04-21 23-04-21
3	**Small signal operation and Models:**Collector current and transconductance	L+D	BB	2	7	24-04-21 26-04-21
4	Base current and input resistance, Emitter current and input resistance	L+D	BB	1	8	27-04-21
5	Voltage gain, Separating the signal and the DC quantities, The hybrid Π model	L+D	BB	2	10	28-04-21 29-04-21
6	**MOSFETs: Biasing in MOS amplifier circuits:**Fixing VGS, Fixing VG, Drain to Gate feedback resistor.	L+D	BB	2	12	30-04-21 03-05-21
7	**Small signal operation and modeling:**The DC bias point, Signal current in drain, voltage gain	L+D	BB	2	14	04-05-21 05-05-21
8	Small signal equivalent circuit models, transconductance	L+D	BB	1	16	06-05-21 08-05-21
9	Pedagogy Activity	L+D	Quiz	0	17	07-05-21
	MODULE 2					
11	**MOSFET Amplifier configuration:** Basic configurations, characterizing amplifiers	L+D	BB	1	18	10-05-21
12	CS amplifier with and without source resistance RS	L+D	BB	1	19	11-05-21
13	Source follower	L+D	BB	1	20	12-05-21
14	**MOSFET internal capacitances and High frequency model:**The gate capacitive effect.	L+D	BB	2	22	17-05-21 18-05-21

	Junction capacitances, High frequency model.					
15	**Frequency response of the CS amplifier:**The three frequency bands	L+D	BB	1	23	19-05-2
16	High frequency response, Low frequency response	L+D	BB	1	24	20-05-2
17	**Oscillators:**FET based Phase shift oscillator	L+D	BB	1	25	21-05-2
18	LC and Crystal Oscillators	L+D	BB	1	26	22-05-2
19	Tutorial	L+D	BB	1	27	27-05-2
20	Tutorial	L+D	BB	1	28	28-05-2
	MODULE 3					
21	**Feedback Amplifier:**General feedback structure	L+D	BB	1	29	31-05-2
22	Properties of negative feedback	L+D	BB	1	30	01-06-2
23	The Four Basic Feedback Topologies: The series-shunt, series-series	L+D	BB	1	32	02-06-2 03-06-2
24	shunt-shunt and shunt-series amplifiers	L+D	BB	1	34	05-06-21 07-06-21
25	**Output Stages and Power Amplifiers:** Introduction, Classification of output stages	L+D	BB	1	36	08-06-21 09-06-21
26	Class A output stage, Class B output stage: Transfer Characteristics, Power	L+D	BB	1	39	10-06-21 11-06-21
27	Dissipation, Power Conversion efficiency	L+D	BB	1	41	14-06-21 15-06-21
28	Class AB output stage, Class C tuned Amplifier	L+D	BB	1	43	16-06-21 17-08-21
	MODULE 4					
31	**Op-Amp with Negative Feedback and general applications:** Inverting	L+D	BB	1	45	18-06-21 19-06-21
32	Non inverting Amplifiers	L+D	BB	1	47	21-06-21 22-06-21
33	Input impedance, Output impedance	L+D	BB	1	50	23-06-21 24-06-21 25-06-21
34	Bandwidth with feedback	L+D	BB	1	51	01-07-21
35	DC and AC Amplifiers	L+D	BB	1	52	02-07-21
36	Summing, Scaling, Averaging Amplifiers	L+D	BB	1	53	03-07-21
37	Instrumentation amplifier	L+D	BB	1	54	05-07-21
38	Comparators, Zero Crossing Detector, Schmitt trigger	L+D	BB	1	55	06-07-21
39	Hands on	L+D		0	56	07-07-21
40	Tutorial	L+D	BB	0	57	08-07-21
	MODULE 5					
41	**Op-Amp Circuits:**DAC - Weighted resistor and R-2R ladder	L+D	BB	1	58	09-07-21
42	ADC- Successive approximation type	L+D	BB	1	59	12-07-21
43	Small Signal half wave rectifier	L+D	BB	1	60	13-07-21
44	First order Active Filter, Second order Filter	L+D	BB	1	61	14-07-21
45	Band Pass Filter, Band Reject Filter	L+D	BB	1	62	15-07-21

	555 Timer and its applications:					
47	Monostable Multivibrator	L+D	BB	1	63	16-07-21
48	Astable Multivibrator	L+D	BB	1	64	17-07-21
		L+D	BB	1	65	19-07-21 20-07-21
49	Revision	REVISION				
		L+D	BB	0		22-07-21

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1. Microelectronic Circuits, Theory and Applications, Adel S Sedra, Kenneth C Smith, 6th Edition, Oxford, 2015.ISBN:978-0-19-808913-1

2. Op-Amps and Linear Integrated Circuits, Ramakant A Gayakwad, 4th Edition. Pearson Education, 2000. ISBN: 8120320581

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https://www.youtube.com/watch?v=clTA0pONnMs

https://slideplayer.com/slide/13248771/

Course In charge **Module coordinator** **Head of the Department**

K.S. INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

NAME OF THE STAFF : Mr. PRAVEEN A
SUBJECT CODE/NAME : 18EC43/CONTROL SYSTEMS
SEMESTER/YEAR : IV / II
ACADEMIC YEAR : 2020-2021

Sl. No	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1					
1.	Introduction to Control Systems: Types of Control Systems.	L+D	BB	1	1	19/4/2021
2.	Effect of Feedback Systems.	L+D	BB	1	2	20/4/2021
3.	Differential equation of Physical Systems – Mechanical Systems.	L+ D	BB	4	6	22/4/2021 to 27/4/2021
4.	Differential equation of Electrical Systems.	L+ D	BB	3	9	29/4/2021 to 3/5/2021
5.	Differential equation of Analogous Systems	L+D	BB	4	13	4/5/2021 to 8/5/2021
	MODULE 2					
6.	Block diagrams: Transfer functions	L+D	BB	4	17	10/5/2021 to 18/5/2021

7.	Block diagrams: Transfer functions	L+D	BB	3	20	19/5/2021 to 22/5/2021
8.	Signal flow graphs: Transfer functions, Block diagram algebra and Signal Flow graphs.	L+DE	BB	2	22	27/5/2021 to 28/5/2021
9.	Signal flow graphs: Transfer functions, Block diagram algebra and Signal Flow graphs.	L+ PS	BB	4	26	31/5/2021 to 4/6/2021
	MODULE 3					
10.	Time Response of feedback control systems: Standard test signals,	L+ DE	BB	1	27	7/6/2021
11.	Unit step response of First order Systems.	L+D	BB	1	28	8/6/2021
12.	Second order Systems	L+D	BB	2	30	10/6/2021 to 11/6/2021
13.	Time response specifications of second order systems	L+D	BB	4	34	14/6/2021 to 17/6/2021
14.	Steady state errors and error constants.	L+D	BB	3	37	18/6/2021 to 21/6/2021
15.	Introduction to PI, PD	L+DE	LCD	1	38	22/6/2021
16.	PID Controllers	T+ STx	BB	1	39	23/6/2021
	MODULE 4					
17.	Stability analysis: Concepts of stability, Necessary conditions for Stability,	L+D	OHP	1	40	24/6/2021
18.	Routh stability criterion	L+D	BB	1	41	25/6/2021
19.	Relative stability analysis: more on the Routh stability criterion	L+D	BB	2	43	1/7/2021 to 2/7/2021
20.	Introduction to Root-Locus Techniques	L+D	BB	1	44	3/7/2021
21.	The root locus concepts, Construction of root loci.	L+D	BB	3	47	5/7/2021 to 8/7/2021

22.	Frequency domain analysis and stability: Correlation between time and frequency response,	L+D	BB	1	48	9/7/2021
23.	Bode Plots, Experimental determination of transfer function	L+D	BB	3	51	13/7/2021 to 15/7/2021
	MODULE 5					
24.	Introduction to Polar Plots, Mathematical Preliminaries.	L+PS(Tx)	BB	2	53	16/7/2021 to 17/7/2021
25.	Nyquist Stability criterion.	L+PS(Tx)	BB	4	57	19/7/2021 to 23/7/2021
26.	Introduction to lead, lag and lead-lag compensating networks (excluding design).	L+D	LCD	2	59	26/7/2021 to 27/7/2021
27.	Introduction to State variable analysis: Concept of State, State variables and state models.	L+D	BB	1	60	28/7/2021

Text Book:

1. J.Nagarath and M.Gopal, — Control Systems Engineering□, New Age International

Reference Books:

1. Modern Control Engineering, □ K.Ogata, Pearson Education Asia/PHI, 4th Edition, 2002. ISBN 978-81-203-40107.
2. Automatic Control Systems□, Benjamin C. Kuo, John Wiley India Pvt. Ltd., 8th Edition, 2008.
3. Feedback and Control System, □ Joseph J Distefano III et al., Schaum's Outlines, TMH, 2nd Edition 2007

Signature of Course In-charge **Signature of Module Coordinator** **Signature of HOD-ECE**

MK.S. INSTITUTE OF TECHNOLOGY BANGALORE

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

NAME OF THE STAFF : **Mr. SAMPATH KUMAR.S.**
SUBJECT CODE/NAME : **18EC43/CONTROL SYSTEMS**
SEMESTER/YEAR : **IV / II**
ACADEMIC YEAR : **2020-2021**

Sl.No	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1					
1.	Introduction to Control Systems: Types of Control Systems, Effect of Feedback Systems,	L+D	BB	1	1	19-4-21
2.	Differential equation of Physical Systems – Mechanical Systems,	L+ D	BB	4	5	20-4-21 TO 23-4-21
3.	Differential equation of Electrical Systems,	L+ D	BB	2	7	24-4-21 TO 28-4-21
4.	Analogous Systems	L+D	BB	3	10	29-4-21 TO 4-5-21
5.	Block diagrams: Transfer functions	L+D	BB	5	15	05-5-21 TO 11-5-21
6.	Signal flow graphs: Transfer functions, Block diagram algebra and Signal Flow graphs.	L+DE	BB	2	17	12-5-21 to 20-5-21
7.	Signal flow graphs: Transfer functions, Block diagram algebra and Signal Flow graphs.	L+ PS	BB	1	18	21-5-21

	MODULE 2					
8.	Time Response of feedback control systems: Standard test signals,	L+ DE	BB	1	19	27-5-21
9.	Unit step response of First order Systems.	L+D	BB	1	20	28-5-21
10.	Second order Systems	L+D	BB	1	21	31-5-21
11.	Time response specifications of second order systems	L+D	BB	3	24	01-6-21 to 03-6-21
12.	Steady state errors and error constants.	L+D	BB	4	28	04-6-21 to 07-6-21
13.	Introduction to PI, PD	L+DE	LCD	1	29	08-6-21
14.	PID Controllers	T+ STx	BB		29	09-6-21
	MODULE 3					
15.	Stability analysis: Concepts of stability, Necessary conditions for Stability,	L+D	OHP	1	30	10-6-21
16.	Routh stability criterion	L+D	BB	1	31	11-6-21
17.	Relative stability analysis: more on the Routh stability criterion	L+D	BB	5	36	15-6-21 to 17-6-21
	MODULE 4					
18.	Introduction to Root-Locus Techniques	L+D	BB	1	37	18-6-21
19.	The root locus concepts, Construction of root loci.	L+D	BB	5	42	19-6-21 to 22-6-21
20.	Frequency domain analysis and stability: Correlation between time and frequency response,	L+D	BB	1	45	23-6-21
21.	Bode Plots, Experimental determination of transfer function	L+D	BB	6	51	24-6-21 to 25-6-21
22.	Introduction to Polar Plots,	L+PS(Tx)	BB	5	56	01-7-21 to 03-7-21
23.	Nyquist Stability criterion	L+PS(Tx)	BB	4	60	05-7-21 to 08-7-21

MODULE 5						
24.	Introduction to lead, lag and lead-lag compensating networks (excluding design).	L+D	LCD	1	61	09-7-21
25.	Introduction to Digital Control System: Introduction, Spectrum Analysis of Sampling process,.	L+D	LCD	1	62	12-7-21
26.	Signal reconstruction Difference equations	L+D	LCD	1	63	13-7-21
27.	Introduction to State variable analysis: Introduction, Concept of State, State variables	L+D	BB	2	62	14-7-21 to 20-7-21
28.	State model, State model for Linear Continuous Discrete time systems, Diaganolisation	L+D	BB	2	64	22-7-21 to 27-7-21

Text Book:

1. J.Nagarath and M.Gopal, — Control Systems Engineering||, New Age International

Reference Books:

1. Modern Control Engineering,|| K.Ogata, Pearson Education Asia/PHI, 4th Edition, 2002. ISBN 978-81-203-40107.
2. Automatic Control Systems||, Benjamin C. Kuo, John Wiley India Pvt. Ltd., 8th Edition, 2008.
3. Feedback and Control System,|| Joseph J Distefano III et al., Schaum's Outlines, TMH, 2nd Edition 2007

Course In charge

Module coordinator

HOD ECE

K S INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE PLAN EVEN SEM-2020-21

NAME OF THE STAFF : Mrs. YESHWINI V

SUBJECT CODE/NAME : 18EC44

SEMESTER/SEC : IV/A

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1: Single random variables					
1	Definition of random variables	L+ D	Microsoft teams	1	1	19/4/2021
2	Cumulative distribution function continuous	L+ D	Microsoft teams	1	2	20/4/2021
3	Cumulative distribution function discrete	L+D	Microsoft teams	1	3	21/4/2021
4	Probability mass function and properties	L+D	Microsoft teams	1	4	22/4/2021
5	Probability density function and properties	L+D	Microsoft teams	1	5	23/4/2021
6	Expectations	L+D	Microsoft teams	1	6	24/4/2021
7	Characteristic functions	L+D	Microsoft teams	1	7	26/4/2021
8	Functions of single random variables	L+D	Microsoft teams	1	8	27/4/2021
9	Conditioned random variables	L+D	Microsoft teams	1	9	28/4/2021
10	Uniform, Exponential and Laplace distributions	L+D	Microsoft teams	1	10	29/4/2021
11	Gaussian, Binomial and Poisson distributions	L+D	Microsoft teams	1	11	30/4/2021
	MODULE 2: Multiple Random variables					

12	Two variable CDF and PDF	L+D	Microsoft teams	1	12	3/05/2021
13	Two variable Expectations	L+D	Microsoft teams	1	13	4/05/2021
14	Two variable transformation	L+D	Microsoft teams	1	14	5/05/2021
15	Two Gaussian random variables	L+D	Microsoft teams	1	15	6/05/2021
16	Sum of two independent random variables	L+D	Microsoft teams	1	16	7/05/2021
17	Sum of IID random variables	L+D	Microsoft teams	1	17	8/05/2021
18	Central limit theorem	L+D	Microsoft teams	1	18	10/05/2021
19	Law of large numbers	L+D	Microsoft teams	1	19	11/05/2021
20	Conditional joint probabilities	L+D	Microsoft teams	1	20	12/05/2021
21	Chi-square RV , Student-T RV	L+D	Microsoft teams	1	21	17/05/2021
22	Cauchy and Rayleigh RV	L+D	Microsoft teams	1	22	18/05/2021

MODULE 3: Random processes

23	Ensemble	L+D	Microsoft teams	1	23	19/05/2021
24	PDF	L+D	Microsoft teams	1	24	20/05/2021
25	Independence	L+D	Microsoft teams	1	25	28/05/2021
26	Expectations	L+D	Microsoft teams	1	26	1/06/2021
27	Stationary	L+D	Microsoft teams	1	27	2/06/2021
28	Correlation functions ACF,CCF	L+D	Microsoft teams	1	28	3/06/2021
29	Ergodic random processes	L+D	Microsoft teams	1	29	4/06/2021
30	Power spectral densities	L+D	Microsoft teams	1	30	7/06/2021
31	Linear systems	L+D	Microsoft teams	1	31	8/06/2021
32	Mean , cross correlation and auto correlation	L+D	Microsoft teams	1	32	9/06/2021
33	Exercises with noise	L+D	Microsoft teams	1	33	10/06/2021

MODULE 4: Vector spaces and Orthogonality

34	Vector spaces and null subspaces	L+D	Microsoft teams	1	34	14/06/2021
35	Rank and Row reduced form	L+D	Microsoft teams	1	35	15/06/2021
36	Independence	L+D	Microsoft teams	1	36	16/06/2021
37	Basis and dimension	L+D	Microsoft teams	1	37	17/06/2021
38	Dimensions of the four subspaces	L+D	Microsoft teams	1	38	18/06/2021
39	Rank-Nullity theorem	L+D	Microsoft teams	1	39	21/06/2021
40	Linear transformation	L+D	Microsoft teams	1	40	23/06/2021

41	Orthogonal vectors and subspaces	L+D	Microsoft teams	1	41	25/06/2021
42	Projections and least squares	L+D	Microsoft teams	1	42	1/07/2021
43	Orthogonal bases and gram-schmidt orthogonalization procedure	L+D	Microsoft teams	1	43	2/07/2021
44	Problems on gram schmidt orthogonalization	L+D	Microsoft teams	1	44	3/07/2021
MODULE 5:DETERMINANTS, EIGEN VALUES AND EIGEN VECTORS						
45	Properties of determinants.	L+ D	Microsoft teams	1	45	5/07/2021
46	Problems related to properties of determinants.	L+ D	Microsoft teams	1	46	6/07/2021
47	Permutations.	L+ D	Microsoft teams	1	47	7/07/2021
48	Problems related to permutation methods.	L+D	Microsoft teams	1	48	8/07/2021
49	Problems related to permutation methods.	L+D	Microsoft teams	1	49	9/07/2021
50	Co factor method.	L+D	Microsoft teams	1	50	12/07/2021
51	Problems related to co factor method.	L+D	Microsoft teams	1	51	13/07/2021
52	Eigen values and Eigen vectors	L+D	Microsoft teams	1	52	14/07/2021
53	Diagonalization of a matrix	L+D	Microsoft teams	1	53	15/07/2021
54	Special matrices	L+D	Microsoft teams	1	54	16/07/2021
55	Positive definite	L+D	Microsoft teams	1	55	19/07/2021
56	Symmetric	L+D	Microsoft teams	1	56	20/07/2021
57	Properties of special matrix	L+D	Microsoft teams	1	57	22/07/2021
58	Singular value decomposition	L+D	Microsoft teams	1	58	23/07/2021
59	Revision module 1	L+D	Microsoft teams	1	59	26/07/2021
60	Revision module 2	L+D	Microsoft teams	1	60	27/07/2021
61	Revision module 3	L+D	Microsoft teams	1	61	28/07/2021
62	Revision module 4	L+D	Microsoft teams	1	62	6/08/2021
63	Revision module 5	L+D	Microsoft teams	1	63	7/08/2021

Signature of Course In charge **Signature of Module Coordinator** **Signature of HOD**

K S INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE PLAN EVEN SEM-2020-21

NAME OF THE STAFF : Mrs. YESHWINI V

SUBJECT CODE/NAME : 18EC44

SEMESTER/SEC : IV/B

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1: Single random variables					
1	Definition of random variables	L+ D	Microsoft teams	1	1	19/4/2021
2	Cumulative distribution function continuous	L+ D	Microsoft teams	1	2	20/4/2021
3	Cumulative distribution function discrete	L+D	Microsoft teams	1	3	21/4/2021
4	Probability mass function and properties	L+D	Microsoft teams	1	4	22/4/2021
5	Probability density function and properties	L+D	Microsoft teams	1	5	23/4/2021
6	Expectations	L+D	Microsoft teams	1	6	24/4/2021
7	Characteristic functions	L+D	Microsoft teams	1	7	26/4/2021
8	Functions of single random variables	L+D	Microsoft teams	1	8	27/4/2021
9	Conditioned random variables	L+D	Microsoft teams	1	9	28/4/2021
10	Uniform, Exponential and Laplace distributions	L+D	Microsoft teams	1	10	29/4/2021
11	Gaussian, Binomial and Poisson distributions	L+D	Microsoft teams	1	11	30/4/2021
	MODULE 2: Multiple Random variables					

12	Two variable CDF and PDF	L+D	Microsoft teams	1	12	3/05/2021
13	Two variable Expectations	L+D	Microsoft teams	1	13	4/05/2021
14	Two variable transformation	L+D	Microsoft teams	1	14	5/05/2021
15	Two Gaussian random variables	L+D	Microsoft teams	1	15	6/05/2021
16	Sum of two independent random variables	L+D	Microsoft teams	1	16	7/05/2021
17	Sum of IID random variables	L+D	Microsoft teams	1	17	8/05/2021
18	Central limit theorem	L+D	Microsoft teams	1	18	10/05/2021
19	Law of large numbers	L+D	Microsoft teams	1	19	11/05/2021
20	Conditional joint probabilities	L+D	Microsoft teams	1	20	12/05/2021
21	Chi-square RV , Student-T RV	L+D	Microsoft teams	1	21	17/05/2021
22	Cauchy and Rayleigh RV	L+D	Microsoft teams	1	22	18/05/2021
	MODULE 3: Random processes					
23	Ensemble	L+D	Microsoft teams	1	23	19/05/2021
24	PDF	L+D	Microsoft teams	1	24	20/05/2021
25	Independence	L+D	Microsoft teams	1	25	28/05/2021
26	Expectations	L+D	Microsoft teams	1	26	1/06/2021
27	Stationary	L+D	Microsoft teams	1	27	2/06/2021
28	Correlation functions ACF,CCF	L+D	Microsoft teams	1	28	3/06/2021
29	Ergodic random processes	L+D	Microsoft teams	1	29	4/06/2021
30	Power spectral densities	L+D	Microsoft teams	1	30	7/06/2021
31	Linear systems	L+D	Microsoft teams	1	31	8/06/2021
32	Mean , cross correlation and auto correlation	L+D	Microsoft teams	1	32	9/06/2021
33	Exercises with noise	L+D	Microsoft teams	1	33	10/06/2021
	MODULE 4: Vector spaces and Orthogonality					
34	Vector spaces and null subspaces	L+D	Microsoft teams	1	34	14/06/2021
35	Rank and Row reduced form	L+D	Microsoft teams	1	35	15/06/2021
36	Independence	L+D	Microsoft teams	1	36	16/06/2021
37	Basis and dimension	L+D	Microsoft teams	1	37	17/06/2021
38	Dimensions of the four subspaces	L+D	Microsoft teams	1	38	18/06/2021
39	Rank-Nullity theorem	L+D	Microsoft teams	1	39	21/06/2021
40	Linear transformation	L+D	Microsoft teams	1	40	23/06/2021

