TENTATIVE LESSON PLAN: R1621041
ELECTRONIC DEVICES AND CIRCUITS

Course Title: ELECTRONIC DEVICES AND CIRCUITS		
Branch : ECE-A	Date : 24/10/19	Page No : 01 of 03
Revision No : 00	Prepared By: D.RAVI TEJ	Approved By : HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
	UNIT-I Introduction to Semiconductor Physics **CO1: To study the fundamentals and introduction about the semiconductor physics** **T1:- Electronic Devices & Circuits by-Millman** **T2:- Electronic Devices & Circuits by-Salivahanan**		
1	Introduction to Semiconductor Physics	**From: 10-06-2019 To: 29-06-2019**	Lecture interspersed with discussions
2	Insulators, Semi conductors and metals		
3	Mobility and conductivity		
4	Electronics and holes in intrinsic semiconductors		
5	Extrinsic semiconductors		
6	Drift		
7	Diffusion		
8	charge densities in semiconductors		
9	Hall effect		
10	Continuity equation		
11	Fermi level in intrinsic semiconductors		
12	Fermi level in extrinsic semiconductors		
13	Introduction to Semiconductor Physics		
14	Insulators, Semi conductors and metals		
	UNIT-II Junction Diode Characteristics **CO2: Over view of various semiconductors** **T1:- Electronic Devices & Circuits by-Millman** **T2:- Electronic Devices & Circuits by-Salivahanan**		
15	Open circuited P-N Junction	**From: 01-07-2019 To: 20-07-2019**	Lecture interspersed with discussions
16	Biased P-N Junction, P-N Junction diode		
17	V-I Characteristics		
18	Current components in P-N junction diode		
19	Diode equation,SCR,UJT		
20	Temperature dependence on V-I Characteristics		
	UNIT-III Rectifiers and filters **CO3: To design various application circuits using DIODE** **T1:- Electronic Devices & Circuits by-Millman**		Diode res

T2:- Electronic Devices & Circuits by-Salivahanan			
21	Basic Rectifier setup	**From: 22-07-2019 To: 03-08-2019**	Lecture interspersed with discussions
22	Half wave Rectifier,		
23	Full Wave Rectifier		
24	Bridge Rectifier		
25	Harmonic components		
26	Inductor Filter		
27	Capacitor Filter		
28	L-Section Filter, Multiple L-Section		
29	Π-Section Filter, Multiple Π Section Filter		
30	Basic Rectifier setup		
UNIT-IV Transistor Characteristics **CO4: To study and understand the basic construction and operation of the bipolar transistor.** **T1:- Electronic Devices & Circuits by-Millman** **T2:- Electronic Devices & Circuits by-Salivahanan**			
31	Junction Transistor	**From: 12-08-2019 To: 30-08-2019**	Lecture interspersed with discussions
32	Current components		
33	Transistor equation		
34	Transistor act as an Amplifier		
35	Characteristics of Transistor in C.B Configuration		
36	Characteristics of Transistor in C.E Configuration		
UNIT-V Transistor Biasing and Thermal Stabilization **CO5: To study different types stabilizing techniques of transistor against the thermal disturbances** **T1:- Electronic Devices & Circuits by-Millman** **T2:- Electronic Devices & Circuits by-Salivahanan**			
37	Need for Biasing, Operating Point, Load line Analysis	**From: 3-09-2019 To: 17-09-2019**	Lecture interspersed with discussions
38	Fixed bias		
39	Collector to base bias		
40	Self bias		
41	Need for Biasing, Operating Point, Load line Analysis		
42	Fixed bias, Self bias, Collector to base bias		
43	Stabilizations against variations in Vbe, Ic and Stability factors		
44	Bias compensation,		
45	Thermal Runaway Thermal Stability		

UNIT-VI Small Signal Low Frequency Transistor Amplifier Model CO6: Analysis and Design of low frequency circuits T1:- Electronic Devices & Circuits by-Millman T2:- Electronic Devices & Circuits by-Salivahanan			
46	Two port network, Hybrid model	From: 18-09-2019 To: 5-10-2019	Lecture interspersed with discussions
47	H-Parameters		
48	Analysis of CE Amplifier model using h-parameters		
49	Analysis of CB, CC Amplifier model using h-parameters		
50	Analysis of CE,CB,CC Amplifier using Approximate analysis		
51	Analysis of CS,CG Amplifier		
52	Conversion of H- parameters		

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TENTATIVE LESSON PLAN: R1621041
ELECTRONIC DEVICES AND CIRCUITS

Course Title: ELECTRONIC DEVICES AND CIRCUITS		
Branch : ECE-B	Date : 24/10/19	Page No : 01 of 03
Revision No : 00	Prepared By: D.RAVI TEJ	Approved By : HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I Introduction to Semiconductor Physics **CO1: To study the fundamentals and introduction about the semiconductor physics** **T1:- Electronic Devices & Circuits by-Millman** **T2:- Electronic Devices & Circuits by-Salivahanan**			
1	Introduction to Semiconductor Physics	**From: 10-06-2019 To: 29-06-2019**	Lecture interspersed with discussions
2	Insulators, Semi conductors and metals		
3	Mobility and conductivity		
4	Electronics and holes in intrinsic semiconductors		
5	Extrinsic semiconductors		
6	Drift		
7	Diffusion		
8	charge densities in semiconductors		
9	Hall effect		
10	Continuity equation		
11	Fermi level in intrinsic semiconductors		
12	Fermi level in extrinsic semiconductors		
13	Introduction to Semiconductor Physics		
14	Insulators, Semi conductors and metals		
UNIT-II Junction Diode Characteristics **CO2: Over view of various semiconductors** **T1:- Electronic Devices & Circuits by-Millman** **T2:- Electronic Devices & Circuits by-Salivahanan**			
15	Open circuited P-N Junction	**From: 01-07-2019 To: 20-07-2019**	Lecture interspersed with discussions
16	Biased P-N Junction, P-N Junction diode		
17	V-I Characteristics		
18	Current components in P-N junction diode		
19	Diode equation,SCR,UJT		
20	Temperature dependence on V-I Characteristics		
UNIT-III Rectifiers and filters **CO3: To design various application circuits using DIODE** **T1:- Electronic Devices & Circuits by-Millman**			Diode res

T2:- Electronic Devices & Circuits by-Salivahanan				
21	Basic Rectifier setup	**From: 22-07-2019 To: 03-08-2019**	Lecture interspersed with discussions	
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23	Full Wave Rectifier			
24	Bridge Rectifier			
25	Harmonic components			
26	Inductor Filter			
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28	L-Section Filter, Multiple L-Section			
29	Π-Section Filter, Multiple Π Section Filter			
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UNIT-IV Transistor Characteristics **CO4: To study and understand the basic construction and operation of the bipolar transistor.** **T1:- Electronic Devices & Circuits by-Millman** **T2:- Electronic Devices & Circuits by-Salivahanan**				
31	Junction Transistor	**From: 12-08-2019 To: 30-08-2019**	Lecture interspersed with discussions	
32	Current components			
33	Transistor equation			
34	Transistor act as an Amplifier			
35	Characteristics of Transistor in C.B Configuration			
36	Characteristics of Transistor in C.E Configuration			
UNIT-V Transistor Biasing and Thermal Stabilization **CO5: To study different types stabilizing techniques of transistor against the thermal disturbances** **T1:- Electronic Devices & Circuits by-Millman** **T2:- Electronic Devices & Circuits by-Salivahanan**				
37	Need for Biasing, Operating Point, Load line Analysis	**From: 3-09-2019 To: 17-09-2019**	Lecture interspersed with discussions	
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39	Collector to base bias			
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42	Fixed bias, Self bias, Collector to base bias			
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44	Bias compensation,			
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UNIT-VI Small Signal Low Frequency Transistor Amplifier Model **CO6: Analysis and Design of low frequency circuits** **T1:- Electronic Devices & Circuits by-Millman** **T2:- Electronic Devices & Circuits by-Salivahanan**			
46	Two port network, Hybrid model	**From: 18-09-2019 To: 5-10-2019**	Lecture interspersed with discussions
47	H-Parameters		
48	Analysis of CE Amplifier model using h-parameters		
49	Analysis of CB, CC Amplifier model using h-parameters		
50	Analysis of CE,CB,CC Amplifier using Approximate analysis		
51	Analysis of CS,CG Amplifier		
52	Conversion of H- parameters		