41	Orthogonal vectors and subspaces	L+D	Microsoft teams	1	41	25/06/2021
42	Projections and least squares	L+D	Microsoft teams	1	42	1/07/2021
43	Orthogonal bases and gram-schmidt orthogonalization procedure	L+D	Microsoft teams	1	43	2/07/2021
44	Problems on gram schmidt orthogonalization	L+D	Microsoft teams	1	44	3/07/2021
	MODULE 5:DETERMINANTS, EIGEN VALUES AND EIGEN VECTORS					
45	Properties of determinants.	L+ D	Microsoft teams	1	45	5/07/2021
46	Problems related to properties of determinants.	L+ D	Microsoft teams	1	46	6/07/2021
47	Permutations.	L+ D	Microsoft teams	1	47	7/07/2021
48	Problems related to permutation methods.	L+D	Microsoft teams	1	48	8/07/2021
49	Problems related to permutation methods.	L+D	Microsoft teams	1	49	9/07/2021
50	Co factor method.	L+D	Microsoft teams	1	50	12/07/2021
51	Problems related to co factor method.	L+D	Microsoft teams	1	51	13/07/2021
52	Eigen values and Eigen vectors	L+D	Microsoft teams	1	52	14/07/2021
53	Diagonalization of a matrix	L+D	Microsoft teams	1	53	15/07/2021
54	Special matrices	L+D	Microsoft teams	1	54	16/07/2021
55	Positive definite	L+D	Microsoft teams	1	55	19/07/2021
56	Symmetric	L+D	Microsoft teams	1	56	20/07/2021
57	Properties of special matrix	L+D	Microsoft teams	1	57	22/07/2021
58	Singular value decomposition	L+D	Microsoft teams	1	58	23/07/2021
59	Revision module 1	L+D	Microsoft teams	1	59	26/07/2021
60	Revision module 2	L+D	Microsoft teams	1	60	27/07/2021
61	Revision module 3	L+D	Microsoft teams	1	61	28/07/2021
62	Revision module 4	L+D	Microsoft teams	1	62	6/08/2021
63	Revision module 5	L+D	Microsoft teams	1	63	7/08/2021

Signature of Course In charge **Signature of Module Coordinator** **Signature of HOD**

K.S. INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : P.PRAGATI
SUBJECT CODE/NAME : 18EC45/SIGNALS & SYSTEMS
SEMESTER/YEAR : IV / II (A)
ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1					
1	Z-Transforms: Introduction	L+D	Microsoft Teams	1	1	19/4/2021
2	Properties of region of convergence	L+D	Microsoft Teams	1	2	20/4/2021
3	Properties of the Z - transform	L+D	Microsoft Teams	1	3	21/4/2021
4	Numerical problems	L+PS	Microsoft Teams	1	4	22/4/2021
5	Inversion of the Z - transform	L+PS	Microsoft Teams	1	5	23/4/2021
6	Numerical problems	L+PS	Microsoft Teams	1	6	24/4/2021
	MODULE 2					
7	Fourier Representation of aperiodic Signals: Introduction, FT representation of aperiodic CT signals	L+D	Microsoft Teams	1	7	26/4/2021
8	Definition, FT of standard CT signals	L+PS	Microsoft Teams	1	8	27/4/2021
9	Properties and their significance	L+PS	Microsoft Teams	1	9	28/4/2021
10	FT representation of a periodic discrete signals - DTFT	L+D	Microsoft Teams	1	10	29/4/2021
11	Definition, DTFT of standard discrete signals	L+PS	Microsoft Teams	1	11	30/4/2021
12	Linearity, Time shift, Frequency Shift	L+D	Microsoft Teams	1	12	3/05/2021
13	Time differentiation, Parsevals theorm	L+D	Microsoft Teams	1	13	4/05/2021
14	Scaling , Integration, Convolution & modulation	L+D	Microsoft Teams	1	14	5/05/2021
15	Problems	L+D	Microsoft Teams	1	15	6/05/2021
16	Problems	L+PS	Microsoft Teams	1	16	7/05/2021
	MODULE 3					
17	LTI system properties in terms of impulse	L+PS	Microsoft Teams	1	17	8/05/2021
18	System Interconnection	L+D	Microsoft Teams	1	18	10/05/2021
19	Memoryless, Stable , Causal , Invertible	L+PS	Microsoft Teams	1	19	11/05/2021
20	Deconvolution	L+PS	Microsoft Teams	1	20	12/05/2021
21	Step response	L+PS	Microsoft Teams	1	21	17/05/2021
22	Problems on Step response	L+PS	Microsoft Teams	1	22	18/05/2021
23	Problems on De-convolution	L+PS	Microsoft Teams	1	23	19/05/2021
24	Fourier representation of Periodic signals	L+D	Microsoft Teams	1	24	20/05/2021
25	CTFS Properties	L+D	Microsoft Teams	1	25	28/05/2021

26	Basic problems	L+D	Microsoft Teams	I	26	1/06/2021
27	Problems on DTFS	L+PS	Microsoft Teams	I	27	2/06/2021
28	Problems on CTFS	L+D	Microsoft Teams	I	28	3/06/2021
29	Problems on LTI systems	L+D	Microsoft Teams		29	4/06/2021
		MODULE 4				
30	**Systems:** Definition, Classification: linear and nonlinear	L+PS	Microsoft Teams	I	30	7/06/2021
31	Time variant and invariant, causal and non-causal	L+PS	Microsoft Teams	I	31	8/06/2021
32	Static and dynamic, stable and unstable, invertible	L+PS	Microsoft Teams	I	32	9/06/2021
33	Numerical problems on classification of systems	L+PS	Microsoft Teams	I	33	10/06/2021
34	Time domain representation of LTI System:	L+PS	Microsoft Teams	I	34	14/06/2021
35	System modeling: Input-output relation	L+D	Microsoft Teams	I	35	15/06/2021
36	Definition of impulse response, convolution sum	L+D	Microsoft Teams	I	36	16/06/2021
37	Numerical problems-convolution sum, convolution integral	L+PS	Microsoft Teams	I	37	17/06/2021
38	Numerical problems- convolution integral	L+D	Microsoft Teams	I	38	18/06/2021
39	Convolution sum using graphical method for unit step to unit step	L+D	Microsoft Teams	I	39	21/06/2021
40	Unit step to exponential, exponential to exponential, Unit step to rectangular and rectangular to rectangular only.	L+PS	Microsoft Teams	I	40	23/06/2021
41	Properties of convolution, System interconnection, system properties in terms of impulse	L+PS	Microsoft Teams	I	41	25/06/2021
42	Step response in terms of impulse response	L+PS	Microsoft Teams	I	42	1/07/2021
43	Problems	L+D	Microsoft Teams	I	43	2/07/2021
44	Problems	L+D	Microsoft Teams	I	44	3/07/2021
		MODULE 5				
45	Introduction and Classification of signals: Definition of signal and systems.	L+PS	Microsoft Teams	I	45	5/07/2021

46	Communication and control systems as examples, Sampling of analog signals.	L+PS	Microsoft Teams	1	46	6/07/2021
47	Classification of signals as Continuous time & discrete time signal, even & odd, periodic & non-periodic.	L+PS	Microsoft Teams	1	47	7/07/2021
48	Deterministic & non-deterministic, energy and power.	L+PS	Microsoft Teams	1	48	8/07/2021
49	Numerical problems on classification of signals.	L+PS	Microsoft Teams	1	49	9/07/2021
50	Elementary signals/Functions: Exponential, sine, impulse, step and its properties, Ramp, rectangular, triangular, signum, sync functions.	L+PS	Microsoft Teams	1	50	12/07/2021
51	Operations on signals: Amplitude scaling, addition, multiplication	L+PS	Microsoft Teams	1	51	13/07/2021
52	Differentiation, integration (Accumulator for DT), time scaling, time shifting and time folding	L+PS	Microsoft Teams	1	52	14/07/2021
53	Problems on Amplitude scaling, addition, multiplication	L+PS	Microsoft Teams	1	53	15/07/2021
54	Problems on Differentiation, integration (Accumulator for DT), time scaling, time shifting and time folding	L+PS	Microsoft Teams	1	54	16/07/2021
55	Problems	L+PS	Microsoft Teams	1	55	19/07/2021
56	Problems	L+PS	Microsoft Teams	1	56	20/07/2021
57	Problems on continuous time & discrete time signal of energy signals.	L+PS	Microsoft Teams	1	57	22/07/2021
58	Problems on continuous time & discrete time signal, even & odd, periodic & non-periodic.	L+PS	Microsoft Teams	1	58	23/07/2021
59	Problems on continuous time & discrete time signal, even & odd, periodic & non-periodic	L+PS	Microsoft Teams	1	59	26/07/2021
60	Problems	L+PS	Microsoft Teams	1	60	27/07/2021

Signature of Course Incharge **Signature of Module coordinator** **Signature of HOD**

R.S. INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : P.PRAGATI

SUBJECT CODE/NAME : 18EC45/SIGNALS & SYSTEMS

SEMESTER/YEAR : IV / II (B)

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
			MODULE 1			
1	Z-Transforms: Introduction	L+D	Microsoft Teams	1	1	19/4/2021
2	Properties of region of convergence	L+D	Microsoft Teams	1	2	20/4/2021
3	Properties of the Z - transform	L+D	Microsoft Teams	1	3	21/4/2021
4	Numerical problems	L+PS	Microsoft Teams	1	4	22/4/2021
5	Inversion of the Z - transform	L+PS	Microsoft Teams	1	5	23/4/2021
6	Numerical problems	L+PS	Microsoft Teams	1	6	24/4/2021
			MODULE 2			
7	Fourier Representation of aperiodic Signals: Introduction, FT representation of aperiodic CT signals	L+D	Microsoft Teams	1	7	26/4/2021
8	Definition, FT of standard CT signals	L+PS	Microsoft Teams	1	8	27/4/2021
9	Properties and their significance	L+PS	Microsoft Teams	1	9	28/4/2021
10	FT representation of a periodic discrete signals - DTFT	L+D	Microsoft Teams	1	10	29/4/2021
11	Definition, DTFT of standard discrete signals	L+PS	Microsoft Teams	1	11	30/4/2021
12	Linearity, Time shift, Frequency Shift	L+D	Microsoft Teams	1	12	3/05/2021
13	Time differentiation, Parsevals theorm	L+D	Microsoft Teams	1	13	4/05/2021
14	Scaling , Integration, Convolution & modulation	L+D	Microsoft Teams	1	14	5/05/2021
15	Problems	L+D	Microsoft Teams	1	15	6/05/2021
16	Problems	L+PS	Microsoft Teams	1	16	7/05/2021
			MODULE 3			
17	LTI system properties in terms of impulse	L+PS	Microsoft Teams	1	17	8/05/2021
18	System Interconnection	L+D	Microsoft Teams	1	18	10/05/2021
19	Memoryless, Stable , Causal , Invertible	L+PS	Microsoft Teams	1	19	11/05/2021
20	Deconvolution	L+PS	Microsoft Teams	1	20	12/05/2021
21	Step response	L+PS	Microsoft Teams	1	21	17/05/2021
22	Problems on Step response	L+PS	Microsoft Teams	1	22	18/05/2021
23	Problems on De-convolution	L+PS	Microsoft Teams	1	23	19/05/2021
24	Fourier representation of Periodic signals	L+D	Microsoft Teams	1	24	20/05/2021
25	CTFS Properties	L+D	Microsoft Teams	1	25	28/05/2021

26	Basic problems	L+D	Microsoft Teams	1	26	1/06/2021
27	Problems on DTFS	L+PS	Microsoft Teams	1	27	2/06/2021
28	Problems on CTFS	L+D	Microsoft Teams	1	28	3/06/2021
29	Problems on LTI systems	L+D	Microsoft Teams		29	4/06/2021
		MODULE 4				
30	**Systems:** Definition, Classification: linear and nonlinear	L+PS	Microsoft Teams	1	30	7/06/2021
31	Time variant and invariant, causal and non-causal	L+PS	Microsoft Teams	1	31	8/06/2021
32	Static and dynamic, stable and unstable, invertible	L+PS	Microsoft Teams	1	32	9/06/2021
33	Numerical problems on classification of systems	L+PS	Microsoft Teams	1	33	10/06/2021
34	Time domain representation of LTI System:	L+PS	Microsoft Teams	1	34	14/06/2021
35	System modeling: Input-output relation	L+D	Microsoft Teams	1	35	15/06/2021
36	Definition of impulse response, convolution sum	L+D	Microsoft Teams	1	36	16/06/2021
37	Numerical problems-convolution sum, convolution integral	L+PS	Microsoft Teams	1	37	17/06/2021
38	Numerical problems- convolution integral	L+D	Microsoft Teams	1	38	18/06/2021
39	Convolution sum using graphical method for unit step to unit step	L+D	Microsoft Teams	1	39	21/06/2021
40	Unit step to exponential, exponential to exponential, Unit step to rectangular and rectangular to rectangular only.	L+PS	Microsoft Teams	1	40	23/06/2021
41	Properties of convolution, System interconnection, system properties in terms of impulse	L+PS	Microsoft Teams	1	41	25/06/2021
42	Step response in terms of impulse response	L+PS	Microsoft Teams	1	42	1/07/2021
43	Problems	L+D	Microsoft Teams	1	43	2/07/2021
44	Problems	L+D	Microsoft Teams	1	44	3/07/2021
		MODULE 5				
45	Introduction and Classification of signals: Definition of signal and systems.	L+PS	Microsoft Teams	1	45	5/07/2021

46	Communication and control systems as examples, Sampling of analog signals.	L+PS	Microsoft Teams	1	46	6/07/2021
47	Classification of signals as Continuous time & discrete time signal, even & odd, periodic & non-periodic.	L+PS	Microsoft Teams	1	47	7/07/2021
48	Deterministic & non-deterministic, energy and power.	L+PS	Microsoft Teams	1	48	8/07/2021
49	Numerical problems on classification of signals.	L+PS	Microsoft Teams	1	49	9/07/2021
50	Elementary signals/Functions: Exponential, sine, impulse, step and its properties, Ramp, rectangular, triangular, signum, sync functions.	L+PS	Microsoft Teams	1	50	12/07/2021
51	Operations on signals: Amplitude scaling, addition, multiplication	L+PS	Microsoft Teams	1	51	13/07/2021
52	Differentiation, integration (Accumulator for DT), time scaling, time shifting and time folding	L+PS	Microsoft Teams	1	52	14/07/2021
53	Problems on Amplitude scaling, addition, multiplication	L+PS	Microsoft Teams	1	53	15/07/2021
54	Problems on Differentiation, integration (Accumulator for DT), time scaling, time shifting and time folding	L+PS	Microsoft Teams	1	54	16/07/2021
55	Problems	L+PS	Microsoft Teams	1	55	19/07/2021
56	Problems	L+PS	Microsoft Teams	1	56	20/07/2021
57	Problems on continuous time & discrete time signal of energy signals.	L+PS	Microsoft Teams	1	57	22/07/2021
58	Problems on continuous time & discrete time signal, even & odd, periodic & non-periodic.	L+PS	Microsoft Teams	1	58	23/07/2021
59	Problems on continuous time & discrete time signal, even & odd, periodic & non-periodic	L+PS	Microsoft Teams	1	59	26/07/2021
60	Problems	L+PS	Microsoft Teams	1	60	27/07/2021

Signature of Course Incharge **Signature of Module coordinator** **Signature of HOD**

K.S. INSTITUTE OF TECHNOLOGY BANGALORE

#14, Raghuvanahalli, Kanakapura Main Road, Bengaluru-5600109

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

NAME OF THE FACULTY : MR. SUNIL KUMAR G. R.
COURSE CODE/NAME : 18EC46/ MICROCONTROLLER
SEMESTER/YEAR : IV 'A' / II
ACADEMIC YEAR : 2020-2021

Sl.No	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1: Introduction to Microcontroller						
1.	Introduction to Microcontroller	L+D	PPT	1	1	19-04-21
2.	Microprocessor Vs Microcontroller	L+ D	PPT	1	2	20-04-21
3.	Embedded Systems and Embedded Microcontrollers	L+ D	PPT	1	3	21-04-21
4.	8051 Architecture- Registers	L+ D	PPT	2	5	22-04-21 23-04-21
5.	Pin diagram of 8051	L+ D	PPT	1	6	24-04-21
6.	I/O ports functions	L+ D	PPT	1	7	27-04-21
7.	Internal Memory organization	L+D	PPT	2	9	28-04-21 29-04-21
8.	External Memory (ROM & RAM) interfacing	L+ D	PPT	2	11	30-04-21 3-05-21
MODULE 2: 8051 INSTRUCTIONS SET						
9.	Addressing Modes	L+D	PPT	1	12	4-05-21
10.	Instructions classification based on addressing modes	L+D	PPT	1	13	5-05-21
11.	Data Transfer instructions	L+D	PPT	3	16	6-05-21 7-05-21 8-05-21
12.	Arithmetic instructions	L+D	PPT	2	18	10-05-21 11-05-21
13.	Logical instructions	L+D	PPT	2	20	12-05-21 17-05-21
14.	Branch instructions	L+D	PPT	2	22	18-05-21 19-05-21
15.	Bit manipulation instructions	L+D	PPT	2	24	20-05-21 21-05-21
16.	Simple Assembly language program examples (without loops) to use these	D+PS	PPT	2	26	22-05-21 26-05-21

	instructions					
MODULE 3: 8051 STACK, I/O PORT INTERFACING AND PROGRAMMING						
17.	8051 Stack	L+D	PPT	1	27	28-05-21
18.	Stack and Subroutine instructions	L+D	PPT	1	28	31-05-21
19.	Assembly language program examples on subroutine	D+PS	PPT	2	30	01-06-21 02-06-21
20.	Subroutine involving loops - Delay subroutine	L+D	PPT	2	32	03-06-21 04-06-21
21.	Interfacing simple switch and LED to I/O ports with respect to switch status	D+PS	PPT	2	34	05-06-21 07-06-21
MODULE 4: 8051 TIMERS AND SERIAL PORT						
22.	8051 Timers and Counters – Operation	L+D	PPT	1	35	08-06-21
23.	Assembly language programming to generate a pulse using Mode-1	D+PS	PPT	1	36	09-06-21
24.	Assembly language programming to generate a square wave using Mode-2 on a port pin	D+PS	PPT	1	37	10-06-21
25.	8051 Serial Communication- Basics of Serial Data Communication	L+D	PPT	1	38	11-06-21
26.	RS-232 standard	L+D	PPT	1	39	14-06-21
27.	9 pin RS232 signals	L+D	PPT	1	40	15-06-21
28.	Simple Serial Port programming in Assembly and C to transmit a message and to receive data serially	D+PS	PPT	3	43	16-06-21 17-06-21 18-06-21
MODULE 5: 8051 INTERRUPTS AND INTERFACING APPLICATIONS						
29.	8051 Interrupts	L+D	PPT	1	44	19-06-21
30.	8051 Assembly language programming to generate an external interrupt using a switch	D+PS	PPT	2	46	21-06-21 22-06-21
31.	8051 C programming to generate a square waveform on a port pin using a Timer interrupt	D+PS	PPT	1	47	23-06-21
32.	Interfacing 8051 to ADC-0804	L+D	PPT	1	48	24-06-21
33.	Interfacing DAC	L+D	PPT	1	49	25-06-21
34.	Interfacing 8051 to LCD and Stepper motor	L+D	PPT	1	50	1-07-21
35.	Interfacing Stepper motor	L+D	PPT	1	51	2-07-21
36.	Assembly language interfacing programming	D+PS	PPT	3	54	3-07-21 5-07-21 6-07-21

Text Books:

1. The 8051 Microcontroller and Embedded Systems – using assembly and C ", Muhammad Ali Mazidi and Janice Gillespie Mazidi and Rollin D. McKinlay; PHI, 2006 / Pearson, 2006.

2. The 8051 Microcontroller", Kenneth J. Ayala, 3rd Edition, Thomson/Cengage Learning

Reference Books:

1.The 8051 Microcontroller Based Embedded Systems", Manish K Patel, McGraw Hill, 2014, ISBN: 978-93-329-0125-4.