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TENTATIVE LESSON PLAN: R1621042
SWITCHING THEORY AND LOGIC DESIGN

Course Title: SWITCHING THEORY AND LOGIC DESIGN		
Branch : ECE-A	Date : 10/6/19	Page No : 01 of 03
Revision No : 00	Prepared By: SEKHARABABU	Approved By : HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I REVIEW OF NUMBER SYSTEMS & CODES **CO1: To study number system and codes in digital logic design. Study of basic logic gates** **T1:- Switching Theory and Logic Design by A. Anand Kumar** **T2:- Switching Theory and Logic Design by A.P. Godse, D.A. Godse**			
1	Representation of numbers of different radix	**From: 10-06-2019 To: 29-06-2019**	Lecture interspersed with discussions
2	conversation from one radix to another radix		
3	r-1's compliments and r's compliments of signed members		
4	problem solving		
5	4 bit codes, Excess-3, 2421, 84-2-1		
6	9's compliment code		
7	error detection & correction codes		
8	Basic logic operations -NOT, OR		
9	AND Universal building blocks, EX-OR, EX-NOR -Gates		
10	Standard SOP and POS Forms, Gray code		
11	error detection		
12	error correction codes (parity checking, even parity, odd parity, Hamming code)		
13	NAND-NAND and NOR-NOR realizations.		
14	TUTORIAL		
UNIT-II MINIMIZATION TECHNIQUES **CO2: To study Boolean theorems K-Maps, tabulation method for minimization of Boolean functions** **T1:- Switching Theory and Logic Design by A. Anand Kumar** **T2:- Switching Theory and Logic Design by A.P. Godse, D.A. Godse**			
15	Boolean theorems	**From: 01-07-2019 To: 20-07-2019**	Lecture interspersed with discussions
16	principle of complementation & duality, De-morgan theorems		
17	minimization of logic functions		
18	minimization of switching functions using K-Map up to 6 variables		
19	tabular minimization		
20	Problem solving (code converters using K-Map)		
UNIT-III COMBINATIONAL LOGIC CIRCUITS DESIGN			

CO3: To study different types of combinational logic circuits like adders subtractors, Multiplexer's, demultiplexers, encoders and decoders.

T1:- Switching Theory and Logic Design by A. Anand Kumar

T2:- Switching Theory and Logic Design by A.P. Godse, D.A. Godse

21	Design of Half adder, full adder	**From: 22-07-2019 To: 03-08-2019**	Lecture interspersed with discussions
22	half subtractor, full subtractor		
23	applications of full adders, 4-bit binary subtractor		
24	adder-subtractor circuit, BCD adder circuit		
25	Excess 3 adder circuit, look-a-head adder circuit		
26	Design of decoder, demultiplexer		
27	7 segment decoder, higher order demultiplexing		
28	encoder, multiplexer, higher order multiplexing		
29	realization of Boolean functions using decoders and multiplexers, priority encoder		
30	4-bit digital comparator		

UNIT-IV INTRODUCTION OF PLD's

CO4: To study different types of combinational logic circuits like PLA,PAL and PROM

T1:- Switching Theory and Logic Design by A. Anand Kumar

T2:- Switching Theory and Logic Design by A.P. Godse, D.A. Godse

31	PROM, PAL, PLA-Basics structures	**From: 12-08-2019 To: 30-08-2019o:**	Lecture interspersed with discussions
32	realization of Boolean function with PLDs		
33	programming tables of PLDs, merits & demerits of PROM, PAL, PLA comparison		
34	Realization of Boolean functions using PROM, PAL, PLA		
35	Programming tables of PROM, PAL, PLA.		
36	TUTORIAL		

UNIT-V SEQUENTIAL CIRCUITS I

CO5: To study different types of sequential logic circuits like counters shift registers

T1:- Switching Theory and Logic Design by A. Anand Kumar

T2:- Switching Theory and Logic Design by A.P. Godse, D.A. Godse

37	Classification of sequential circuits (synchronous and asynchronous)	**From: 3-09-2019 To: 17-09-2019**	Lecture interspersed with discussions
38	basic flip-flops		
39	truth tables and excitation tables (nand RS latch, nor RS latch, RS flip-flop, JK flip-flop, T flip-flop, D flip-flop with reset and clear terminals).		
40	Conversion from one flip-flop to flip-flop		
41	Design of ripple counters, design of synchronous counters		
42	Johnson counter, ring counter		
43	Design of registers - Buffer register, control buffer register, shift register		
44	bi-directional shift register, universal shift register		
45	TUTORIAL		

UNIT-VI SEQUENTIAL CIRCUITS II **CO6: To study different types of Finite State Machines like mealy and moore machines.** **T1:- Switching Theory and Logic Design by A. Anand Kumar** **T2:- Switching Theory and Logic Design by A.P. Godse, D.A. Godse**			
46	Finite state machine	**From: 18-09-2019 To: 5-10-2019**	Lecture interspersed with discussions
47	Analysis of clocked sequential circuits		
48	state diagrams, state tables		
49	reduction of state tables and state assignment		
50	Realization of circuits using various flip-flops		
51	Melay to Moore conversion and vice-versa.		
52	TUTORIAL		

28/10/19

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TENTATIVE LESSON PLAN: R1621042
SWITCHING THEORY AND LOGIC DESIGN

Course Title: SWITCHING THEORY AND LOGIC DESIGN		
Branch : ECE-B	Date : 10/06/19	Page No : 01 of 03
Revision No : 00	Prepared By: V.SEKHARABABU	Approved By : HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
	UNIT-I REVIEW OF NUMBER SYSTEMS & CODES **CO1: To study number system and codes in digital logic design. Study of basic logic gates** **T1:- Switching Theory and Logic Design by A. Anand Kumar** **T2:- Switching Theory and Logic Design by A.P. Godse, D.A. Godse**		
1	Representation of numbers of different radix	**From: 10-06-2019 To: 29-06-2019**	Lecture interspersed with discussions
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3	r-1's compliments and r's compliments of signed members		
4	problem solving		
5	4 bit codes, Excess-3, 2421, 84-2-1		
6	9's compliment code		
7	error detection & correction codes		
8	Basic logic operations -NOT, OR		
9	AND Universal building blocks, EX-OR, EX-NOR -Gates		
10	Standard SOP and POS Forms, Gray code		
11	error detection		
12	error correction codes (parity checking, even parity, odd parity, Hamming code)		
13	NAND-NAND and NOR-NOR realizations.		
14	TUTORIAL		
	UNIT-II MINIMIZATION TECHNIQUES **CO2: To study Boolean theorems K-Maps, tabulation method for minimization of Boolean functions** **T1:- Switching Theory and Logic Design by A. Anand Kumar** **T2:- Switching Theory and Logic Design by A.P. Godse, D.A. Godse**		
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16	principle of complementation & duality, De-morgan theorems		
17	minimization of logic functions		
18	minimization of switching functions using K-Map up to 6 variables		
19	tabular minimization		
20	Problem solving (code converters using K-Map)		
	UNIT-III COMBINATIONAL LOGIC CIRCUITS DESIGN		