2. Microcontrollers: Architecture, Programming, Interfacing and System Design", Raj Kamal, Pearson Education, 2005

WEB MATERIALS:

W1: https://nptel.ac.in/courses/117104072/
W2: https://freevideolectures.com/course/3018/microprocessors-and-microcontrollers/22
W3: https://www.edgefxkits.com/blog/application-of-microcontroller-in-technology/
W4: http://www.circuitstoday.com/8051-microcontroller
W5: https://www.electronicshub.org/8051-microcontroller
W6: https://www.youtube.com/watch?v=FL9FhznJw2E&t=199s
W7: https://www.youtube.com/watch?v=EOAXox9XzTI&t=180s
W8: https://www.youtube.com/watch?v=pjcp7qLPPFw&t=1s
W9: https://www.youtube.com/watch?v=6ai2wl8-jv4&t=488s
W10: https://www.youtube.com/watch?v=pihAdSek7oM

Details for the teaching Aids

1. Power Point Presentation
2. Microsoft Teams, Keil Software

Course In charge **Module Coordinator** **HOD**

K.S. INSTITUTE OF TECHNOLOGY BANGALORE

#14, Raghuvanahalli, Kanakapura Main Road, Bengaluru-5600109

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

NAME OF THE FACULTY : MR.S CHRISTO JAIN
COURSE CODE/NAME : 18EC46/ MICROCONTROLLER
SEMESTER/YEAR : IV 'B' / II
ACADEMIC YEAR : 2020-2021

Sl.No	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Propos Date
	MODULE 1: Introduction to Microcontroller					
1.	Introduction to Microcontroller	L+D	PPT	1	1	20-04-2
2.	Microprocessor Vs Microcontroller	L+ D	PPT	1	2	21-04-2
3.	Embedded Systems and Embedded Microcontrollers	L+ D	PPT	1	3	22-04-2
4.	8051 Architecture- Registers	L+ D	PPT	2	5	23-04-2 24-04-2
5.	Pin diagram of 8051	L+ D	PPT	1	6	26-04-2
6.	I/O ports functions	L+ D	PPT	1	7	27-04-2
7.	Internal Memory organization	L+D	PPT	2	9	28-04-2 29-04-2
8.	External Memory (ROM & RAM) interfacing	L+ D	PPT	2	11	30-04-2 4-05-2
	MODULE 2: 8051 INSTRUCTIONS SET					
9.	Addressing Modes	L+D	PPT	1	12	4-05-2
10.	Instructions classification based on addressing modes	L+D	PPT	1	13	5-05-2
11.	Data Transfer instructions	L+D	PPT	3	16	6-05-2 7-05-2 8-05-2
12.	Arithmetic instructions	L+D	PPT	2	18	8-05-2 11-05-2
13.	Logical instructions	L+D	PPT	2	20	12-05-2 17-05-2
14.	Branch instructions	L+D	PPT	2	22	18-05-2 19-05-2
15.	Bit manipulation instructions	L+D	PPT	2	24	20-05-2 21-05-2
16.	Simple Assembly language program examples (without loops) to use these instructions	D+PS	PPT	2	26	22-05-2 26-05-2

Sl.No	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	
MODULE 3: 8051 STACK, I/O PORT INTERFACING AND PROGRAMMING						
17.	8051 Stack	L+D	PPT	1	27	28-05
18.	Stack and Subroutine instructions	L+D	PPT	1	28	31-05-21
19.	Assembly language program examples on subroutine	D+PS	PPT	2	30	01-06-21 02-06-21
20.	Subroutine involving loops - Delay subroutine	L+D	PPT	2	32	03-06-21 04-06-21
21.	Interfacing simple switch and LED to I/O ports with respect to switch status	D+PS	PPT	2	34	05-06-21 07-06-21
MODULE 4: 8051 TIMERS AND SERIAL PORT						
22.	8051 Timers and Counters – Operation	L+D	PPT	1	35	08-06-21
23.	Assembly language programming to generate a pulse using Mode-1	D+PS	PPT	1	36	09-06-21
24.	Assembly language programming to generate a square wave using Mode-2 on a port pin	D+PS	PPT	1	37	10-06-21
25.	8051 Serial Communication- Basics of Serial Data Communication	L+D	PPT	1	38	11-06-21
26.	RS-232 standard	L+D	PPT	1	39	14-06-21
27.	9 pin RS232 signals	L+D	PPT	1	40	15-06-21
28.	Simple Serial Port programming in Assembly and C to transmit a message and to receive data serially	D+PS	PPT	3	43	16-06-21 17-06-21 18-06-21
MODULE 5: 8051 INTERRUPTS AND INTERFACING APPLICATIONS						
29.	8051 Interrupts	L+D	PPT	1	44	19-06-21
30.	8051 Assembly language programming to generate an external interrupt using a switch	D+PS	PPT	2	46	21-06-21 22-06-21
31.	8051 C programming to generate a square waveform on a port pin using a Timer interrupt	D+PS	PPT	1	47	23-06-21
32.	Interfacing 8051 to ADC-0804	L+D	PPT	1	48	24-06-21
33.	Interfacing DAC	L+D	PPT	1	49	25-06-21
34.	Interfacing 8051 to LCD and Stepper motor	L+D	PPT	1	50	1-07-21
35.	Interfacing Stepper motor	L+D	PPT	1	51	2-07-21
36.	Assembly language interfacing programming	D+PS	PPT	3	54	3-07-21 5-07-21 6-07-21

1. 8051 Microcontroller and Embedded Systems – using assembly and C ", Muhammad Ali Mazidi and Janice Mazidi and Rollin D. McKinlay; PHI, 2006 / Pearson, 2006.
2. 8051 Microcontroller", Kenneth J. Ayala, 3rd Edition, Thomson/Cengage Learning

Reference Books:

1. The 8051 Microcontroller Based Embedded Systems", Manish K Patel, McGraw Hill, 2014, ISBN: 978-93-329-0125-4.
2. Microcontrollers: Architecture, Programming, Interfacing and System Design", Raj Kamal, Pearson Education, 2005

WEB MATERIALS:

W1: https://nptel.ac.in/courses/117104072/
W2: https://freevideolectures.com/course/3018/microprocessors-and-microcontrollers/22
W3: https://www.edgefxkits.com/blog/application-of-microcontroller-in-technology/
W4: http://www.circuitstoday.com/8051-microcontroller
W5: https://www.electronicshub.org/8051-microcontroller
W6: https://www.youtube.com/watch?v=FL9FhznJw2E&t=199s
W7: https://www.youtube.com/watch?v=EOAXox9XzTI&t=180s
W8: https://www.youtube.com/watch?v=pjcp7qLPPFw&t=1s
W9: https://www.youtube.com/watch?v=6ai2wl8-jv4&t=488s
W10: https://www.youtube.com/watch?v=pihAdSek7oM

Details for the teaching Aids

1. Power Point Presentation
2. Microsoft Teams, Keil Software

Course In charge **Module Coordinator** **HOD**

KS INSTITUTE OF TECHNOLOGY, BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Mrs.V SANGEETHA

SUBJECT CODE/NAME : 18EC52/DIGITAL SIGNAL PROCESSING

SEMESTER/YEAR : V/ III-A

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1: Discrete Fourier Transforms (DFT)						
1	Discrete Fourier Transforms (DFT): Frequency domain sampling and reconstruction of discrete time signals	L+D	BB	1	1	01.09.2020
2	DFT as a linear transformation	L+D	BB	1	2	02.09.2020
3	DFT and its relationship with other transforms	L+D	BB	1	3	04.09.2020
4	Properties of DFT-Linearity, Periodicity	L+D	BB	1	4	05.09.2020
5	Properties of DFT-Symmetry	L+D	BB	1	5	07.09.2020
6	Multiplication of two DFTs- the circular convolution.	L+D	BB	1	6	08.09.2020
7	Multiplication of two DFTs- the circular convolution.	L+D	BB	1	7	09.09.2020
8	Additional DFT Properties-Circular Time, frequency shift problems	L+D	BB	1	8	11.09.2020
9	Circular convolution in time, Parseval's Theorem	L+D	BB	1	9	12.09.2020
10	Problems on different properties	L+PS	BB	1	10	14.09.2020
MODULE 2: Linear Filtering methods based on the DFT						
11	Use of DFT in linear filtering	L+ D	BB	1	11	15.09.2020
12	Filtering of long data sequences	L+D	BB	1	12	16.09.2020

13	Overlap-save problems	L+D	BB	1	13	18.09.2020
14	Kahoot Quiz	L+AV	LCD	1	14	19.09.2020
15	overlap-add method problems	L+D	BB	1	15	21.09.2020
16	Fast-Fourier-Transform (FFT) algorithms:	L+D	BB	1	16	22.09.2020
17	Direct computation of DFT, need for efficient computation of the DFT (FFT algorithms).	L+D	BB	1	17	23.09.2020
18	Radix-2 FFT algorithm for the computation of DFT and IDFT–. decimation-in-time and decimation-in-frequency algorithms	L+PS	BB	1	18	25.09.2020
19	Guess What Properties of DFT?	L+AV	LCD	1	19	26.09.2020
20	Problems on DIT FFT	L+PS	BB	1	20	28.09.2020
21	Problems on DIF FFT	L+PS	BB	1	21	29.09.2020
MODULE 3: Design of FIR Filters						
22	Structure for FIR Systems:	L+AV	LCD	1	22	30.09.2020
23	Direct form, Linear Phase	L+D	BB	1	23	03.10.2020
24	Internal Assessment -I	L+D	BB	1	24	05.10.2020
25	Lattice structure	L+D	BB	1	25	09.10.2020
26	FIR filter design: Introduction to FIR filters	L+D	BB	1	26	10.10.2020
27	design of FIR filters using - Rectangular	L+D	BB	1	27	12.10.2020
28	Hamming, Hanning and Bartlett windows.	L+D	BB	1	28	13.10.2020
29	Hamming, Hanning and Bartlett windows.	L+D	BB	1	29	14.10.2020
30	Hamming, Hanning and Bartlett windows.	L+PS	BB	1	30	16.10.2020
31	Problems on Hamming window	L+PS	BB	1	31	19.10.2020
MODULE 4: IIR Filter Design						
32	Structure for IIR Systems: Direct form, Parallel form structures.	L+D	BB	1	32	20.10.2020
33	Cascade form structure	L+D	BB	1	33	21.10.2020
34	IIR filter design: Characteristics of commonly used analog filter – Butterworth and Chebyshev filters	L+D	LCD,BB	1	34	23.10.2020
35	Analog to analog frequency transformations.	L+D	BB	1	35	27.10.2020
36	Design of IIR Filters from analog filter using	L+D	BB	1	36	28.10.2020

	Butterworth filter:					
37	Problems on Impulse invariance	L+PS	BB	1	37	02.11.2020
38	Problems on Impulse invariance	L+D	BB	1	38	03.11.2020
39	Bilinear transformation	L+D	BB	1	39	04.11.2020
40	Problems on Bilinear transformation	L+PS	BB	2	40	06.11.2020
41	Problems on Bilinear transformation	L+PS	BB	1	41	07.11.2020
42	Internal Assessment -II				42	09.11.2020
43	Problems on Bilinear transformation	L+PS	BB	1	43	13.11.2020
	MODULE 5: Digital Signal Processors:					
44	DSP Architecture	L+D	BB	1	44	18.11.2020
45	DSP Hardware Units	L+D	BB	2	45	20.11.2020
46	Fixed point format, Floating point Format	L+D	BB	1	46	21.11.2020
47	IEEE Floating point formats, Fixed point digital signal processors,	L+D	BB	1	47	23.11.2020
48	Floating point processors	L+D	BB	1	48	24.11.2020
49	FIR filter implementations in Fixed point systems.	L+D	BB	2	49	25.11.2020
50	IIR filter implementations in Fixed point systems.	L+D	BB	1	50	27.11.2020
51	Revision of module 1,2	L+D	BB	1	51	30.11.2020
52	Revision of module 3,4	L+D	BB	1	52	01.12.202(
53	Revision of module 5	L+D	BB	1	53	02.12.202(
54	Revision of University QP	L+D	BB	1	54	04.12.202
55	Internal Assessment -III			1	55	14.12.202

Text Books:

1. Digital signal processing – Principles Algorithms & Applications, Proakis&Monalakis, Pearson education, 4th Edition, Ne Delhi, 2007.
2. Li Tan,Jean Jiang," Digital Signal processing-Fundamentals and Applications",Academic press,2013,ISBN:978-0-12-415

Reference Books:

1. Sanjit K Mitra,"Digital Signal Processing,A Computer Based Approach",4th Edition,McGraw Hill education,2013
2. Oppenheim &schaffer,"Discrete Time Signal Processing ",PHI,2003.
3. D.GaneshRao and Vineeth P Gejji,"Digital Signal processing"Cengage India Private Limited,2017,ISBN"9386858231

WEB Materials:

- https://nptel.ac.in/courses/117/102/117102060
- https://www.youtube.com/watch?v=6dFnpz_AEyA
- https://ocw.mit.edu/resources/res-6-008-digital-signal-processing-spring-2011/video-lectures/
- https://www.tutorialspoint.com/digital_signal_processing/index.htm

Details for Teaching Aids:

1. Black Board
2. Online Platform

Signature of Course In-charge **Signature of Module Coordinator** **Signature of HOD-ECE**

KS INSTITUTE OF TECHNOLOGY, BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Mrs.V SANGEETHA

SUBJECT CODE/NAME : 18EC52/DIGITAL SIGNAL PROCESSING

SEMESTER/YEAR : V/ III-B

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1: Discrete Fourier Transforms (DFT)						
1	Discrete Fourier Transforms (DFT): Frequency domain sampling and reconstruction of discrete time signals	L+D	BB	1	1	01.09.2020
2	DFT as a linear transformation	L+D	BB	1	2	02.09.2020
3	DFT and its relationship with other transforms	L+D	BB	1	3	03.09.2020
4	Properties of DFT-Linearity, Periodicity	L+D	BB	1	4	05.09.2020
5	Properties of DFT-Symmetry	L+D	BB	1	5	07.09.2020
6	Multiplication of two DFTs- the circular convolution.	L+D	BB	1	6	08.09.2020
7	Multiplication of two DFTs- the circular convolution.	L+D	BB	1	7	09.09.2020
8	Additional DFT Properties-Circular Time, frequency shift problems	L+D	BB	1	8	10.09.2020
9	Circular convolution in time, Parseval's Theorem	L+D	BB	1	9	12.09.2020
10	Problems on different properties	L+PS	BB	1	10	14.09.2020
MODULE 2: Linear Filtering methods based on the DFT						
11	Use of DFT in linear filtering	L+ D	BB	1	11	15.09.2020
12	Filtering of long data sequences	L+D	BB	1	12	16.09.2020

13	Overlap-save problems	L+D	BB	1	13	18.09.2020
14	Kahoot Quiz	L+AV	LCD	1	14	19.09.2020
15	overlap-add method problems	L+D	BB	1	15	21.09.2020
16	Fast-Fourier-Transform (FFT) algorithms:	L+D	BB	1	16	22.09.2020
17	Direct computation of DFT, need for efficient computation of the DFT (FFT algorithms).	L+D	BB	1	17	23.09.2020
18	Radix-2 FFT algorithm for the computation of DFT and IDFT–. decimation-in-time and decimation-in-frequency algorithms	L+PS	BB	1	18	24.09.2020
19	Guess What Properties of DFT?	L+AV	LCD	1	19	26.09.2020
20	Problems on DIT FFT	L+PS	BB	1	20	28.09.2020
21	Problems on DIF FFT	L+PS	BB	1	21	29.09.2020
	MODULE 3: Design of FIR Filters					
22	Structure for FIR Systems:	L+AV	LCD	1	22	30.09.2020
23	Direct form, Linear Phase	L+D	BB	1	23	03.10.2020
24	Internal Assessment -I	L+D	BB	1	24	05.10.2020
25	Lattice structure	L+D	BB	1	25	08.10.2020
26	FIR filter design: Introduction to FIR filters	L+D	BB	1	26	10.10.2020
27	design of FIR filters using - Rectangular	L+D	BB	1	27	12.10.2020
28	Hamming, Hanning and Bartlett windows.	L+D	BB	1	28	13.10.2020
29	Hamming, Hanning and Bartlett windows.	L+D	BB	1	29	14.10.2020
30	Hamming, Hanning and Bartlett windows.	L+PS	BB	1	30	15.10.2020
31	Problems on Hamming window	L+PS	BB	1	31	20.10.2020
	MODULE 4: IIR Filter Design					
32	Structure for IIR Systems: Direct form, Parallel form structures.	L+D	BB	1	32	21.10.2020
33	Cascade form structure	L+D	BB	1	33	21.10.2020
34	IIR filter design: Characteristics of commonly used analog filter – Butterworth and Chebyshev filters	L+D	BB	1	34	22.10.202(
35	Analog to analog frequency transformations.	L+D	BB	1	35	22.10.202(
36	Design of IIR Filters from analog filter using	L+D	BB	1	36	28.10.202

	Butterworth filter:					
37	Problems on Impulse invariance	L+PS	BB	1	37	29.10.2020
38	Problems on Impulse invariance	L+D	BB	1	38	29.10.2020
39	Bilinear transformation	L+D	BB	1	39	03.11.2020
40	Problems on Bilinear transformation	L+PS	BB	1	40	04.11.2020
41	Problems on Bilinear transformation	L+PS	BB	1	41	05.11.2020
42	Problems on Bilinear transformation	L+PS	BB	1	42	05.11.2020
43	Problems on Bilinear transformation	L+PS	BB	1	43	07.11.2020
	MODULE 5: Digital Signal Processors:					
44	Internal Assessment -II			1	44	09.11.2020
45	DSP Architecture	L+D	BB	1	45	12.11.2020
46	DSP Hardware Units	L+D	BB	1	46	18.11.2020
47	Fixed point format, Floating point Format	L+D	BB	1	47	19.11.2020
48	IEEE Floating point formats, Fixed point digital signal processors,	L+D	BB	1	48	19.11.2020
49	Floating point processors	L+D	BB	1	49	24.11.2020
50	FIR filter implementations in Fixed point systems.	L+D	BB	1	50	25.11.2020
51	IIR filter implementations in Fixed point systems.	L+D	BB	1	51	26.11.2020
52	Revision of module 1,2	L+D	BB	1	52	26.11.2020
53	Revision of module 3,4	L+D	BB	1	53	01.12.2020
54	Revision of module 5	L+D	BB	1	54	02.12.2020
55	Internal Assessment -III			1	55	14.12.2020

Text Books:

1. Digital signal processing – Principles Algorithms & Applications, Proakis&Monalakis, Pearson education, 4th Edition, New Delhi, 2007.
2. Li Tan,Jean Jiang," Digital Signal processing-Fundamentals and Applications",Academic press,2013,ISBN:978-0-12-415893

Reference Books:

1. Sanjit K Mitra,"Digital Signal Processing,A Computer Based Approach",4th Edition,McGraw Hill education,2013
2. Oppenheim &schaffer,"Discrete Time Signal Processing ",PHI,2003.
3. D.GaneshRao and Vineeth P Gejji,"Digital Signal processing"Cengage India Private Limited,2017,ISBN"9386858231

WEB Materials:

- https://nptel.ac.in/courses/117/102/117102060
- https://www.youtube.com/watch?v=6dFnpz_AEyA
- https://ocw.mit.edu/resources/res-6-008-digital-signal-processing-spring-2011/video-lectures/
- https://www.tutorialspoint.com/digital_signal_processing/index.htm

Details for Teaching Aids:

1. Black Board
2. online Platform

Signature of Course In-charge **Signature of Module Coordinator** **Signature of HOD-ECE**

K S INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE PLAN ODD SEM-2020-21

NAME OF THE STAFF : Mrs. POOJA S

SUBJECT CODE/NAME : 18EC53/ PRINCIPLES OF COMMUNICATION SYSTEMS

SEMESTER/SEC : V SEM / A

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE -1: AMPLITUDE MODULATION						
1	Introduction to Amplitude Modulation	L+AV	Laptop	1	1	01/9/2020
2	Time & Frequency Domain description	L+ D	Laptop	1	2	02/9/2020
3	Switching modulator	L+ D	Laptop	1	3	05/9/2020
4	Envelop detector	L+D	Laptop	1	4	07/9/2020
5	Time and Frequency Domain description of DSB-SC	L+D	Laptop	1	5	08/9/2020
6	Ring modulator	L+D	Laptop	1	6	09/9/2020
7	Coherent detection, Costas Receiver	L+D	Laptop	1	7	12/9/2020
8	QAM, SSB Modulation	L+D	Laptop	1	8	14/9/2020
9	VSB Modulation, Frequency Translation	L+D	Laptop	1	9	15/9/2020
10	FDM, VSB Transmission of Analog and Digital Television	L+D	Laptop	1	10	16/9/2020
11	**Quiz and class test**	L+D	Laptop	1	11	19/9/2020
MODULE -2: ANGLE MODULATION						
12	Basic definitions of Angle Modulation	L+ D	Laptop	1	12	21/9/2020
13	Frequency Modulation	L+D	Laptop	1	13	22/9/2020
14	Narrow Band FM	L+D, PS	Laptop	1	14	23/9/2020
15	Transmission bandwidth of FM Signals	L+D, PS	Laptop	1	15	26/9/2020

16	Generation of FM Signals	L+D, PS	Laptop		16	03/10/2020
17	Demodulation of FM Signals	L+D, PS	Laptop	1	17	05/10/2020
17	FM Stereo Multiplexing	L+D, PS	Laptop	1	18	06/10/2020
18	Phase–Locked Loop: Nonlinear model of PLL	L+D	Laptop	1	19	07/10/2020
19	Linear model of PLL, Nonlinear Effects in FM Systems	L+D	Laptop	1	20	10/10/2020
20	The Super heterodyne Receiver	L+D	Laptop	1	21	12/10/2020
21	**Quiz and class test**		Laptop	1	22	13/10/2020
MODULE -3: NOISE & NOISE IN ANALOG MODULATION						
23	Shot Noise, Thermal noise	L+D	Laptop	1	23	14/10/2020
24	White Noise, Noise Equivalent Bandwidth	L+D	Laptop	1	24	17/10/2020
25	Introduction to Noise in Analog Modulation	L+D	Laptop	1	25	19/10/2020
26	Receiver Model, Noise in DSB-SC receivers.	L+D	Laptop	1	26	20/10/2020
27	Noise in AM receivers, Threshold effect	L+D	Laptop	1	27	21/10/2020
28	Noise in FM receivers, Capture effect	L+D	Laptop	1	28	24/10/2020
29	FM threshold effect,	L+D	Laptop	1	29	27/10/2020
30	Pre-emphasis and De-emphasis in FM	L+D	Laptop	1	30	28/10/2020
31	Problems	L+D	Laptop	1	31	02/11/2020
32	**Quiz and class test**	L+D	Laptop	1	32	03/11/2020
MODULE -4: SAMPLING & QUANTIZATION						
33	Introduction to Sampling and Quantization	L+AV	Laptop	1	33	04/11/2020
34	The need for Digitization	L+D	Laptop	1	34	07/11/2020
35	Sampling	L+D	Laptop	1	35	07/11/2020
36	The Low pass Sampling process	L+D	Laptop	1	36	13/11/2020
37	Pulse Amplitude Modulation	L+D	Laptop	1	37	17/11/2020
38	Time Division Multiplexing	L+D	Laptop	1	38	18/11/2020
39	Pulse-Position Modulation	L+D	Laptop	1	39	21/11/2020
40	Generation of PPM Waves	L+D	Laptop	1	40	21/11/2020
41	Detection of PPM Waves	L+D	Laptop	1	41	23/11/2020
42	Problems	L+D	Laptop	1	42	24/11/2020
43	**Quiz and class test**	L+D	Laptop	1	43	25/11/2020
MODULE -5: SAMPLING & QUANTIZATION Contd						
44	The Quantization Random Process	L+AV	Laptop	1	44	28/11/2020
45	Quantization Noise	L+D	Laptop	1	45	28/11/2020
46	Pulse–Code Modulation	L+D	Laptop	1	46	30/11/2020

47	Sampling, Quantization	L+D	Laptop	1	47	01/12/2020
48	Encoding, Regeneration	L+D	Laptop	1	48	02/12/2020
49	Decoding, Filtering	L+D	Laptop	1	49	05/12/2020
50	Multiplexing	L+D	Laptop	1	50	05/12/2020
51	Delta Modulation	L+D	Laptop	1	51	07/12/2020
52	Video + MPEG	L+D	Laptop	1	52	08/12/2020
53	Vocoders	L+D	Laptop	1	53	12/12/2020
54	**Quiz and class test**	L+D	Laptop	1	54	17/12/2020

Text Book:

"Communication Systems", Simon Haykins & Moher, 5th Edition, John Willey, India Pvt. Ltd, 2010, ISBN 978 – 81 – 265 – 2151 – 7.

Reference Books:

1. Modern Digital and Analog Communication Systems, B. P. Lathi, Oxford University Press., 4th edition.
2. An Introduction to Analog and Digital Communication, Simon Haykins, John Wiley India Pvt. Ltd., 2008, ISBN 978–81–265–3653–5.
3. Principles of Communication Systems, H. Taub & D.L. Schilling, TMH,2011.
4. Communication Systems, Harold P.E, Stern Samy and A. Mahmond, Pearson Edition, 2004.

Course In charge | Module Coordinator | ECE - HOD

K S INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE PLAN ODD SEM-2020-21

NAME OF THE STAFF : Mrs. POOJA S

SUBJECT CODE/NAME : 18EC53/ PRINCIPLES OF COMMUNICATION SYSTEMS

SEMESTER/SEC : V SEM / B

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE -1: AMPLITUDE MODULATION						
1	Introduction to Amplitude Modulation	L+AV	Laptop	1	1	01/9/2020
2	Time & Frequency Domain description	L+ D	Laptop	1	2	04/9/2020
3	Switching modulator	L+ D	Laptop	1	3	05/9/2020
4	Envelop detector	L+D	Laptop	1	4	07/9/2020
5	Time and Frequency Domain description of DSB-SC	L+D	Laptop	1	5	08/9/2020
6	Ring modulator	L+D	Laptop	1	6	11/9/2020
7	Coherent detection, Costas Receiver	L+D	Laptop	1	7	12/9/2020
8	QAM, SSB Modulation	L+D	Laptop	1	8	14/9/2020
9	VSB Modulation, Frequency Translation	L+D	Laptop	1	9	15/9/2020
10	FDM, VSB Transmission of Analog and Digital Television	L+D	Laptop	1	10	18/9/2020
11	**Quiz and class test**	L+D	Laptop	1	11	19/9/2020
MODULE -2: ANGLE MODULATION						
12	Basic definitions of Angle Modulation	L+ D	Laptop	1	12	21/9/2020
13	Frequency Modulation	L+D	Laptop	1	13	22/9/2020
14	Narrow Band FM	L+D, PS	Laptop	1	14	25/9/2020
15	Transmission bandwidth of FM Signals	L+D, PS	Laptop	1	15	26/9/2020

16	Generation of FM Signals	L+D, PS	Laptop	1	16	03/10/2020
17	Demodulation of FM Signals	L+D, PS	Laptop	1	17	05/10/2020
17	FM Stereo Multiplexing	L+D, PS	Laptop	1	18	06/10/2020
18	Phase–Locked Loop: Nonlinear model of PLL	L+D	Laptop	1	19	09/10/2020
19	Linear model of PLL, Nonlinear Effects in FM Systems	L+D	Laptop	1	20	10/10/2020
20	The Super heterodyne Receiver	L+D	Laptop	1	21	12/10/2020
21	**Quiz and class test**		Laptop	1	22	13/10/2020
MODULE -3: NOISE & NOISE IN ANALOG MODULATION						
23	Shot Noise, Thermal noise	L+D	Laptop	1	23	16/10/2020
24	White Noise, Noise Equivalent Bandwidth	L+D	Laptop	1	24	17/10/2020
25	Introduction to Noise in Analog Modulation	L+D	Laptop	1	25	19/10/2020
26	Receiver Model, Noise in DSB-SC receivers.	L+D	Laptop	1	26	20/10/2020
27	Noise in AM receivers, Threshold effect	L+D	Laptop	1	27	23/10/2020
28	Noise in FM receivers, Capture effect	L+D	Laptop	1	28	24/10/2020
29	FM threshold effect,	L+D	Laptop	1	29	27/10/2020
30	Pre-emphasis and De-emphasis in FM	L+D	Laptop	1	30	28/10/2020
31	Problems	L+D	Laptop	1	31	02/11/2020
32	**Quiz and class test**	L+D	Laptop	1	32	03/11/2020
MODULE -4: SAMPLING & QUANTIZATION						
33	Introduction to Sampling and Quantization	L+AV	Laptop	1	33	06/11/2020
34	The need for Digitization	L+D	Laptop	1	34	07/11/2020
35	Sampling	L+D	Laptop	1	35	07/11/2020
36	The Low pass Sampling process	L+D	Laptop	1	36	13/11/2020
37	Pulse Amplitude Modulation	L+D	Laptop	1	37	17/11/2020
38	Time Division Multiplexing	L+D	Laptop	1	38	20/11/2020
39	Pulse-Position Modulation	L+D	Laptop	1	39	21/11/2020
40	Generation of PPM Waves	L+D	Laptop	1	40	21/11/2020
41	Detection of PPM Waves	L+D	Laptop	1	41	23/11/2020
42	Problems	L+D	Laptop	1	42	24/11/2020
43	**Quiz and class test**	L+D	Laptop	1	43	27/11/2020
MODULE -5: SAMPLING & QUANTIZATION Contd						
44	The Quantization Random Process	L+AV	Laptop	1	44	28/11/2020
45	Quantization Noise	L+D	Laptop	1	45	28/11/2020
46	Pulse–Code Modulation	L+D	Laptop	1	46	30/11/2020

47	Sampling, Quantization	L+D	Laptop	1	47	01/12/2020
48	Encoding, Regeneration	L+D	Laptop	1	48	04/12/2020
49	Decoding, Filtering	L+D	Laptop	1	49	05/12/2020
50	Multiplexing	L+D	Laptop	1	50	05/12/2020
51	Delta Modulation	L+D	Laptop	1	51	07/12/2020
52	Video + MPEG	L+D	Laptop	1	52	08/12/2020
53	Vocoders	L+D	Laptop	1	53	12/12/2020
54	**Quiz and class test**	L+D	Laptop	1	53	17/12/2020

Text Book:

"Communication Systems", Simon Haykins & Moher, 5th Edition, John Willey, India Pvt. Ltd, 2010, ISBN 978 – 81 – 265 – 2151 – 7.

Reference Books:

1. Modern Digital and Analog Communication Systems, B. P. Lathi, Oxford University Press., 4th edition.
2. An Introduction to Analog and Digital Communication, Simon Haykins, John Wiley India Pvt. Ltd., 2008, ISBN 978–81–265–3653–5.
3. Principles of Communication Systems, H. Taub & D.L. Schilling, TMH,2011.
4. Communication Systems, Harold P.E, Stern Samy and A. Mahmond, Pearson Edition, 2004.

Course In charge **Module Coordinator** **ECE - HOD**

K S INSTITUTE OF TECHNOLOGY, BANGALORE
#14, Raghuvanahalli, Kanakapura Main Road, Bengaluru-5600109

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

NAME OF THE STAFF : Aruna Rao B P
SUBJECT CODE/NAME : 18EC54/ INFORMATION THEORY & CODING
SEMESTER/YEAR : V / III/A-Sec
ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1: Information Theory					
1	Course Objectives, Syllabus, Course Outcomes and Introduction to Information Theory	L+D	BB	1	1	2/9/20
2	Measure of information, Information content of message	L+ D	PPT	1	2	3/9/20
3	Numerical Problems on Information content	PS	BB	1	3	4/9/20
4	Average Information content of symbols in Long Independent sequences, Rate of information transmission, symbol rate	L+D	BB	1	4	5/9/20
5	Numerical Problems on Entropy	PS	BB	1	5	9/9/20
6	Numerical Problems on information rate	PS	BB	1	6	10/9/20
7	Extension of zero memory source	L+D	BB	1	7	11/9/20
8	Numerical Problems on Extension	PS	BB	1	8	12/9/20
9	Average Information content of symbols in Long dependent sequences	L+D	BB	1	9	16/9/20
10	Markov Statistical Model of Information Sources, Entropy and Information rate of Markoff Sources	L+D	BB	1	10	18/9/20
11	Numerical problems on Markoff Sources to calculate Entropy	PS	BB	1	11	19/9/20
12	Numerical problems to calculate Information rate	PS	BB	1	12	23/9/20
	MODULE 2: Source Coding					
13	Types of codes and their properties	L+ D	BB	1	13	24/9/20
14	Source coding theorem	L+D	BB	1	14	25/9/20
15	Prefix Codes	L+D	BB	1	15	1/10/20
16	Kraft McMillan Inequality property – KMI	L+D	BB	1	16	3/10/20

17	Encoding of the Source Outpu	L+D	BB	1	17	8/10/20
18	Shannon's Encoding Algorithm	L+D	BB	1	18	9/10/20
19	Numerical problems on Shannon's Encoding Algorithm	PS	BB	1	19	10/10/20
20	Shannon Fano Encoding Algorithm	L+D	BB	1	20	14/10/20
21	Numerical problems on Shannon Fano Encoding Algorithm	PS	BB	1	21	15/10/20
22	Shannon Fano ternery encoding alogrithem	L+D	BB	1	22	16/10/20
23	Numerical problems on Shannon Fano ternery encoding alogrithem	PS	BB	1	23	21/10/20
24	Huffman codes	L+D	BB	1	24	22/10/20
25	Numerical problems on Huffman codes	PS	BB	1	25	23/10/20
26	Extended Huffman coding	L+D	BB	1	26	28/10/20
27	Numerical problems on Extended Huffman codes	L+D	BB	1	27	28/10/20
28	Numerical problems on Extended Huffman codes	PS	BB	1	28	29/10/20
	MODULE 3: Information Channels					
29	Communication Channels, Channel Models, Channel Matrix	L+D	BB	2	30	4/11/20
30	Joint probability Matrix + Numerical Problems	L+D	BB	1	31	5/11/20
31	Mutual Information & its properties, rate of information transmission, Channel Capacity	L+D	BB	1	32	6/11/20
32	Special Channels, System Entropies	L+D	BB	2	34	7/11/20
33	Channel Capacity of Special Channels + Numerical problems	L+D+ PS	BB	2	36	11/11/20
34	Channel Capacity by Muroga's Theorem	L+D+ PS	BB	2	38	11/11/20
35	Continuous Channels	L+D	BB	1	39	12/11/20
36	Numerical problems on Channels	PS	BB	1	40	13/11/20
	MODULE 4: Error Control Coding					
37	Introduction, Examples of Error control coding, methods of Controlling Errors	L+D	BB	1	41	18/11/20
38	Types of Errors, types of Codes	L+D	BB	1	42	19/11/20
39	Linear Block Codes: matrix description of LBCs, Error Detection and Error Correction Capabilities of Linear Block Codes, Test-2	L+D	BB	2	44	20/11/20
40	Numerical problems on LBC	PS	BB	1	45	21/11/20
41	Single Error Correcting hamming Codes, Numerical problems	L+D, PS	BB	1	46	25/11/20
42	Table lookup Decoding using Standard Array, Numerical problems	L+D, PS	BB	1	47	25/11/20
43	**Binary Cyclic Codes:** Algebraic Structure of Cyclic Codes,	L+D	BB	1	48	26/11/20

	Encoding using an (n-k) Bit Shift register,					
44	Syndrome Calculation, Error Detection and Correction	L+D, PS	BB	1	49	27/11/20
45	Numerical problems on BCC	PS	BB	1	50	2/12/20
	MODULE 5: Some Important Cyclic Codes					
46	Golay Codes	L+D	BB	1	51	2/12/20
47	BCH Codes	L+D	BB	1	52	4/12/20
48	**Convolution Codes**: Convolution Encoder	L+D, PS	BB	1	53	5/12/20
49	Time domain approach, Transform domain approach,	L+D	BB	2	55	9/12/20
50	Numerical problems on **Convolution Codes**	PS	BB	2	57	10/12/20
51	Code Tree, Trellis and State Diagram	L+D, PS	BB	1	58	11/12/20
52	The Viterbi Algorithm, Test-3	L+D	BB	2	60	12/12/20

Text Books:

1. Digital and analog communication systems, K. Sam Shanmugam, John Wiley India Pvt. Ltd, 1996.
2. Digital communication, Simon Haykin, John Wiley India Pvt. Ltd, 2008.
3. Information Theory and Coding, Muralidhar Kulkarni, K.S. Shivaprakasha, Wiley India Pvt. Ltd, 2015, ISBN: 978-81-265-5305-1.
4. Information Theory and Coding, K. Giridhar, Pooja Publications, Third Edition, 2012.

Reference Books:

1. ITC and Cryptography, Ranjan Bose, TMH, II edition, 2007.
2. Principles of digital communication, J. Das, S. K. Mullick, P. K. Chatterjee, Wiley, 1986 - Technology & Engineering.
3. Digital Communications – Fundamentals and Applications, Bernard Sklar, Second Edition, Pearson Education, 2016, ISBN: 9780134724058.
4. Information Theory and Coding, K.N.Haribhat, D.Ganesh Rao, Cengage Learning, 2017.

Web Materials:

https://www.youtube.com/watch?v=9Rq-DRuSDJg
https://www.youtube.com/watch?v=-R2a2a1-2MM

Details for the teaching Aids:

1. Power Point Presentation
2. Black Board and Chalk

Signature of Course In charge

Signature of HOD

K S INSTITUTE OF TECHNOLOGY, BANGALORE
#14, Raghuvanahalli, Kanakapura Main Road, Bengaluru-5600109

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

NAME OF THE STAFF : Aruna Rao B P
SUBJECT CODE/NAME : 18EC54/ INFORMATION THEORY & CODING
SEMESTER/YEAR : V / III/B-Sec
ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1: Information Theory					
1	Course Objectives, Syllabus, Course Outcomes and Introduction to Information Theory	L+D	BB	1	1	2/9/20
2	Measure of information, Information content of message	L+ D	PPT	1	2	3/9/20
3	Numerical Problems on Information content	PS	BB	1	3	4/9/20
4	Average Information content of symbols in Long Independent sequences, Rate of information transmission, symbol rate	L+D	BB	1	4	5/9/20
5	Numerical Problems on Entropy	PS	BB	1	5	9/9/20
6	Numerical Problems on information rate	PS	BB	1	6	10/9/20
7	Extension of zero memory source	L+D	BB	1	7	11/9/20
8	Numerical Problems on Extension	PS	BB	1	8	12/9/20
9	Average Information content of symbols in Long dependent sequences	L+D	BB	1	9	16/9/20
10	Markov Statistical Model of Information Sources, Entropy and Information rate of Markoff Sources	L+D	BB	1	10	18/9/20
11	Numerical problems on Markoff Sources to calculate Entropy	PS	BB	1	11	19/9/20
12	Numerical problems to calculate Information rate	PS	BB	1	12	23/9/20
	MODULE 2: Source Coding					
13	Types of codes and their properties	L+ D	BB	1	13	24/9/20
14	Source coding theorem	L+D	BB	1	14	25/9/20
15	Prefix Codes	L+D	BB	1	15	1/10/20
16	Kraft McMillan Inequality property – KMI	L+D	BB	1	16	3/10/20

17	Encoding of the Source Output	L+D	BB	1	17	8/10/20
18	Shannon's Encoding Algorithm	L+D	BB	1	18	9/10/20
19	Numerical problems on Shannon's Encoding Algorithm	PS	BB	1	19	10/10/20
20	Shannon Fano Encoding Algorithm	L+D	BB	1	20	14/10/20
21	Numerical problems on Shannon Fano Encoding Algorithm	PS	BB	1	21	15/10/20
22	Shannon Fano ternery encoding alogrithem	L+D	BB	1	22	16/10/20
23	Numerical problems on Shannon Fano ternery encoding alogrithem	PS	BB	1	23	21/10/20
24	Huffman codes	L+D	BB	1	24	22/10/20
25	Numerical problems on Huffman codes	PS	BB	1	25	23/10/20
26	Extended Huffman coding	L+D	BB	1	26	28/10/20
27	Numerical problems on Extended Huffman codes	L+D	BB	1	27	28/10/20
28	Numerical problems on Extended Huffman codes	PS	BB	1	28	29/10/20
	MODULE 3: Information Channels					
29	Communication Channels, Channel Models, Channel Matrix	L+D	BB	2	30	4/11/20
30	Joint probability Matrix + Numerical Problems	L+D	BB	1	31	5/11/20
31	Mutual Information & its properties, rate of information transmission, Channel Capacity	L+D	BB	1	32	6/11/20
32	Special Channels, System Entropies	L+D	BB	2	34	7/11/20
33	Channel Capacity of Special Channels + Numerical problems	L+D+ PS	BB	2	36	11/11/20
34	Channel Capacity by Muroga's Theorem	L+D+ PS	BB	2	38	11/11/20
35	Continuous Channels	L+D	BB	1	39	12/11/20
36	Numerical problems on Channels	PS	BB	1	40	13/11/20
	MODULE 4: Error Control Coding					
37	Introduction, Examples of Error control coding, methods of Controlling Errors	L+D	BB	1	41	18/11/20
38	Types of Errors, types of Codes	L+D	BB	1	42	19/11/20
39	Linear Block Codes: matrix description of LBCs, Error Detection and Error Correction Capabilities of Linear Block Codes, Test-2	L+D	BB	2	44	20/11/20
40	Numerical problems on LBC	PS	BB	1	45	21/11/20
41	Single Error Correcting hamming Codes, Numerical problems	L+D, PS	BB	1	46	25/11/20
42	Table lookup Decoding using Standard Array, Numerical problems	L+D, PS	BB	1	47	25/11/20
43	**Binary Cyclic Codes:** Algebraic Structure of Cyclic Codes,	L+D	BB	1	48	26/11/20

	Encoding using an (n-k) Bit Shift register,					
44	Syndrome Calculation, Error Detection and Correction	L+D, PS	BB	1	49	27/11/20
45	Numerical problems on BCC	PS	BB	1	50	2/12/20
	MODULE 5: Some Important Cyclic Codes					
46	Golay Codes	L+D	BB	1	51	2/12/20
47	BCH Codes	L+D	BB	1	52	4/12/20
48	**Convolution Codes**: Convolution Encoder	L+D, PS	BB	1	53	5/12/20
49	Time domain approach, Transform domain approach,	L+D	BB	2	55	9/12/20
50	Numerical problems on **Convolution Codes**	PS	BB	2	57	10/12/20
51	Code Tree, Trellis and State Diagram	L+D, PS	BB	1	58	11/12/20
52	The Viterbi Algorithm, Test-3	L+D	BB	2	60	12/12/20

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2. Digital communication, Simon Haykin, John Wiley India Pvt. Ltd, 2008.
3. Information Theory and Coding, Muralidhar Kulkarni, K.S. Shivaprakasha, Wiley India Pvt. Ltd, 2015, ISBN: 978-81-265-5305-1.
4. Information Theory and Coding, K. Giridhar, Pooja Publications, Third Edition, 2012.

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1. ITC and Cryptography, Ranjan Bose, TMH, II edition, 2007.
2. Principles of digital communication, J. Das, S. K. Mullick, P. K. Chatterjee, Wiley, 1986 - Technology & Engineering.
3. Digital Communications – Fundamentals and Applications, Bernard Sklar, Second Edition, Pearson Education, 2016, ISBN: 9780134724058.
4. Information Theory and Coding, K.N.Haribhat, D.Ganesh Rao, Cengage Learning, 2017.

Web Materials:

https://www.youtube.com/watch?v=9Rq-DRuSDJg
https://www.youtube.com/watch?v=-R2a2a1-2MM

Details for the teaching Aids:

1. Power Point Presentation
2. Black Board and Chalk

Signature of Course In charge

Signature of HOD

KS INSTITUTE OF TECHNOLOGY, BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Mrs. JAYASUDHA B S K

SUBJECT CODE/NAME : 18EC55/Electromagnetic waves

SEMESTER/YEAR : V/ III /A sec

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Online Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1					
1	Introduction **Coulomb's Law, Electric Field Intensity and Flux density**	L+D	Laptop	1	1	01.09.2020
2	Experimental law of Coulomb	L+D	Laptop	1	2	02.09.2020
3	Coulombs law	L+D	Laptop	1	3	03.09.2020
4	Electric Field intensity	L+D	Laptop	1	4	05.09.2020
5	Field due to continuous volume charge distribution,	L+D	Laptop	1	5	07.09.2020
6	Field of a line charge,	L+D	Laptop	1	6	08.09.2020
7	Electric flux density	L+D	Laptop	1	7	09.09.2020
8	Problems on Electric filed intensity	L+D	Laptop	1	8	10.09.2020
9	Problems on volume integral	L+D	Laptop	1	9	12.09.2020
10	Electric Flux density	L+PS	Laptop	1	10	14.09.2020
	MODULE 2					
11	**Gauss's law and Divergence**	L+D	Laptop	1	11	15.09.2020
12	Maxwell's First equation (Electrostatics),	L+D	Laptop	1	12	16.09.2020
13	Vector Operator and divergence theorem.	L+D	Laptop	1	13	18.09.2020

14	Energy expended in moving a point charge in an electric field, The line integral	L+AV	Laptop	1	14	19.09.2020
15	Definition of potential difference and potential, The potential field of point charge, Current and Current density,	L+D	Laptop	1	15	21.09.2020
16	Continuity of current.	L+D	Laptop	1	16	22.09.2020
17	Continuity of current.	L+D	Laptop	1	17	23.09.2020
18	Continuity of current.	L+PS	Laptop	1	18	24.09.2020
19	Problems on Maxwell's equations	L+AV	Laptop	1	19	26.09.2020
20	Problems on energy	L+PS	Laptop	1	20	28.09.2020
	MODULE 3					
21	Derivation of Poisson's and Laplace's Equations,	L+AV	Laptop	1	22	30.09.2020
22	Uniqueness theorem.	L+D	Laptop	1	23	03.10.2020
23	Examples of the solution of Laplace's equation.	L+D	Laptop	1	24	05.10.2020
24	**Steady Magnetic Field** Biot-Savart Law, Ampere's circuital law,	L+D	Laptop	1	25	08.10.2020
25	Curl, Stokes' theorem, Magnetic flux and magnetic flux density	L+D	Laptop	1	26	10.10.2020
26	Scalar and Vector Magnetic Potentials.	L+D	Laptop	1	27	12.10.2020
27	Problems on poisonn's equation	L+D	Laptop	1	28	13.10.2020
28	Problems on laplace equations	L+D	Laptop	1	29	14.10.2020
29	Problems on applications of Amperes Circuital law	L+PS	Laptop	1	30	15.10.2020
30	Problems on applications of Amperes Circuital law	L+PS	Laptop	1	31	20.10.2020
	MODULE 4					
32	**Magnetic Forces** Force on a moving charge, differential current elements .	L+D	Laptop	1	32	21.10.2020
33	Operational and non-operational quality attributes	L+D	Laptop	1	33	21.10.2020
34	, Force between differential current elements.	L+D	Laptop	1	34	22.10.2020
35	**Magnetic Materials** Magnetization and permeability,	L+D	Laptop	1	35	22.10.2020

36	Magnetic boundary conditions, Magnetic circuit, Potential Energy and forces on magnetic materials	L+D	Laptop	1	36	28.10.2020
37	Magnetic boundary conditions, Magnetic circuit, Potential Energy and forces on magnetic materials	L+PS	Laptop	1	37	29.10.2020
38	Magnetic boundary conditions, Magnetic circuit, Potential Energy and forces on magnetic materials	L+D	Laptop	1	38	29.10.2020
39	Problems on Magnetic boundary conditions, Magnetic circuit,	L+D	Laptop	1	39	03.11.2020
40	problems	L+PS	Laptop	1	40	04.11.2020
	MODULE 5					
41	**Time-varying fields and Maxwell's equations**		Laptop	1	41	09.11.2020
42	Farday's law, displacement current,	L+D	Laptop	1	42	12.11.2020
43	Maxwell's equations in point form, Maxwell's equations in integral form.	L+D	Laptop	1	43	18.11.2020
44	**Uniform Plane Wave** Wave propagation in free space and good conductors	L+D	Laptop	1	44	19.11.2020
45	Poynting's theorem and wave power, Skin Effect	L+D	Laptop	1	45	19.11.2020
46	Poynting's theorem and wave power, Skin Effect	L+D	Laptop	1	46	24.11.2020
47	Problems on Poynting's theorem and wave power, Skin Effect	L+D	Laptop	1	47	25.11.2020
48	Problems on Poynting's theorem and wave power, Skin Effect	L+D	Laptop	1	48	26.11.2020
49	Problems on Poynting's theorem and wave power, Skin Effect	L+D	Laptop	1	49	26.11.2020
50	Revision of module 1	L+D	Laptop	1	50	01.12.2020
51	Revision of module 2	L+D	Laptop	1	51	02.12.2020
52	Revision of module 3	L+D	Laptop	1	52	14.12.2020

TEXT BOOK:

W.H. Hayt and J.A. Buck, "Engineering Electromagnetics", 8th Edition, Tata McGraw-Hill, ISBN-978-0-07-061223-5.

REFERENCES:

1. John Krauss and Daniel A Fleisch, "Electromagnetics with applications", McGraw- Hill.
2. N. Narayana Rao, "Fundamentals of Electromagnetics for Engineering", Pearson

WEB MATERIALS:

1. https://nptel.ac.in/courses/108106073/
2. https://freevideolectures.com/course/2340/electromagnetic-fields
3. https://www.khanacademy.org/science/physics/.../v/discovery-of-electromagnetism
4. https://www.quora.com/Are-there-any-good-online-video-course-sites-for-learning-el...

Signature of Course In-charge **Signature of Module Coordinator** **Signature of HOD-ECE**

KS INSTITUTE OF TECHNOLOGY, BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Mrs. JAYASUDHA B S K

SUBJECT CODE/NAME : 18EC55/Electromagnetic waves

SEMESTER/YEAR : V/ III /B sec

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Online Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1					
1	Introduction **Coulomb's Law, Electric Field Intensity and Flux density**	L+D	Laptop	1	1	01.09.2020
2	Experimental law of Coulomb	L+D	Laptop	1	2	02.09.2020
3	Coulombs law	L+D	Laptop	1	3	03.09.2020
4	Electric Field intensity	L+D	Laptop	1	4	05.09.2020
5	Field due to continuous volume charge distribution,	L+D	Laptop	1	5	07.09.2020
6	Field of a line charge,	L+D	Laptop	1	6	08.09.2020
7	Electric flux density	L+D	Laptop	1	7	09.09.2020
8	Problems on Electric filed intensity	L+D	Laptop	1	8	10.09.2020
9	Problems on volume integral	L+D	Laptop	1	9	12.09.2020
10	Electric Flux density	L+PS	Laptop	1	10	14.09.2020
	MODULE 2					
11	**Gauss's law and Divergence**	L+ D	Laptop	1	11	15.09.2020
12	Maxwell's First equation (Electrostatics),	L+D	Laptop	1	12	16.09.2020
13	Vector Operator and divergence theorem.	L+D	Laptop	1	13	18.09.2020

14	Energy expended in moving a point charge in an electric field, The line integral	L+AV	Laptop	1	14	19.09.2020
15	Definition of potential difference and potential, The potential field of point charge, Current and Current density,	L+D	Laptop	1	15	21.09.2020
16	Continuity of current.	L+D	Laptop	1	16	22.09.2020
17	Continuity of current.	L+D	Laptop	1	17	23.09.2020
18	Continuity of current.	L+PS	Laptop	1	18	24.09.2020
19	Problems on Maxwell's equations	L+AV	Laptop	1	19	26.09.2020
20	Problems on energy	L+PS	Laptop	1	20	28.09.2020
	MODULE 3					
21	Derivation of Poisson's and Laplace's Equations,	L+AV	Laptop	1	22	30.09.2020
22	Uniqueness theorem.	L+D	Laptop	1	23	03.10.2020
23	Examples of the solution of Laplace's equation.	L+D	Laptop	1	24	05.10.2020
24	**Steady Magnetic Field** Biot-Savart Law, Ampere's circuital law,	L+D	Laptop	1	25	08.10.2020
25	Curl, Stokes' theorem, Magnetic flux and magnetic flux density	L+D	Laptop	1	26	10.10.2020
26	Scalar and Vector Magnetic Potentials.	L+D	Laptop	1	27	12.10.2020
27	Problems on poisonn's equation	L+D	Laptop	1	28	13.10.2020
28	Problems on laplace equations	L+D	Laptop	1	29	14.10.2020
29	Problems on applications of Amperes Circuital law	L+PS	Laptop	1	30	15.10.2020
30	Problems on applications of Amperes Circuital law	L+PS	Laptop	1	31	20.10.2020
	MODULE 4					
32	**Magnetic Forces** Force on a moving charge, differential current elements	L+D	Laptop	1	32	21.10.2020
33	Operational and non-operational quality attributes	L+D	Laptop	1	33	21.10.2020
34	, Force between differential current elements.	L+D	Laptop	1	34	22.10.2020
35	**Magnetic Materials** Magnetization and permeability,	L+D	Laptop	1	35	22.10.2020

36	Magnetic boundary conditions, Magnetic circuit, Potential Energy and forces on magnetic materials	L+D	Laptop	1	36	28.10.2020
37	Magnetic boundary conditions, Magnetic circuit, Potential Energy and forces on magnetic materials	L+PS	Laptop	1	37	29.10.2020
38	Magnetic boundary conditions, Magnetic circuit, Potential Energy and forces on magnetic materials	L+D	Laptop	1	38	29.10.2020
39	Problems on Magnetic boundary conditions, Magnetic circuit,	L+D	Laptop	1	39	03.11.2020
40	problems	L+PS	Laptop	1	40	04.11.2020
	MODULE 5					
41	**Time-varying fields and Maxwell's equations**		Laptop	1	41	09.11.2020
42	Farday's law, displacement current,	L+D	Laptop	1	42	12.11.2020
43	Maxwell's equations in point form, Maxwell's equations in integral form.	L+D	Laptop	1	43	19.11.2020
44	**Uniform Plane Wave** Wave propagation in free space and good conductors	L+D	Laptop	1	44	20.11.2020
45	Poynting's theorem and wave power, Skin Effect	L+D	Laptop	1	45	22.11.2020
46	Poynting's theorem and wave power, Skin Effect	L+D	Laptop	1	46	24.11.2020
47	Problems on Poynting's theorem and wave power, Skin Effect	L+D	Laptop	1	47	25.11.2020
48	Problems on Poynting's theorem and wave power, Skin Effect	L+D	Laptop	1	48	26.11.2020
49	Problems on Poynting's theorem and wave power, Skin Effect	L+D	Laptop	1	49	26.11.2020
50	Revision of module 1	L+D	Laptop	1	50	01.12.2020
51	Revision of module 2	L+D	Laptop	1	51	02.12.2020
52	Revision of module 3	L+D	Laptop	1	52	14.12.2020

TEXT BOOK:

W.H. Hayt and J.A. Buck, "Engineering Electromagnetics", 8th Edition, Tata McGraw-Hill, ISBN-978-0-07-061223-5.

REFERENCES:

1. John Krauss and Daniel A Fleisch, "Electromagnetics with applications", McGraw- Hill.
2. N. Narayana Rao, "Fundamentals of Electromagnetics for Engineering", Pearson

WEB MATERIALS:

1. https://nptel.ac.in/courses/108106073/
2. https://freevideolectures.com/course/2340/electromagnetic-fields
3. https://www.khanacademy.org/science/physics/.../v/discovery-of-electromagnetism
4. https://www.quora.com/Are-there-any-good-online-video-course-sites-for-learning-el...

Signature of Course In-charge **Signature of Module Coordinator** **Signature of HOD-ECE**

KS INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECRONICS & COMMUNICATION ENGINEERING

NAME OF THE STAFF : Sunil Kumar G R
SUBJECT CODE/NAME : 18EC56/VERILOG HDL
SEMESTER/YEAR : V / III (A sec)
ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1:Overview of Digital Design with Verilog HDL &Hierarchical Modeling Concepts						
1.	Evolution of CAD, emergence of HDLs	L+D	PPT	1	1	1/9/2020
2.	Typical HDL-flow	L+D	PPT	1	2	3/9/2020
3.	why Verilog HDL?, Trends in HDLs	L+D	PPT	1	3	4/9/2020
4.	Top-down and bottom-up design methodology	L+D	PPT	2	5	5/9/2020 8/9/2020
5.	Differences between modules and module instances	L+D	PPT	1	6	10/9/2020
6.	Parts of a simulation, Design block	L+D	PPT	1	7	11/9/2020
7.	Stimulus block., Examples	L+D	PPT	1	8	12/9/2020
MODULE 2:Basic Concepts, Modules and Ports						
8.	Lexical conventions	L+ D	PPT	1	9	15/9/2020
9.	Data types	L+D	PPT	1	10	18/9/2020
10.	Data types	L+D	PPT	1	11	19/9/2020
11.	System tasks	L+D	PPT	1	12	22/9/2020
12.	Compiler directives	L+D	PPT	1	13	24/9/2020
13.	Compiler directives, examples	L+D	PPT	1	14	25/9/2020
14.	Module definition	L+D	PPT	1	15	26/9/2020

15.	Port declaration	L+D	PPT	1	16	29/9/2020
16.	Connecting ports	L+D	PPT	1	17	1/10/2020
17.	Hierarchical name referencing	L+D	PPT	1	18	3/10/2020
	MODULE 3: Gate-Level Modeling & Dataflow Modeling					
18.	Modeling using basic Verilog gate primitives	L+D	PPT	1	19	8/10/2020
19.	Description of and/or and buf/not type Gates	L+D	PPT	1	20	9/10/2020
20.	Description of and/or and buf/not type Gates	L+D	PPT	1	21	10/10/2020
21.	Rise, Fall and Turn-off delays	L+D	PPT	1	22	13/10/2020
22.	min, max and typical delays	L+D	PPT	1	23	15/10/2020
23.	Continuous assignments	L+D	PPT	1	24	16/10/2020
24.	Delay specification, Expressions	L+D	PPT	1	25	17/10/2020
25.	Operators, Operands, Operator types.	L+D	PPT	1	26	20/10/2020
26.	Examples	L+D	PPT	1	27	22/10/2020
	MODULE 4: Behavioral Modeling					
27.	Structured procedure, initial statement	L+D	PPT	1	28	23/10/2020
28.	always statement	L+D	PPT	1	29	24/10/2020
29.	blocking and non-blocking statements	L+D	PPT	1	30	27/10/2020
30.	delay control, generate statement	L+D	PPT	1	31	29/10/2020
31.	conditional statements,multiway branching	L+D	PPT	1	32	5/11/2020
32.	loops-while loop, for loop	L+D	PPT	1	33	6/11/2020
33.	loops-Repeat, forever	L+D	PPT	1	34	7/11/2020
34.	sequential and parallel blocks	L+D	PPT	1	35	10/11/2020
35.	Examples	L+D	PPT	1	36	12/11/2020
	MODULE 5:Useful Modeling Techniques:					
36.	Procedural continuous assignments	L+D	PPT	1	37	13/11/2020
37.	overriding parameters	L+D	PPT	1	38	14/11/2020
38.	conditional compilation and execution	L+D	PPT	1	39	17/11/2020
39.	useful system tasks	L+D	PPT	1	40	19/11/2020

40.	**Logic Synthesis with Verilog:** Logic Synthesis	L+D	PPT	1	41	20/11/2020
41.	Impact of logic synthesis	L+D	PPT	1	42	21/11/2020
42.	Verilog HDLSynthesis,	L+D	PPT	1	43	24/11/2020
43.	Synthesis design flow	L+D	PPT	1	44	26/11/2020
44.	Verification of Gate-Level Netlist	L+D	PPT	1	45	27/11/2020

Text Books:

1. Samir Palnitkar, —Verilog HDL: A Guide to Digital Design and Synthesis", Pearson Education, Second Edition.

Reference Books:

1. Donald E. Thomas, Philip R. Moorby, —The Verilog Hardware Description Language||, Springer Science+Business Media, LLC, Fifth edition.
2. Michael D. Ciletti, —Advanced Digital Design with the Verilog HDL|| Pearson (Prentice Hall), Second edition.
3. Padmanabhan, Tripura Sundari, —Design through Verilog HDL||, Wiley, 2016 or earlier.

WEB MATERIALS:

W1: https://www.youtube.com/watch?v=wiNDn19GpRU
W2:https://www.youtube.com/watch?v=PybxgAroozA
W3:https://www.youtube.com/watch?v=GRR6VMj9-hI

Details for the teaching Aids

1. Whatsapp usage for all communications
2. Zoom and Microsoft-Teams tools usage for online classes

Signature of Course In charge **Signature of Module Coordinator** **Signature of HOI**

KS INSTITUTE OF TECHNOLOGY BANGALORE
DEPARTMENT OF ELECRONICS & COMMUNICATION ENGINEERING

NAME OF THE STAFF : **Sunil Kumar G R**
SUBJECT CODE/NAME : **18EC56/VERILOG HDL**
SEMESTER/YEAR : **V / III (B sec)**
ACADEMIC YEAR : **2020-2021**

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1:Overview of Digital Design with Verilog HDL &Hierarchical Modeling Concepts						
1.	Evolution of CAD, emergence of HDLs	L+D	PPT	1	1	1/9/2020
2.	Typical HDL-flow	L+D	PPT	1	2	3/9/2020
3.	why Verilog HDL?, Trends in HDLs	L+D	PPT	1	3	4/9/2020
4.	Top-down and bottom-up design methodology	L+D	PPT	2	5	5/9/2020 8/9/2020
5.	Differences between modules and module instances	L+D	PPT	1	6	10/9/2020
6.	Parts of a simulation, Design block	L+D	PPT	1	7	11/9/2020
7.	Stimulus block., Examples	L+D	PPT	1	8	12/9/2020
MODULE 2:Basic Concepts, Modules and Ports						
8.	Lexical conventions	L+ D	PPT	1	9	15/9/2020
9.	Data types	L+D	PPT	1	10	18/9/2020
10.	Data types	L+D	PPT	1	11	19/9/2020
11.	System tasks	L+D	PPT	1	12	22/9/2020
12.	Compiler directives	L+D	PPT	1	13	24/9/2020
13.	Compiler directives, examples	L+D	PPT	1	14	25/9/2020
14.	Module definition	L+D	PPT	1	15	26/9/2020

15.	Port declaration	L+D	PPT	1	16	29/9/2020
16.	Connecting ports	L+D	PPT	1	17	1/10/2020
17.	Hierarchical name referencing	L+D	PPT	1	18	3/10/2020
MODULE 3: Gate-Level Modeling & Dataflow Modeling						
18.	Modeling using basic Verilog gate primitives	L+D	PPT	1	19	8/10/2020
19.	Description of and/or and buf/not type Gates	L+D	PPT	1	20	9/10/2020
20.	Description of and/or and buf/not type Gates	L+D	PPT	1	21	10/10/2020
21.	Rise, Fall and Turn-off delays	L+D	PPT	1	22	13/10/2020
22.	min, max and typical delays	L+D	PPT	1	23	15/10/2020
23.	Continuous assignments	L+D	PPT	1	24	16/10/2020
24.	Delay specification, Expressions	L+D	PPT	1	25	17/10/2020
25.	Operators, Operands, Operator types.	L+D	PPT	1	26	20/10/2020
26.	Examples	L+D	PPT	1	27	22/10/2020
MODULE 4: Behavioral Modeling						
27.	Structured procedure, initial statement	L+D	PPT	1	28	23/10/2020
28.	always statement	L+D	PPT	1	29	24/10/2020
29.	blocking and non-blocking statements	L+D	PPT	1	30	27/10/2020
30.	delay control, generate statement	L+D	PPT	1	31	29/10/2020
31.	conditional statements,multiway branching	L+D	PPT	1	32	5/11/2020
32.	loops-while loop, for loop	L+D	PPT	1	33	6/11/2020
33.	loops-Repeat, forever	L+D	PPT	1	34	7/11/2020
34.	sequential and parallel blocks	L+D	PPT	1	35	10/11/2020
35.	Examples	L+D	PPT	1	36	12/11/2020
MODULE 5:Useful Modeling Techniques:						
36.	Procedural continuous assignments	L+D	PPT	1	37	13/11/2020
37.	overriding parameters	L+D	PPT	1	38	14/11/2020
38.	conditional compilation and execution	L+D	PPT	1	39	17/11/2020
39.	useful system tasks	L+D	PPT	1	40	19/11/2020

40.	**Logic Synthesis with Verilog:** Logic Synthesis	L+D	PPT	1	41	20/11/2020
41.	Impact of logic synthesis	L+D	PPT	1	42	21/11/2020
42.	Verilog HDLSynthesis,	L+D	PPT	1	43	24/11/2020
43.	Synthesis design flow	L+D	PPT	1	44	26/11/2020
44.	Verification of Gate-Level Netlist	L+D	PPT	1	45	27/11/2020

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W2:https://www.youtube.com/watch?v=PybxgAroozA
W3:https://www.youtube.com/watch?v=GRR6VMj9-hI

Details for the teaching Aids

1. Whatsapp usage for all communications
2. Zoom and Microsoft-Teams tools usage for online classes

Signature of Course In charge **Signature of Module Coordinator** **Signature of HOD**

KS INSTITUTE OF TECHNOLOGY, BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Mrs.V SANGEETHA

SUBJECT CODE/NAME : 18EC61/DIGITAL COMMUNICATION

SEMESTER/YEAR : VI / III-A

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1: Bandpass Signal to Equivalent Low pass						
1	Bandpass Signal to Equivalent Lowpass: Introduction	L+D	Microsoft teams	1	1	19.04.2021
2	Hilbert Transform and problems	L+D+PS	Microsoft teams	1	2	20.04. 2021
3	Pre-envelopes, Complex envelopes	L+D	Microsoft teams	1	3	21.04. 2021
4	Canonical representation of bandpass signals	L+D	Microsoft teams	1	4	22.04. 2021
5	Complex low pass representation of bandpass systems and systems	L+D	Microsoft teams	1	5	26.04. 2021
6	Line codes: Unipolar,Polar,Bipolar,Manchester code	L+D	Microsoft teams	2	7	27.04. 2021, 27.04. 2021
7	Unipolar & their spectral densities	L+D	Microsoft teams	1	8	28.04. 2021
8	Polar, Bipolar (AMI) & their spectral densities	L+D	Microsoft teams	1	9	29.04. 2021
9	Manchester code & their spectral densities	L+D	Microsoft teams	1	10	03.05. 2021
10	Overview of HDB3, B3ZS, B6ZS	L+D+PS	Microsoft teams	1	11	04.05. 2021
11	Kahoot Quiz	L+D	Microsoft teams	1	12	04.05.2021
MODULE 2: Signaling over AWGN Channels						
12	Signaling over AWGN Channels- Introduction	L+ D	Microsoft teams	1	13	05.05.2021
13	Geometric representation of signals	L+D	Microsoft teams	1	14	06.05.2021
14	Gram-Schmidt Orthogonalization procedure	L+D	Microsoft teams	1	15	08.05.2021
15	Conversion of the continuous AWGN channel into a	L+D	Microsoft teams	1	16	10.05.2021

	vector channel					
16	Optimum receivers using coherent detection: ML Decoding	L+D	Microsoft teams	1	17	11.05.2021
17	Class Test					
18	Correlation receiver	L+D	Microsoft teams	1	18	11.05.2021
19	matched filter receiver	L+D	Microsoft teams	1	19	12.05.2021
20	matched filter receiver properties	L+D	Microsoft teams	1	20	17.05.2021
21	Numerical Problems	L+D	Microsoft teams	1	21	18.05.2021
		L+D+PS	Microsoft teams	1	22	18.05.2021
	MODULE 3: Digital Modulation Techniques					
22	Digital Modulation Techniques: Phase shift Keying techniques using coherent detection:	L+D	Microsoft teams	1	23	19.05.2021
23	generation, detection and error probabilities of BPSK	L+D	Microsoft teams	1	24	20.05.2021
24	generation, detection and error probabilities of QPSK	L+D	Microsoft teams	1	25	22.05.2021
25	Internal assessment-I		Microsoft teams	1	26	24.05.2021
26	generation, detection and error probabilities of M–ary PSK	L+D	Microsoft teams	1	27	27.05.2021
27	generation, detection and error probabilities of M–ary QAM	L+D	Microsoft teams	1	28	31.05.2021
28	Frequency shift keying techniques using Coherent detection: BFSK generation, detection and error probability	L+D	Microsoft teams	1	29	01.06.2021
29	M-ary PSK,M-ary QAM	L+D	Microsoft teams	1	30	01.6.2021
30	QPSK probability Error	L+D	Microsoft teams	1	31	02.06.2021
31	Non coherent orthogonal modulation techniques: BFSK & probability of error,	L+D	Microsoft teams	1	32	03.06.2021
32	DPSK Symbol representation, Block diagrams treatment of Transmitter and Receiver, Probability of error (without derivation of probability of error equation)	L+D	Microsoft teams	1	33	05.06.2021
33	Numerical Problems on Coherent Detection techniques	L+D+PS	Microsoft teams	1	34	07.06.2021
34	Numerical Problems on BPSK,FSK	L+D+PS	Microsoft teams	1	35	08.06.2021
35	Numerical Problems on QPSK,DPSK	L+D+PS	Microsoft teams	1	36	08.06.2021
	MODULE 4: Communication through Band Limited Channels					
36	Communication through Band Limited Channels: Digital Transmission through Band limited channels:	L+D	Microsoft teams	1	37	09.06.2021

37	Digital PAM Transmission through Band limited Channels	L+D	Microsoft teams	1	38	10.06.2021
38	Signal design for Band limited Channels: Design of band limited signals for zero ISI–The Nyquist Criterion (statement only)	L+D	Microsoft teams	1	39	14.06.2021
39	The Nyquist Criterion (statement only)	L+D	Microsoft teams	1	40	15.06.2021
40	Design of band limited signals with controlled ISI-Partial Response signals	L+D	Microsoft teams	1	41	15.06.2021
41	Internal Assessment-II		Microsoft teams	1	42	16.06.2021
42	Probability of error for detection of Digital PAM: Probability of error for detection of Digital PAM with Zero ISI	L+D	Microsoft teams	1	43	17.06.2021
43	Symbol–by–Symbol detection of data with controlled ISI	L+D	Microsoft teams	1	44	19.06.2021
44	Channel Equalization: Linear Equalizers (ZFE, MMSE)	L+D	Microsoft teams	1	45	21.06.2021
45	Adaptive Equalizers	L+D	Microsoft teams	1	46	22.06.2021, 22.06.2021
46	Numerical Problems	L+D+PS	Microsoft teams	1	47	23.06.2021
	MODULE 5: Principles of Spread Spectrum					
47	Principles of Spread Spectrum: Spread Spectrum Communication Systems: Model of a Spread Spectrum Digital Communication System,	L+D	Microsoft teams	1	48	24.06.2021
48	Internal assessment-2	L+D	Microsoft teams	1	49	28.06.2021
49	Direct Sequence Spread Spectrum Systems	L+D	Microsoft teams	1	50	01.07.2021
50	Effect of De-spreading on a narrowband Interference	L+D	Microsoft teams	1	51	03.07.2021
51	Probability of error (statement only),	L+D	Microsoft teams	1	52	05.07.2021
52	Some applications of DS Spread Spectrum Signals	L+D	Microsoft teams	1	53	06.07.2021
53	Generation of PN Sequences	L+D	Microsoft teams	1	54	06.07.2021
54	Frequency Hopped Spread Spectrum	L+D	Microsoft teams	1	55	07.07.2021
55	CDMA based on IS-95	L+D	Microsoft teams	1	56	08.07.2021
56	Numerical Problems on PN sequence	L+D+PS	Microsoft teams	1	57	12.07.2021
57	Numerical Problems on PN sequence	L+D+PS	Microsoft teams	1	58	13.07.2021
58	Revision Module-1	L+D	Microsoft teams	1	59	13.07.2021
59	Revision Module-2	L+D	Microsoft teams	1	60	14.07.2021
60	'Revision Module-3	L+D	Microsoft teams	1	61	15.07.2021
61	Revision Module-4	L+D	Microsoft teams	1	62	17.07.2021

62	Revision Module-5	L+D	Microsoft teams		63	27.07.2021
63	Internal assessment-3	L+D	Microsoft teams		64	29.07.2021
64	University QP Revision	L+D	Microsoft teams		65	07.08.2021

Text Books:

1. Simon Haykin, "Digital Communication Systems", John Wiley & sons, First Edition, 2014, ISBN 978-0-471-64735-5.
2. 2. John G Proakis and MasoudSalehi, "Fundamentals of Communication Systems", 2014 Edition, Pearson Education, ISBN 978-8-131-70573-5.

Reference Books:

1. B.P.Lathi and Zhi Ding, "Modern Digital and Analog communication Systems", Oxford University Press, 4th Edition, 2010, ISBN: 978-0-198-07380-2.
2. Ian A Glover and Peter M Grant, "Digital Communications", Pearson Education, Third Edition, 2010, ISBN 978-0-273-71830-7.
3. John G Proakis and MasoudSalehi, "Communication Systems Engineering", 2nd Edition, Pearson Education, ISBN 978-93-325-5513-6.

WEB Materials:

- nptel.ac.in/courses/117105077/pdf-m-7/m7l38.pdf
- nptel.ac.in/courses/117105077/20
- https://www.tutorialspoint.com/digital_communication/index.htm

Details for Teaching Aids:

1. Microsoft teams for online class
2. Laptop for PPT

Signature of Course In-charge **Signature of Module Coordinator** **Signature of HOD-ECE**

KS INSTITUTE OF TECHNOLOGY, BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Mrs.V SANGEETHA

SUBJECT CODE/NAME : 18EC61/DIGITAL COMMUNICATION

SEMESTER/YEAR : VI / III-B

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1: Bandpass Signal to Equivalent Low pass						
1	Bandpass Signal to Equivalent Lowpass: Introduction	L+D	Microsoft teams	1	1	19.04.2021
2	Hilbert Transform and problems	L+D+PS	Microsoft teams	1	2	21.04. 2021
3	Pre-envelopes, Complex envelopes	L+D	Microsoft teams	1	3	22.04. 2021
4	Canonical representation of bandpass signals	L+D	Microsoft teams	1	4	23.04. 2021
5	Complex low pass representation of bandpass systems and systems	L+D	Microsoft teams	1	5	23.04. 2021
6	Line codes: Unipolar,Polar,Bipolar,Manchester code	L+D	Microsoft teams	1	6	24.04. 2021
7	Unipolar & their spectral densities	L+D	Microsoft teams	1	7	26.04. 2021
8	Polar, Bipolar (AMI) & their spectral densities	L+D	Microsoft teams	1	8	28.04. 2021
9	Manchester code & their spectral densities	L+D	Microsoft teams	1	9	29.04. 2021
10	Overview of HDB3, B3ZS, B6ZS	L+PS	Microsoft teams	1	10	30.04. 2021
11	Kahoot Quiz	L+D	Microsoft teams	1	11	03.05.2021
MODULE 2: Signaling over AWGN Channels						
12	Signaling over AWGN Channels- Introduction	L+ D	Microsoft teams	1	12	05.05.2021
13	Geometric representation of signals	L+D	Microsoft teams	1	13	06.05.2021
14	Gram-Schmidt Orthogonalization procedure	L+D	Microsoft teams	1	14	07.05.2021
15	Conversion of the continuous AWGN channel into a	L+D	Microsoft teams	1	15	07.05.2021

	vector channel					
16	Optimum receivers using coherent detection: ML Decoding	L+D	Microsoft teams	1	16	08.05.2021
17	Class Test	L+D	Microsoft teams	1	17	10.05.2021
18	Correlation receiver	L+D	Microsoft teams	1	18	12.05.2021
19	matched filter receiver	L+D	Microsoft teams	1	19	17.05.2021
20	matched filter receiver properties	L+D	Microsoft teams	1	20	19.05.2021
21	Numerical Problems	L+D+PS	Microsoft teams	1	21	20.05.2021
	MODULE 3: Digital Modulation Techniques					
22	Digital Modulation Techniques: Phase shift Keying techniques using coherent detection:	L+D	Microsoft teams	1	22	21.05.2021
23	generation, detection and error probabilities of BPSK	L+D	Microsoft teams	1	23	21.05.2021
24	generation, detection and error probabilities of QPSK	L+D	Microsoft teams	1	24	
25	Internal assessment-I		Microsoft teams		25	24.05.2021
26	generation, detection and error probabilities of M–ary PSK	L+D	Microsoft teams	1	26	27.05.2021
27	generation, detection and error probabilities of M–ary QAM	L+D	Microsoft teams	1	27	28.05.2021
28	True or False	L+D	Microsoft teams	1	28	28.05.2021
29	Frequency shift keying techniques using Coherent detection: BFSK generation, detection and error probability	L+D	Microsoft teams	1	29	31.05.2021
30	Non coherent orthogonal modulation techniques: BFSK & probability of error,	L+D	Microsoft teams	1	30	02.06.2021
31	DPSK Symbol representation, Block diagrams treatment of Transmitter and Receiver, Probability of error (without derivation of probability of error equation)	L+D	Microsoft teams	1	31	03.06.2021
32	Minimum Shift keying, M-ary PSK	L+D	Microsoft teams	1	32	04.06.2021
33	Numerical Problems on Coherent Detection techniques	L+D+PS	Microsoft teams	1	33	05.06.2021
34	Numerical Problems	L+D+PS	Microsoft teams	1	34	07.06.2021
	MODULE 4: Communication through Band Limited Channels					
35	Communication through Band Limited Channels: Digital Transmission through Band limited channels:	L+D	Microsoft teams	1	35	09.06.2021

36	Digital PAM Transmission through Band limited Channels	L+D	Microsoft teams	1	36	10.06.2021
37	Signal design for Band limited Channels: Design of band limited signals for zero ISI–The Nyquist Criterion (statement only)	L+D	Microsoft teams	1	37	11.06.2021
38	The Nyquist Criterion (statement only)	L+D	Microsoft teams	1	38	11.06.2021
39	Design of band limited signals with controlled ISI-Partial Response signals	L+D	Microsoft teams	1	39	14.06.2021
40			Microsoft teams	1	40	16.06.2021
41	Probability of error for detection of Digital PAM: Probability of error for detection of Digital PAM with Zero ISI	L+D	Microsoft teams	1	41	17.06.2021
42	Symbol–by–Symbol detection of data with controlled ISI	L+D	Microsoft teams	1	42	18.06.2021
43	Channel Equalization: Linear Equalizers (ZFE, MMSE)	L+D	Microsoft teams	1	43	18.06.2021
44	Adaptive Equalizers	L+D	Microsoft teams	1	44	19.06.2021
45	Numerical Problems	L+D+PS	Microsoft teams	1	45	21.06.2021
	MODULE 5: Principles of Spread Spectrum					
46	Principles of Spread Spectrum: Spread Spectrum Communication Systems: Model of a Spread Spectrum Digital Communication System,	L+D	Microsoft teams	1	46	23.06.2021
47	Internal assessment-2	L+D	Microsoft teams	1	47	28.06.2021
48	Direct Sequence Spread Spectrum Systems	L+D	Microsoft teams	1	48	01.07.2021
49	Problem on Direct sequence spread Spectrum	L+D	Microsoft teams	1	49	02.07.2021
50	Effect of De-spreading on a narrowband Interference	L+D+PS	Microsoft teams	1	50	02.07.2021
51	Probability of error (statement only),	L+D	Microsoft teams	1	51	03.07.2021
52	Some applications of DS Spread Spectrum Signals	L+D	Microsoft teams	1	52	05.07.2021
53	Generation of PN Sequences	L+D	Microsoft teams	1	53	07.07.2021
54	Frequency Hopped Spread Spectrum	L+D	Microsoft teams	1	54	08.07.2021
55	Problem on FHSS	L+D+PS	Microsoft teams	1	55	09.07.2021
56	CDMA based on IS-95	L+D	Microsoft teams	1	56	12.07.2021
57	Numerical Problems on PN sequence	L+D+PS	Microsoft teams	1	57	14.07.2021
58	Numerical Problems on PN sequence	L+D+PS	Microsoft teams	1	58	15.07.2021
59	Revision Module-1	L+D	Microsoft teams	1	59	16.07.2021
60	Revision Module-2	L+D	Microsoft teams	1	60	17.07.2021
61	Revision Module-3	L+D	Microsoft teams	1	61	19.07.2021

Revision Module-5	L+D	Microsoft teams	1	63	22.07.202
Internal assessment-3	L+D	Microsoft teams	1	64	29.07.202
University QP Revision	L+D	Microsoft teams	1	65	07.08.202

Books:

Simon Haykin, "Digital Communication Systems", John Wiley & sons, First Edition, 2014, ISBN 978-0-471-64735-5.
2. John G Proakis and MasoudSalehi, "Fundamentals of Communication Systems", 2014 Edition, Pearson Education, ISBN 978-8-131-70573-5.

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Lathi and Zhi Ding, "Modern Digital and Analog communication Systems", Oxford University Press, 4th Edition, 2010, ISE 198-07380-2.
A Glover and Peter M Grant, "Digital Communications", Pearson Education, Third Edition, 2010, ISBN 978-0-273-71830-7.
G Proakis and MasoudSalehi, "Communication Systems Engineering", 2nd Edition, Pearson Education, ISBN 978-93-32

Materials:

nptel.ac.in/courses/117105077/pdf-m-7/m7l38.pdf
nptel.ac.in/courses/117105077/20
https://www.tutorialspoint.com/digital_communication/index.htm

for Teaching Aids:

. Microsoft teams for online class
. Laptop for PPT

K.S. INSTITUTE OF TECHNOLOGY BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Aruna Rao B P

SUBJECT CODE/NAME : 18EC62- Embedded systems

SEMESTER/YEAR : VI / III/A

ACADEMIC YEAR : 2020-2021

Sl.No	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1 ARM -32 bit Microcontroller						
1	Thumb-2 technology and applications of ARM	L+AV	WB	1	1	19/4/21
2	Architecture of ARM Cortex M3	L+ AV	WB	1	2	21/4/21
3	Various Units in the architecture	L+ AV	WB	1	3	22/4/21
4	Debugging support	L+ AV	WB	1	4	23/4/21
5	General Purpose Registers	L+D	WB	1	5	24/4/21
6	Special Registers	L+D	WB	1	6	26/4/21
7	Special Registers	L+D	WB	1	7	28/4/21
8	exceptions, interrupts	L+D	WB	1	8	29/4/21
9	stack operation	L+AV	WB	1	9	30/4/21
10	reset sequence	L+AV	WB	1	10	3/5/21
MODULE 2 ARM cortex M3 Instruction set and Programming						
11	Overview	L+D	WB	1	11	5/5/21
12	Assembly basics, Assembly and C language Programming	L+D	WB	1	12	6/5/21
13	Assembly basics	L+D	WB	1	13	7/5/21

14	Instruction list and description	L+AV	WB	1	14	8/5/21
15	useful instructions	L+AV	WB	1	15	10/5/21
16	Assembly and C language Programming	L+D	WB	1	16	12/5/21
17	Assembly and C language Programming	L+D	WB	1	17	17/5/21
18	Assembly and C language Programming	L+D	WB	1	18	19/5/21
19	Bus interfaces and CMSIS	L+D	WB	1	19	20/5/21
20	Assembly and C language Programming	L+D	WB	1	20	21/5/21
MODULE 3 Embedded System Components						
21	Embedded Vs General computing system	L+D	WB	1	21	27/5/21
22	Major applications and purpose of ES.	L+D	WB	1	22	28/5/21
23	Classification of Embedded systems,	L+D	WB	1	23	31/5/21
24	applications and purpose of ES	L+D	WB	1	24	2/6/21
25	Elements of an Embedded System	L+D	WB	1	25	3/6/21
26	Differences between RISC and CISC, Harvard and Princeton, Big and Little Endian formats	L+D	WB	1	26	4/6/21
27	Memory (ROM and RAM types)	L+D	WB	1	27	5/6/21

28	Sensors, Actuators, Optocoupler	L+D	WB	1	28	7/6/21
29	Communication Interface(I2C, SPI, IrDA)	L+D	WB	1	29	9/6/21
30	Communication Interface(Bluetooth, Wi-Fi, Zigbee)	L+D	WB	1	30	10/6/21
MODULE 4 Embedded System Design Concepts						
31	Characteristics of Embedded Systems	L+D	WB	1	31	11/6/21
32	Quality Attributes of Embedded Systems, Operational and non-operational quality attributes	L+D	WB	1	32	14/6/21
33	Embedded Systems-Application and Domain specific(washing machine)	L+AV	WB	1	33	16/6/21
34	Embedded Systems-Application and Domain specific(car)	L+D	WB	1	34	17/6/21
35	Hardware Software Co-Design	L+D	WB	1	35	18/6/21
36	Hardware Software Co-Design	L+D	WB	1	36	19/6/21
37	Program Modeling(DFG AND CDFG)	L+D	WB	1	37	21/6/21
38	Embedded firmware design	L+D	WB	1	38	23/6/21
39	Embedded firmware design	L+D	WB	1	39	24/6/21
40	Development Of ES	L+D	WB	1	40	25/6/21

MODULE 5 RTOS and IDE for Embedded System Design						
41	Operating System basics	L+D	WB	1	41	1/7/21
42	Types of operating systems	L+D	WB	1	42	2/7/21
43	Task, process and threads, Thread preemption, Preemptive Task	L+D	WB	1	43	3/7/21
44	scheduling techniques, Task Communication	L+D	WB	1	44	5/7/21
45	Task synchronization issues – Racing and Deadlock	L+D	WB	1	45	7/7/21
46	Concept of Binary and counting semaphores	L+D	WB	1	46	8/7/21
47	How to choose an RTOS, Integration and testing of Embedded hardware and firmware	L+D	WB	1	47	9/7/21
48	Embedded system Development Environment – Block diagram	L+D	WB	1	48	12/7/21
49	Disassemble/decompiler, simulator	L+D	WB	1	49	14/7/21
50	emulator and debugging techniques	L+D	WB	1	50	15/7/21
51	revision	L+D	WB	1	51	16/7/21
52	revision	L+D	WB	1	52	19/7/21

Course Incharge **Module coordinator** **HOD**

K.S. INSTITUTE OF TECHNOLOGY BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Aruna Rao B P

SUBJECT CODE/NAME : 18EC62- Embedded systems

SEMESTER/YEAR : VI / III/B

ACADEMIC YEAR : 2020-2021

Sl.No	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1 ARM -32 bit Microcontroller						
1	Thumb-2 technology and applications of ARM	L+AV	WB	1	1	19/4/21
2	Architecture of ARM Cortex M3	L+ AV	WB	1	2	20/4/21
3	Various Units in the architecture	L+ AV	WB	1	3	21/4/21
4	Debugging support	L+ AV	WB	1	4	22/4/21
5	General Purpose Registers	L+D	WB	1	5	24/4/21
6	Special Registers	L+D	WB	1	6	26/4/21
7	Special Registers	L+D	WB	1	7	27/4/21
8	exceptions, interrupts	L+D	WB	1	8	28/4/21
9	stack operation	L+AV	WB	1	9	3/5/21
10	reset sequence	L+AV	WB	1	10	4/5/21
MODULE 2 ARM cortex M3 Instruction set and Programming						
11	Overview	L+D	WB	1	11	5/5/21
12	Assembly basics, Assembly and C language Programming	L+D	WB	1	12	6/5/21
13	Assembly basics	L+D	WB	1	13	8/5/21

14	Instruction list and description	L+AV	WB	1	14	10/5/21
15	useful instructions	L+AV	WB	1	15	11/5/21
16	Assembly and C language Programming	L+D	WB	1	16	12/5/21
17	Assembly and C language Programming	L+D	WB	1	17	17/5/21
18	Assembly and C language Programming	L+D	WB	1	18	18/5/21
19	Bus interfaces and CMSIS	L+D	WB	1	19	19/5/21
20	Assembly and C language Programming	L+D	WB	1	20	20/5/21
	MODULE 3 Embedded System Components					
21	Embedded Vs General computing system	L+D	WB	1	21	22/5/21
22	Major applications and purpose of ES.	L+D	WB	1	22	27/5/21
23	Classification of Embedded systems,	L+D	WB	1	23	1/6/21
24	applications and purpose of ES	L+D	WB	1	24	2/6/21
25	Elements of an Embedded System	L+D	WB	1	25	3/6/21
26	Differences between RISC and CISC, Harvard and Princeton, Big and Little Endian formats	L+D	WB	1	26	5/6/21
27	Memory (ROM and RAM types)	L+D	WB	1	27	7/6/21

28	Sensors, Actuators, Optocoupler	L+D	WB	1	28	8/6/21
29	Communication Interface(I2C, SPI, IrDA)	L+D	WB	1	29	9/6/21
30	Communication Interface(Bluetooth, Wi-Fi, Zigbee)	L+D	WB	1	30	10/6/21
MODULE 4 Embedded System Design Concepts						
31	Characteristics of Embedded Systems	L+D	WB	1	31	14/6/21
32	Quality Attributes of Embedded Systems, Operational and non-operational quality attributes	L+D	WB	1	32	15/6/21
33	Embedded Systems-Application and Domain specific(washing machine)	L+AV	WB	1	33	16/6/21
34	Embedded Systems-Application and Domain specific(car)	L+D	WB	1	34	17/6/21
35	Hardware Software Co-Design	L+D	WB	1	35	19/6/21
36	Hardware Software Co-Design	L+D	WB	1	36	21/6/21
37	Program Modeling(DFG AND CDFG)	L+D	WB	1	37	22/6/21
38	Embedded firmware design	L+D	WB	1	38	23/6/21
39	Embedded firmware design	L+D	WB	1	39	24/6/21
40	Development Of ES	L+D	WB	1	40	1/7/21

MODULE 5 RTOS and IDE for Embedded System Design						
41	Operating System basics	L-D	WB	1	41	3/7/21
42	Types of operating systems	L-D	WB	1	42	5/7/21
43	Task, process and threads, Thread preemption, Preemptive Task	L-D	WB	1	43	6/7/21
44	scheduling techniques, Task Communication	L-D	WB	1	44	7/7/21
45	Task synchronization issues – Racing and Deadlock	L-D	WB	1	45	8/7/21
46	Concept of Binary and counting semaphores	L-D	WB	1	46	12/7/21
47	How to choose an RTOS, Integration and testing of Embedded hardware and firmware	L-D	WB	1	47	913/21
48	Embedded system Development Environment – Block diagram	L-D	WB	1	48	14/7/21
49	Disassembler/decompiler, simulator	L-D	WB	1	49	15/7/21
50	emulator and debugging techniques	L-D	WB	1	50	17/7/21
51	revision	L-D	WB	1	51	19/7/21
52	revision	L-D	WB	1	52	20/7/21

Course Incharge

Module coordinator

HOD

K.S. INSTITUTE OF TECHNOLOGY BANGALORE

#14, Raghuvanahalli, Kanakapura Main Road, Bengaluru-5600109

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

NAME OF THE FACULTY : Dr. P N SUDHA
COURSE CODE/NAME : 18EC63/MICROWAVE & ANTENNA
SEMESTER/YEAR : VI / III A & B Section
ACADEMIC YEAR : 2021 -2022

Sl.No	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1					
1.	**Microwave Tubes:** Introduction, Reflex Klystron Oscillator	L+AV	LCD	2	2	20 & 21st April 2021
2.	Mechanism of Oscillations	L+ D	BB	1	3	22nd April 2021
3.	Modes of Oscillations, Mode Curve	L+ D	BB	1	4	23rd April 2021
4.	**Microwave Transmission Lines:** Microwave Frequencies	L+ D	BB	1	5	24th April 2021
5.	Microwave devices,Microwave Systems,	L+D	BB	3	8	26th & 28th April 2021
6.	Transmission Line equations and solutions	L+D	BB	2	10	29th & 30th April 2021
7.	Reflection Coefficient and Transmission Coefficient, ..	L+DE	BB	2	12	3rd May & 4th May
8.	Standing Wave and Standing Wave Ratio	T+ TPS	BB	2	14	5th May & 6th May
9.	Smith Chart, Single Stub matching	L+D	BB	3	17	7th May to 10th May
10.	Pedagogy activity			1	18	11th May 2021
	MODULE 2					
11.	**Microwave Network theory:** Symmetrical Z and Y-Parameters for Reciprocal Networks, ,	L+ DE	BB	3	21	12th May 2021 to 18th May 2021
12.	S matrix representation of Multi-Port Networks.	L+D	BB	1	22	19th May 2021

13.	**Microwave Passive Devices:** Coaxial Connectors and Adapters, Attenuators, Phase Shifters,	L+D	BB	4	26	20th May to 22nd May 2021
14.	Waveguide Tees,	L+D	BB	2	28	27th May to 28th May 2021
15.	Magic tees.	L+D	BB	2	30	29th May 31st May
16.	Pedagogy activity	L+D	LCD	1	31	1st June 2021
	MODULE 3					
17.	**Strip Lines:** Introduction, Micro Strip lines,	L+D	OHP	1	32	2nd June 2021
18.	Parallel Strip lines, Coplanar Strip lines, Shielded Strip Lines.	L+D	OHP	2	34	3rd & 4th June 2021
19.	**Antenna Basics:** Introduction, Basic Antenna Parameters,	L+D	BB	1	35	5th June 2021
20.	Patterns, Beam Area, Radiation Intensity, Beam Efficiency, Directivity and Gain,	L+D	OHP	2	37	7th & 8th June 2021
21.	Antenna Apertures, Effective Height, Bandwidth,	CL(S)	LCD	1	38	9th June 2021
22.	Radio Communication Link, Antenna Field Zones & Polarization	T+ PS(Tx)		2	40	10th & 11th June 2021
23.	Pedagogy activity			1	41	12th June 2021
	MODULE 4					
24.	**Point Sources and Arrays:** Introduction, Point Sources,	L+D	BB	2	43	14th & 15th June 2021
25.	Power Patterns, Power Theorem,Radiation Intensity, Field Patterns, Phase Patterns	L+D	BB	2	45	16th & 17th June 2021
26.	Arrays of Two Isotropic Point Sources,	L+D	BB	1	46	18th June 2021
27.	Pattern Multiplication, Linear Arrays of n Isotropic Point Sources of equal Amplitude and Spacing	L+PS(Tx)	BB	2	48	19th & 21st June 2021
28	Pedagogy activity		LCD	1	49	22nd June 2021

29.	**Electric Dipoles:** Introduction, Short Electric Dipole, Fields of a Short Dipole (General and Far Field Analyses), Radiation Resistance of a Short Dipole,		BB	3	52	23rd To 25th June 2021
30.	Thin Linear Antenna (Field Analyses), Radiation Resistances of Lambda/2 Antenna		BB	3	55	26th June 2021
31.	Pedagogy activity			1	56	1st July 2021
	MODULE 5					
32.	Loop and Horn Antenna: Introduction, Small loop, Comparison of Far fields of Small Loop and Short Dipole, The Loop Antenna General Case, Far field Patterns of Circular Loop Antenna with Uniform Current, Radiation Resistance of Loops, Directivity of Circular Loop Antennas with Uniform Current, Horn antennas Rectangular Horn Antennas.	L+I	LCD	6	62	2nd July to 10th July 2021
33.	Antenna Types: Helical Antenna, Helical Geometry, Practical Design Considerations of Helical Antenna,	L+I	LCD	3	63	12th to 14th July 2021
34.	Yagi-Uda array,	L+I	BB	1	64	15th & 16th July 2021
35.	Parabola General Properties, Log Periodic Antenna	L+D	LCD	1	65	17th to 20th July 2021
36.	Pedagogy activity			1	66	22nd July 2021
37.	Revision classes					23rd July to 28th July 2021

Text Books:

1Text Books: 1. Microwave Engineering – Annapurna Das, Sisir K Das TMH Publication, 2nd, 2010.

2. Microwave Devices and circuits- Liao, Pearson Education.

3. Antennas and Wave Propagation, John D. Krauss, Ronald J Marhefka and Ahmad S Khan,4th Special Indian Edition , McGraw- Hill Education Pvt. Ltd., 2010.

Reference Books:

1. Microwave Engineering – David M Pozar, John Wiley India Pvt. Ltd. 3rdEdn, 2008.
2. Microwave Engineering – Sushrut Das, Oxford Higher Education, 2ndEdn, 2015.
3. Antennas and Wave Propagation – Harish and Sachidananda: Oxford University Press, 2007

WEB MATERIALS:

https://www.youtube.com/watch?v=if30sXaKWkY
https://www.tutorialspoint.com/antenna_theory/antenna_theory_fundamentals.htm
https://www.tutorialspoint.com/.../microwave_engineering_reflex_klystron.htm

Details for the teaching Aids

1.ICT tools
2. BB

Signature of Course In charge **Signature of Module Coordinator** **Signature of HOD**

K.S. INSTITUTE OF TECHNOLOGY BANGALORE

#14, Raghuvanahalli, Kanakapura Main Road, Bengaluru-5600109

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

NAME OF THE FACULTY : **Dr. B SUDARSHAN**
COURSE CODE/NAME : **18EC641/OPERATING SYSTEM**
SEMESTER/YEAR : **VI A& B/ III**
ACADEMIC YEAR : **2020-2021**

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1:Introduction to Operating Systems						
1.	Introduction to Operating Systems	L+D	**PPT**	1	1.	19/4/21
2.	Goals of OS	L+D	**PPT**	1	2.	20/4/21
3.	Operation of an OS, Computational Structures	L+ D	**PPT**	1	3.	22/4/21
4.	Resource allocation techniques	L+D	**PPT**	1	4.	23/4/21
5.	Efficiency System Performance and User Convenience, Classes of operating System	L+D	**PPT**	1	5.	26/4/21
6.	Batch processing, multiprogramming	L+D	**PPT**	1	6.	27/4/21
7.	Multi programming	L+ D	**PPT**	1	7.	29/4/21
8.	Time Sharing Systems	L+D	**PPT**	1	8.	30/4/21
9.	Real Time Operating Systems	L+D	**PPT**	1	9.	3/5/21
10.	Real Time Operating Systems	L+D	**PPT**	1	10.	4/5/21
11.	Distributed Operating Systems	L+D	**PPT**	1	11.	6/5/21
MODULE 2:Process Management						
12.	OS View of Processes	L+ D	**PPT**	1	12.	7/5/21
13.	PCB, Fundamental State Transitions	L+D	**PPT**	1	13.	8/5/21
14.	Fundamental State Transitions	L+D	**PPT**	1	14.	10/5/21
15.	Threads-Kernel and User level Threads	L+D	**PPT**	1	15.	11/5/21
16.	Threads-Kernel and User level Threads	L+D	**PPT**	1	16.	17/5/21

17.	Non-preemptive scheduling- FCFS	L+D	**PPT**	1	17.	18/5/21
18.	Non-preemptive scheduling- SRN	L+D	**PPT**	1	18.	20/5/21
19.	Preemptive Scheduling- RR	L+D	**PPT**	1	19.	21/5/21
20.	Preemptive Scheduling- LCN	L+D	**PPT**	1	20.	22/5/21
21.	Scheduling in Unix	L+D	**PPT**	1	21.	27/5/21
22.	Scheduling in Linux	L+D	**PPT**	1	22.	28/5/21
	MODULE 3: Memory Management					
23.	Contiguous Memory allocation	L+D	**PPT**	1	23.	31/5/21
24.	Non-Contiguous Memory Allocation	L+D	**PPT**	1	24.	1/6/21
25.	Paging, Segmentation	L+D	**PPT**	1	25.	3/6/21
26.	Segmentation with paging	L+D	**PPT**	1	26.	4/6/21
27.	Virtual Memory Management	L+D	**PPT**	1	27.	7/6/21
28.	Demand Paging	L+D	**PPT**	1	28.	8/6/21
29.	Paging Hardware	L+D	**PPT**	1	29.	10/6/21
30.	VM handler, page replacement policies	L+D	**PPT**	1	30.	11/6/21
31.	FIFO page replacement policy	L+D	**PPT**	1	31.	14/6/21
32.	LRU page replacement policy	L+D	**PPT**	1	32.	15/6/21
33.	Virtual Memory in Unix	L+D	**PPT**	1	33.	17/6/21
34.	Virtual Memory in Linux	L+D	**PPT**	1	34.	18/6/21
	MODULE 4:File Systems					
35.	File Systems: File systems and IOCS	L+D	**PPT**	1	35.	19/6/21
36.	File Operations	L+D	**PPT**	1	36.	21/6/21
37.	File Organizations	L+D	**PPT**	2	37.	22/6/21
38.	Directory structures	L+D	**PPT**	1	38.	24/6/21
39.	File Protection	L+D	**PPT**	1	39.	25/6/21
40.	Interface between File system and IOCS	L+D	**PPT**	1	40.	1/7/21
41.	Allocation of disk space	L+D	**PPT**	1	41.	2/7/21
42.	Implementing file access	L+D	**PPT**	1	42.	3/7/21
43.	Implementing file access	L+D	**PPT**	1	43.	5/7/21
	MODULE 5: Message Passing and DeadlockS					
44.	Overview of Message Passing-Direct and indirect naming	L+D	**PPT**	1	44.	6/7/21

45.	Overview of Message Passing-Blocking and non blocking sends	L+D	PPT	1	45.	8/7/21
46.	Implementing message passing	L+D	PPT	1	46.	9/7/21
47.	Mailboxes	L+D	PPT	1	47.	12/7/21
48.	Deadlocks in resource allocation	L+D	PPT	1	48.	13/7/21
49.	Resource state modeling	L+D	PPT	1	49.	15/7/21
50.	Deadlock detection algorithm	L+D	PPT	1	50.	16/7/21
51.	Deadlock Prevention	L+D	PPT	1	51.	17/7/21
52.	Deadlock Prevention	L+D	PPT	1	52.	19/7/21
53.	Revision	L+D	PPT	5	57	20/7/21 To 27/7/21

Text Books:

Operating Systems – A concept based approach, by Dhamdare, TMH, 2nd edition.

Reference Books:

1.Operating systems concepts, Silberschatz and Galvin, John Wiley India Pvt. Ltd, 5th edition,2001.
2.Operating system–internals and design system, William Stalling, Pearson Education, 4th ed, 2006.
3.Design of operating systems, Tannanbhaum, TMH, 2001

WEB MATERIALS:

W1: https://nptel.ac.in/courses/106108101/
W2: https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-828-operating-system-engineering-fall-2012/lecture-notes-and-readings/
W3: https://www.cse.iitb.ac.in/~mythili/os/

Details for the teaching Aids

1. PPT
2. Quizes for every module
3. Group activity on performance analysis of scheduling techniques

Signature of Course In charge	Signature of Module Coordinator	Signature of HOD

K S INSTITUTE OF TECHNOLOGY, BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Mrs. JAYASUDHA B S K

COURSE CODE/NAME : 18EC646/Python Application Programming

SEMESTER/YEAR : VI/ III

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Online Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1					
1	Module – 1-Introduction to Python Application programming course objectives and Outcomes	L+D	Laptop	1	1	19.04.2021
2	Why should you learn to write programs	L+D	Laptop	1	2	20.04.2021
3	Variables	L+D	Laptop	1	3	22.04.2021
4	expressions and statements	L+D	Laptop	1	4	23.04.2021
5	expressions and statements	L+D	Laptop	1	5	26.04.2021
6	Conditional execution	L+D	Laptop	1	6	27.04.2021
7	Functions	L+D	Laptop	1	7	29.04.2021
8	Exercises	L+D	Laptop	1	8	30.04.2021
9	Exercises	L+D	Laptop	1	9	3.05.2021
10	Exercises	L+D	Laptop	1	10	4.05.2021
	MODULE 2					
11	Mdule-2 Introduction	L+ D	Laptop	1	11	6.05.2021
12	Iteration	L+D	Laptop	1	12	7.05.2021
13	Iteration	L+D	Laptop	1	13	8.05.2021
14	Strings	L+D	Laptop	1	14	10.05.2021
15	Strings	L+D	Laptop	1	15	11.05.2021

16	Files	L+D	Laptop	1	16	17.05.2021
17	Files	L+D	Laptop	1	17	18.05.2021
18	Exercises	L+D	Laptop	1	18	20.05.2021
19	Exercises	L+D	Laptop	1	19	21.05.2021
20	Exercises	L+D	Laptop	1	20	27.05.2021
	MODULE 3					
21	Module 3 Introduction	L+AV	Laptop	1	22	28.05.2021
22	Lists	L+D	Laptop	1	23	31.05.2021
23	Lists with examples	L+D	Laptop	1	24	01.06.2021
24	Dictionaries	L+D	Laptop	1	25	03.06.2021
25	Dictionaries with few examples	L+D	Laptop	1	26	04.06.2021
26	Tuples	L+D	Laptop	1	27	07.06.2021
27	Tuples	L+D	Laptop	1	28	08.06.2021
28	Regular Expressions	L+D	Laptop	1	29	10.06.2021
29	Regular Expressions -few sample executions	L+D	Laptop	1	30	11.06.2021
30	Exercises	L+D	Laptop	1	31	14.06.2021
	MODULE 4					
32	Module 4 introduction	L+D	Laptop	1	32	15.06.2021
33	Classes and objects	L+D	Laptop	1	33	17.06.2021
34	Classes and Objects	L+D	Laptop	1	34	18.06.2021
35	Classes and functions	L+D	Laptop	1	35	19.06.2021
36	Classes and functions	L+D	Laptop	1	36	21.06.2021
37	Classes and methods	L+D	Laptop	1	37	22.06.2021
38	Classes and methods	L+D	Laptop	1	38	24.06.2021
39	Exercises	L+D	Laptop	1	39	25.06.2021
40	Exercises	L+D	Laptop	1	40	01.07.2021
	MODULE 5					
41	Networked programs, ,	L+D	Laptop	1	41	02.07.2021
42	Networked programs	L+D	Laptop	1	42	03.07.2021
43	Using Web Services	L+D	Laptop	1	43	05.07.2021
44	Using Web Services	L+D	Laptop	1	44	06.07.2021

45	Using databases and SQL	L+D	Laptop	1	45	08.07.2021
46	Using databases and SQL	L+D	Laptop	1	46	09.07.2021
47	Exercises	L+D	Laptop	1	47	12.07.2021
48	Exercises	L+D	Laptop	1	48	13.07.2021
49	Exercises	L+D	Laptop	1	49	15.07.2021
50	Revision of module-1	L+D	Laptop	1	50	16.07.2021
51	Revision of module 2	L+D	Laptop	1	51	17.07.2021
52	Revision of module 3	L+D	Laptop	1	52	19.07.2021
53	Revision of module 4	L+D	Laptop	1	53	20.07.2021
54	Revision of module 5	L+D	Laptop	1	54	22.07.2021
55	Hands on sessions	L+D	Laptop	1	55	23.07.2021
56	Hands on sessions	L+D	Laptop	1	56	26.07.2021
57	Hands on sessions	L+D	Laptop	1	57	27.07.2021

Text Books:

1. Charles R. Severance, Python for Everybody: Exploring Data Using Python 3, 1 Edition, Create Space Independent Publishing Platform, 2016 (Chapters 1 – 13, 15).
2. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist, 2ndEdition, Green Tea Press, 2015 (Chapters 15,16,17)

Reference Books:

1. Mark Lutz, "Programming Python", 4th Edition, O'Reilly Media, 2011.ISBN-13: 978-9350232873

2. Wesley J Chun, "Core Python Applications Programming", 3rd Edition, Pearson Education India, 2015. ISBN-13: 978-9332555365

3. Reema Thareja, "Python Programming using problem solving approach", Oxford university press, 2017

KS INSTITUTE OF TECHNOLOGY BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : P Joy Prabhakaran
SUBJECT CODE/NAME : 18CS652/Introduction to Data Structures & Algorithms
SEMESTER/YEAR : VI
ACADEMIC YEAR : 2020-2021

LESSON PLAN

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Proposed Date
	MODULE 1:				
1	Introduction to C	L	PPT	1	19 Apr
2	Constants & Variables	L	PPT	1	20 Apr
3	Data types	L	PPT	1	21 Apr
4	Input Output	L+D	PPT	1	26 Apr
5	Operators and expressions	L+D	PPT	1	27 Apr
6	Control Statements	L+D	PPT	1	28 Apr
7	Arrays and Strings	L+D	PPT	1	30 Apr
8	Functions	L+D	PPT	1	3 May
9	Structures and Unions	L+D	PPT	1	4 May
10	Pointers	L+D	PPT	1	5 May
	MODULE 2:				
11	Algorithms	L	PPT	1	7 May
12	Algorithm examples	L	PPT	1	10 May
13	Algorithm to code	L	PPT	1	11 May
14	Asymptotic notations	L+D	PPT	1	12 May
15	Intro to Data Structures	L+D	PPT	1	17 May
16	Examples of Data Structures	L+D	PPT	1	18 May
17	Encoding DS	L+D	PPT	1	19 May
18	Types of DS	L+D	PPT	1	21 May
19	IA1	L+D	PPT	1	26 May
20	Arrays	L+D	PPT	1	28 May

MODULE 3:					
21	Linked lists	L	PPT	1	31 May
22	Linked list encoding	L	PPT	1	1 Jun
23	Linked list traversal	L	PPT	1	2 Jun
24	Variants of linked lists	L+D	PPT	1	4 Jun
25	Stacks	L+D	PPT	1	7 Jun
26	Applications of stacks	L+D	PPT	1	8 Jun
27	Implementing a stack	L+D	PPT	1	9 Jun
28	Coding	L+D	PPT	1	14 Jun
MODULE 4:					
29	Queues	L	PPT	1	15 Jun
30	Application of Queues	L	PPT	1	16 Jun
31	Implementing queues	L	PPT	1	21 Jun
32	Coding	L+D	PPT	1	22 Jun
33	Trees	L+D	PPT	1	23 Jun
34	Binary trees	L+D	PPT	1	25 Jun
35	IA2	L+D	PPT	1	30 Jun
36	Tree traversal	L+D	PPT	1	2 Jul
37	Binary Search trees	L+D	PPT	1	5 Jul
38	Overview of other kinds of trees	L+D	PPT	1	6 Jul
MODULE 5:					
39	Graphs	L	PPT	1	7 Jul
40	Applications of graphs	L	PPT	1	9 Jul
41	Implementing graphs	L	PPT	1	12 Jul
42	Selection sort	L+D	PPT	1	13 Jul
43	Insertion sort	L+D	PPT	1	14 Jul
44	Bubble sort	L+D	PPT	1	16 Jul
45	Quick sort	L+D	PPT	1	19 Jul
46	Linear search	L+D	PPT	1	20 Jul
47	Binary search	L+D	PPT	1	21 Jul
48	Hash	L+D	PPT	1	23 Jul

L – Lecture

D – Demo

Course In-charge **Module Co-ordinator** **HOD/ECE**

I/C

K.S. INSTITUTE OF TECHNOLOGY BANGALORE

#14, Raghuvanahalli, Kanakapura Main Road, Bengaluru-5600109

DEPARTMENT OF MECHANICAL ENGINEERING

Supply Chain Management – Lesson Plan

NAME OF THE STAFF : GAUTHAM S
SUBJECT CODE/NAME : 18ME653/ Supply Chain Management
SEMESTER/YEAR : VIth/ 3rd
ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1					
1	Introduction to Supply Chain	ONLINE	Microsoft Teams	1	1	19-04-2021
2	Supply Chain Fundamentals — Importance	ONLINE	Microsoft Teams	1	2	20-04-2021
3	Importance of Supply Chain	ONLINE	Microsoft Teams	1	3	21-04-2021
4	Evolution- Role in Economy	ONLINE	Microsoft Teams	1	4	26-04-2021
5	Decision Phases	ONLINE	Microsoft Teams	1	5	27-04-2021
6	Supplier Manufacturer-Customer chain.	ONLINE	Microsoft Teams	1	6	28-04-2021
7	Enablers/ Drivers of Supply Chain Performance.	ONLINE	Microsoft Teams	1	7	30-04-2021
8	Supply chain strategy	ONLINE	Microsoft Teams	1	8	03-05-2021
9	Supply Chain Performance Measures	ONLINE	Microsoft Teams	1	9	04-05-2021
10	Case Studies	ONLINE	Microsoft Teams	1	10	07-05-2021
	MODULE 2					
11	Strategic Sourcing Outsourcing	ONLINE	Microsoft Teams	1	11	08-05-2021
12	Make Vs buy	ONLINE	Microsoft Teams	1	12	10-05-2021

13	Identifying core processes	ONLINE	Microsoft Teams	1	13	11-05-2021
14	Market Vs Hierarchy	ONLINE	Microsoft Teams	1	14	12-05-2021
15	Make Vs buy continuum	ONLINE	Microsoft Teams	1	15	17-05-2021
16	Sourcing strategy	ONLINE	Microsoft Teams	1	16	18-05-2021
17	Supplier Selection and Contract Negotiation	ONLINE	Microsoft Teams	1	17	19-05-2021
18	Creating a world class supply base	ONLINE	Microsoft Teams	1	18	21-05-2021
19	Supplier Development	ONLINE	Microsoft Teams	1	19	28-05-2021
20	World Wide Sourcing	ONLINE	Microsoft Teams	1	20	31-05-2021
MODULE 3						
21	Warehouse Management & Stores management	ONLINE	Microsoft Teams	1	21	01-06-2021
22	Stores systems and procedures	ONLINE	Microsoft Teams	1	22	02-06-2021
23	Incoming materials control	ONLINE	Microsoft Teams	1	23	04-06-2021
24	stores accounting and stock verification	ONLINE	Microsoft Teams	1	24	05-06-2021
25	Obsolete, surplus and scrap-value analysis in material handling	ONLINE	Microsoft Teams	1	25	07-06-2021
26	Transportation and Traffic management	ONLINE	Microsoft Teams	1	26	08-06-2021
27	-operational efficiency-productivity-cost effectiveness-performance measurement.	ONLINE	Microsoft Teams	1	27	09-06-2021
28	Supply Chain Network Distribution Network Design – Role - Factors Influencing Options, Value Addition –	ONLINE	Microsoft Teams	1	28	11-06-2021
29	-stores systems and procedures-	ONLINE	Microsoft Teams	1	29	14-06-2021
30	Distribution Strategies - Models for Facility Location and Capacity allocation	ONLINE	Microsoft Teams	1	30	15-06-2021
31	.Distribution Center Location Models	ONLINE	Microsoft Teams	1	31	16-06-2021

		MODULE 4				
32	Supply Chain Network optimization models	ONLINE	Microsoft Teams	1	32	18-06-2021
33	Impact of uncertainty on Network Design	ONLINE	Microsoft Teams	1	33	19-06-2021
34	Network Design decisions using Decision trees	ONLINE	Microsoft Teams	1	34	21-06-2021
35	Planning Demand	ONLINE	Microsoft Teams	1	35	22-06-2021
36	Multiple item - multiple location inventory management.	ONLINE	Microsoft Teams	1	36	23-06-2021
37	Pricing Management	ONLINE	Microsoft Teams	1	37	25-06-2021
38	Revenue Management	ONLINE	Microsoft Teams	1	38	02-07-2021
39	Supply Chain restructuring	ONLINE	Microsoft Teams	1	39	03-07-2021
40	Supply Chain Mapping	ONLINE	Microsoft Teams	1	40	05-07-2021
41	Case Studies	ONLINE	Microsoft Teams	1	41	06-07-2021
		MODULE 5				
42	Current Trends: Supply Chain Integration	ONLINE	Microsoft Teams	1	42	07-07-2021
43	Building partnership and trust in Supply chain Value of Information	ONLINE	Microsoft Teams	1	43	16-07-2021
44	Bullwhip Effect	ONLINE	Microsoft Teams	1	44	17-07-2021
45	Effective forecasting - Coordinating the supply chain	ONLINE	Microsoft Teams	1	45	19-07-2021
46	Supply Chain process restructuring,	ONLINE	Microsoft Teams	1	46	20-07-2021
47	Postpone the point of differentiation –	ONLINE	Microsoft Teams	1	47	23-07-2021
48	IT in Supply Chain	ONLINE	Microsoft Teams	1	48	26-07-2021
49	Agile Supply Chains -Reverse Supply chain	ONLINE	Microsoft Teams	1	49	27-07-2021
50	Future of IT in supply chain- E Business in supply chain.	ONLINE	Microsoft Teams	1	50	28-07-2021

51	Revision	ONLINE	Microsoft Teams	1	51	30-07-2021
52	Revision	ONLINE	Microsoft Teams	1	52	31-07-2021
53	Revision	ONLINE	Microsoft Teams	1	53	02-08-2021
54	Revision	ONLINE	Microsoft Teams	1	54	03-08-2021
55	Revision	ONLINE	Microsoft Teams	1	55	04-08-2021

Signature of HOD

Signature of Module Coordinator

K S INSTITUTE OF TECHNOLOGY, BANGALORE-109

DEPARTMENT OF TELECOMMUNICATION ENGINEERING

NAME OF THE STAFF : **Mr. Praveen A**
SUBJECT CODE/NAME : **17EC752/ IoT and Wireless Sensor Networks**
SEMESTER/YEAR : **VII / IV**
ACADEMIC YEAR : **2020-2021**

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
MODULE 1: Overview of Internet of Things						
1	Overview of Internet of Things - Introduction	L+D	BB	1	1	2/9/2020
2	IoT Conceptual Framework	L+D	BB	1	2	3/9/2020
3	IoT Architectural View	L+D	BB	1	3	4/9/2020
4	Technology Behind IoT	L+D	BB	1	4	5/9/2020
5	Sources of IoT	L+D	BB	1	5	7/9/2020
6	Examples of IoT	L+D	BB	1	6	9/9/2020
7	Modified OSI Model for the IoT/M2M Systems	L+D	BB	1	7	10/9/2020
8	Data enrichment	L+D	BB	1	8	11/9/2020
9	Data Consolidationat IoT/M2M Gateway			1	9	14/9/2020
10	Device management at IoT/M2M Gateway	L+D	BB	1	10	16/9/2020
11	Web communication protocols used by connected IoT/M2M devices	L+D	BB	1	11	18/9/2020
12	Message communication protocols: (CoAP-SMS, CoAP-MQ) for IoT/M2M devices	L+D, PS	BB	1	12	19/92020
13	Message communication protocols: (MQTT, XMPP) for IoT/M2M devices	L+D, PS	BB	1	13	21/9/2020
MODULE 2: Architecture and Design Principles for IoT						
14	Architecture and Design Principles for IoT - Introduction	L+D	BB	2	14	23/9/2020

15	Internet connectivity,	L+D	LCD	1	15	24/9/2020
16	Internet-based communication	L+D	BB	1	16	25/9/2020
17	IPv4, IPv6	L+D	BB	1	17	1/10/2020
18	IPv6,6LoWPAN protocol	L+D	BB	1	18	3/10/2020
19	IP Addressing in the IoT,	PS	BB	1	19	5/10/2020
20	Application layer protocols: HTTP, HTTPS, FTP, TELNET and ports.	L+D	BB	1	20	710/2020
21	Introduction - Cloud computing paradigm for data collection	L+D	BB	1	21	8/10/2020
22	Storage and Computing using a Cloud Platform	L+D	BB	1	22	9/10/2020
23	Cloud servicemodels	L+D	BB	1	23	12/10/2020
24	IoT Cloud- based data collection	L+D	BB	1	24	14/10/2020
25	Storage and computing services usingNimbits.	L+D	BB	1	25	15/10/2020
	MODULE 3:Prototyping and Designing Software for IoT Applications					
26	Introduction	L+D	BB	1	26	16/10/2020
27	Prototyping and Designing Software for IoT Applications	L+D	BB	1	27	19/10/2020
28	Prototyping Embedded device software and IDE	L+D	LCD	1	28	21/10/2020
29	Reading data from sensors and devices	L+D	BB+LCD	1	29	22/10/2020
30	Gateways	LCD	BB	1	30	23/10/2020
31	Internet and Web/Cloud services software development.	L+D	BB	1	31	24/10/2020
32	Programing MQTT clients and server	L+D	BB	1	32	28/10/2020
33	IOT privacy and security	LCD	BB	1	33	29/10/2020
34	Vulnerabilities	L+D	BB	1	34	2/11/2020
35	Security requirements and threat analysis	LCD	BB	1	35	4/11/2020
36	IoT Security Tomographyand layered attacker model	LCD	BB	1	36	5/11/2020
	MODULE 4: Overview of Wireless Sensor Networks					
37	Overview of Wireless Sensor Networks	L+D	LCD	1	37	6/11/2020
38	Challenges for Wireless Sensor Networks,	L+D	BB	1	38	7/11/2020
39	Enabling Technologies for Wireless Sensor Networks.	L+ D	BB	1	39	9/11/2020
40	Single-Node Architecture	L+D	LCD+BB	1	40	11/11/2020
41	Hardware Components	L+D	LCD+BB	1	41	12/11/2020
42	Energy Consumption of Sensor Nodes	L+D	LCD+BB	1	42	13/11/2020
43	Operating Systems and Execution Environments,	L+ D	LCD+BB	1	43	20/11/2020
44	Network Architecture-Sensor Network Scenarios,	L+D	BB	1	44	21/11/2020
45	Optimization Goals and Figures of Merit,	L+D	BB	1	45	23/11/2020
46	Design principles for WSNs,	L+D	BB	1	46	25/11/2020

47	Service interfaces of WSNs Gateway Concepts	L+D	BB	1	47	26/11/2020
	MODULE 5: Communication Protocols					
48	Communication Protocols	L+ D	BB	1	48	23/11/2020
49	Physical Layer and Transceiver Design Considerations,	L+D	BB	1	49	25/11/2020
50	MAC Protocols for Wireless Sensor Networks,	L+D	BB	1	50	26/11/2020
51	Low Duty Cycle Protocols	L+D	BB	1	51	27/11/2020
52	Wakeup Concepts			1	52	30/11/2020
53	The Mediation Device Protocol, S-MAC ,	L+D	BB+LCD	1	53	2/12/2020
54	Wakeup Radio Concepts,	L+D	BB+LCD	1	54	4/12/2020
55	Contention based protocols(CSMA,PAMAS),	L+D, PS	BB	1	55	5/12/2020
56	Schedule based protocols (LEACH, SMACS, TRAMA)	L+D, PS	BB	1	56	7/12/2020
57	Address and Name Management in WSNs,	L+D, PS	BB	1	57	9/12/2020
58	Assignment of MAC Addresses,	L+D, PS	BB	1	58	10/12/2020
59	Routing Protocols&Energy-Efficient Routing,	L+D, PS	BB	1	59	11/12/2020
60	Geographic Routing,	L+D	BB	1	60	14/12/2020
61	Hierarchical networks by clustering.	L+D	BB	1	61	16/12/2020
62.	Revision				62	17/12/2020

Signature of course in charge

Signature of Module Coordinator

Signature of HOD/ECE

KS INSTITUTE OF TECHNOLOGY, BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Mr.Saleem S Tevaramani

SUBJECT CODE/NAME : 17EC755/SATELLITE COMMUNICATION

SEMESTER/YEAR : VII / IV

ACADEMIC YEAR : 2020-2021

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date
	MODULE 1: Satellite Orbits and Trajectories					
1	Satellite Orbits and Trajectories	L+D	LCD,BB	1	1	3/9/2020
2	Definition, Basic Principles	L+D	LCD,AV	1	2	4/9/2020
3	Orbital parameters	L+D	BB,AV	1	3	7/9/2020
4	Problems on Orbital parameters	L+PS	BB	1	4	7/9/2020
5	Injection velocity and satellite trajectory	L+D	BB	1	5	10/9/2020
6	Types of Satellite orbits	L+D	BB	1	6	11/9/2020
7	Orbital perturbations	L+D	BB	1	7	14/9/2020
8	Satellite stabilization, Orbital effects on satellite's performance	L+D	LCD,BB	1	8	14/9/2020
9	Eclipses	L+D	BB	1	9	18/9/2020
10	Look angles: Azimuth angle, Elevation angle	L+D	BB	1	10	21/9/2020
	MODULE 2: Satellite subsystem					
11	Power supply subsystem	L+ D	LCD,BB	1	11	21/9/2020
12	Attitude and Orbit control	L+D	AV,BB	1	12	24/9/2020
13	Internal Assessment-I			1	13	25/9/2020
14	Tracking, Telemetry and command subsystem	L+D	LCD,BB	1	14	1/10/2020
15	Payload	L+D	BB	1	15	5/10/2020
16	Earth Station: Types of earth station	L+D	BB	1	16	5/10/2020
17	Architecture, Design considerations	L+D	BB	1	17	8/10/2020
18	Testing	L+D	BB	1	18	9/10/2020
19	Earth station Hardware, Satellite tracking	L+D	BB	1	19	12/10/2020

20	Problems	L+PS	BB	1	20	12/10/2020
	MODULE 3: Multiple Access Techniques:					
21	Introduction	L+D	BB	1	21	15/10/2020
22	FDMA (No derivation)	L+D	LCD, BB	1	22	16/10/2020
23	SCPC Systems	L+D	BB	1	23	19/10/2020
24	MCPC Systems	L+D	BB	1	24	19/10/2020
25	TDMA	L+D	BB	1	25	19/10/2020
26	CDMA	L+D	LCD, BB	1	26	22/10/2020
27	SDMA	L+D	BB	1	27	23/10/2020
28	Satellite Link Design Fundamentals: Transmission Equation, Satellite Link Parameters	L+D	BB	1	28	29/10/2020
29	Propagation considerations	L+D	BB	1	29	2/11/2020
30	Internal Assessment-II			1	30	2/11/2020
31	Problems on Multiple Access Techniques	L+PS	BB	1	31	5/11/2020
	MODULE 4: Communication Satellites					
32	Introduction	L+D	BB	1	32	6/11/2020
33	Related Applications	L+D	LCD,BB	1	33	12/11/2020
34	Frequency Bands, Payloads	L+D	BB	1	34	13/11/2020
35	Satellite Vs. Terrestrial Networks	L+D	BB	1	35	19/11/2020
36	Satellite Telephony, Satellite Television	L+D	BB	1	36	20/11/2020
37	Satellite radio, Regional satellite Systems	L+D	BB	1	37	20/11/2020
38	National Satellite Systems	L+D	BB	1	38	23/11/2020
	MODULE 5: Remote Sensing Satellites					
39	Classification of remote sensing systems	L+D	BB	1	39	23/11/2020
40	orbits, Payloads	L+D	LCD, BB	1	40	26/11/2020
41	Types of images: Image Classification	L+D	BB	1	41	27/11/2020
42	Interpretation, Applications	L+D	BB	1	42	30/11/2020
43	Weather Forecasting Satellites: Fundamentals, Images,	L+D	BB	1	43	30/11/2020
44	Orbits	L+D	BB	1	44	30/11/2020
45	Payloads	L+D	BB	1	45	30/11/2020
46	Applications	L+D	BB	1	46	4/12/2020

47	Navigation Satellites: Development of Satellite Navigation Systems	L+D	BB	1	47	7/12/2020
48	GPS system, Applications	L+D	BB	1	48	7/12/2020
49	Internal Assessment-III			1	49	10/12/2020
50	Revision	L+D	BB	1	50	11/12/2020
51	Revision	L+D	BB	1	51	17/12/2020

Text Books: -

1. Anil K. Maini, Varsha Agrawal, Satellite Communications, Wiley India Pvt. Ltd., 2015, ISBN: 978-81-265-2071-8.

Reference Books:

1. Dennis Roddy, Satellite Communications, 4th Edition, McGraw- Hill International edition, 2006
2. Timothy Pratt, Charles Bostian, Jeremy Allnutt, Satellite Communications, 2nd Edition, Wiley India Pvt. Ltd , 2017, ISBN: 978-81-265-0833-4.

WEB Materials:

W1: https://nptel.ac.in/courses/106105082/33
W2: https://www.tutorialspoint.com/principles_of_communication/principles_of_satellite_communications.htm
W3: https://www.intelsatgeneral.com/satellite-basics/
W4: https://www.youtube.com/watch?v=LC9_GCrNoN8
W5: https://www.youtube.com/watch?v=Au4Ab7PBRVA

Details for the Teaching Aids:

1. Black Board
2. LCD for PPT
3. AV for Audio Video

Signature of Course In charge **Signature of Module Coordinator** **Signature of HOD**

KS INSTITUTE OF TECHNOLOGY BANGALORE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAME OF THE STAFF : Saleem S Tevaramani
SUBJECT CODE/NAME : 17EC72/ Digital Image Processing
SEMESTER/YEAR : VII/IV
ACADEMIC YEAR : 2020-2021

LESSON PLAN

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Proposed Date
	MODULE 1:				
1	Introduction to DIP	L	PPT	1	2/9/2020
2	Origins of DIP	L	PPT	1	3/9/2020
3	Examples of use	L	PPT	1	3/9/2020
4	Fundamental steps	L+D	PPT	1	4/9/2020
5	Components of a DIP system	L+D	PPT	1	9/9/2020
6	Visual perception	L+D	PPT	1	10/9/2020
7	Sensing and Acquisition	L+D	PPT	1	10/9/2020
8	Sampling & Quantization of images	L+D	PPT	1	11/9/2020
9	Pixel relationships	L+D	PPT	1	16/9/2020
10	Linear and non-linear operations	L+D	PPT	2	18/9/2020
	MODULE 2:				
12	Intensity transforms	L	PPT	1	23/9/2020
13	Histogram processing	L	PPT	1	24/9/2020
14	Spatial filtering	L	PPT	1	24/9/2020
15	Smoothing spatial filters	L+D	PPT	1	25/9/2020
16	Sharpening spatial filters	L+D	PPT	1	1/10/2020
17	Frequency domain concepts	L+D	PPT	1	7/10/2020
18	DFT in 2D	L+D	PPT	1	8/10/2020
19	Filtering in frequency domain	L+D	PPT	1	8/10/2020
20	Smoothing and sharpening in freq domain	L+D	PPT	1	9/10/2020
21	Selective filtering	L+D	PPT	2	14/10/2020

MODULE 3:					
23	Noise models	L	PPT	1	15/10/2020
24	Restoration - spatial domain	L	PPT	1	15/10/2020
25	Restoration - frequency domain	L	PPT	1	16/10 2020
26	Position-invariant degradations	L+D	PPT	1	21/10/2020
27	Wiener filtering	L+D	PPT	1	22/10/2020
28	Least squares filtering	L+D	PPT	1	22/10/2020
29	Constrained filtering	L+D	PPT	1	23/10/2020
30	Constrained least squares filtering	L+D	PPT	2	28/10/2020
MODULE 4:					
32	Color fundamentals	L	PPT	1	29/10/2020
33	Color models	L	PPT	1	29/10/2020
34	Pseudo color image processing	L	PPT	1	4/11/2020
35	Wavelets	L+D	PPT	1	4/11/2020
36	Multiresolution expansion	L+D	PPT	1	5/11/2020
37	Morphological image processing	L+D	PPT	1	5/11/2020
38	Erosion and dilation	L+D	PPT	1	6/11/2020
39	Opening and closing	L+D	PPT	2	12/11/2020
41	Hit or miss transforms	L+D	PPT	1	12/11/2020
42	Basic morphological algorithms	L+D	PPT	1	13/11/2020
MODULE 5:					
43	Segmentation	L	PPT	1	18/11/2020
44	Point, Line, Edge detection	L	PPT	2	19/11/2020
46	Line detection	L	PPT	1	19/11/2020
47	Region based segmentation	L+D	PPT	1	20/11/2020
48	Segmentation using morph watersheds	L+D	PPT	1	21/11/2020
49	Representation	L+D	PPT	2	25/11/2020
51	Boundary descriptors	L+D	PPT	1	26/11/2020

L – Lecture D – Demo

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