CO3: To study different types of combinational logic circuits like adders subtractors, Multiplexer's, demultiplexers, encoders and decoders. **T1:- Switching Theory and Logic Design by A. Anand Kumar** **T2:- Switching Theory and Logic Design by A.P. Godse, D.A. Godse**			
21	Design of Half adder, full adder	**From: 22-07-2019 To: 03-08-2019**	Lecture interspersed with discussions
22	half subtractor, full subtractor		
23	applications of full adders, 4-bit binary subtractor		
24	adder-subtractor circuit, BCD adder circuit		
25	Excess 3 adder circuit, look-a-head adder circuit		
26	Design of decoder, demultiplexer		
27	7 segment decoder, higher order demultiplexing		
28	encoder, multiplexer, higher order multiplexing		
29	realization of Boolean functions using decoders and multiplexers, priority encoder		
30	4-bit digital comparator		
UNIT-IV INTRODUCTION OF PLD's **CO4: To study different types of combinational logic circuits like PLA,PAL and PROM** **T1:- Switching Theory and Logic Design by A. Anand Kumar** **T2:- Switching Theory and Logic Design by A.P. Godse, D.A. Godse**			
31	PROM, PAL, PLA-Basics structures	**From: 12-08-2019 To: 30-08-2019**	Lecture interspersed with discussions
32	realization of Boolean function with PLDs		
33	programming tables of PLDs, merits & demerits of PROM, PAL, PLA comparison		
34	Realization of Boolean functions using PROM, PAL, PLA		
35	Programming tables of PROM, PAL, PLA.		
36	TUTORIAL		
UNIT-V SEQUENTIAL CIRCUITS I **CO5: To study different types of sequential logic circuits like counters shift registers** **T1:- Switching Theory and Logic Design by A. Anand Kumar** **T2:- Switching Theory and Logic Design by A.P. Godse, D.A. Godse**			
37	Classification of sequential circuits (synchronous and asynchronous)	**From: 3-09-2019 To: 17-09-2019**	Lecture interspersed with discussions
38	basic flip-flops		
39	truth tables and excitation tables (nand RS latch, nor RS latch, RS flip-flop, JK flip-flop, T flip-flop, D flip-flop with reset and clear terminals).		
40	Conversion from one flip-flop to flip-flop		
41	Design of ripple counters, design of synchronous counters		
42	Johnson counter, ring counter		
43	Design of registers - Buffer register, control buffer register, shift register		
44	bi-directional shift register, universal shift register		
45	TUTORIAL		

UNIT-VI SEQUENTIAL CIRCUITS II **CO6: To study different types of Finite State Machines like mealy and moore machines.** **T1:- Switching Theory and Logic Design by A. Anand Kumar** **T2:- Switching Theory and Logic Design by A.P. Godse, D.A. Godse**			
46	Finite state machine	**From: 18-09-2019 To: 1-10-2019**	Lecture interspersed with discussions
47	Analysis of clocked sequential circuits		
48	state diagrams, state tables		
49	reduction of state tables and state assignment		
50	Realization of circuits using various flip-flops		
51	Melay to Moore conversion and vice-versa.		
52	TUTORIAL		

28/10/19

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TENTATIVE LESSON PLAN: R1621043
SIGNALS AND SYSTEMS

Course Title: SIGNALS AND SYSTEMS		
Section: Sec I	**Date:** 11/6/2019	**Page No:** 1 to 4
Revision No: 00	**Prepared By:** Dr. B. Vanajakshi	**Approved By:** HOD

Tools: Black board, PPTs

S.No.	Topic	Date	Mode of Delivery
UNIT-I INTRODUCTION			
CO1: Able to learn about classifications of signals and systems and how to perform basic operations on signals and systems.			
TB1:Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.			
1	Definition of Signals and Systems	**From: 11/06/19** **To: 29/06/19**	Lecture interspersed with discussions
2	Classification of Signals		
3	Classification of systems		
4	Operations on signals: time-shifting, time-scaling, amplitude-shifting, amplitude-scaling		
5	Problems on Signals and Systems		
6	Complex exponential and sinusoidal signals		
7	Singularity functions: impulse function, step function signum function and ramp function.		
8	Analogy between vectors and signals		
9	orthogonal signal space		
10	Signal approximation using orthogonal functions		
11	Mean square error		
12	closed or complete set of orthogonal functions		
13	Orthogonality in complex functions		
UNIT-II FOURIER SERIES AND FOURIER TRANSFORM			
CO2: Able to perform transformations on signals.			
TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.			
14	Fourier series representation of continuous time periodic signals		

15	properties of Fourier series	From: 01/07/19 To: 20/07/19	Lecture interspersed with discussions
16	Dirichlet's conditions		
17	Trigonometric &Exponential Fourier series		
18	Complex Fourier spectrum		
19	Deriving Fourier transform from Fourier series		
20	Fourier transform of arbitrary signal		
21	Fourier transform of standard signals		
22	Fourier transform of periodic signals		
23	properties of Fourier transforms		
24	Fourier transforms- impulse and Signum functions		
25	Introduction to Hilbert Transform		
26	Tutorial		

UNIT-III SAMPLING THEOREM

CO3: Able to state sampling theorem and its applications.

TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.

27	Graphical and analytical proof for Band Limited Signals	From: 22/07/18 To: 03/08/18	Lecture interspersed with discussions
28	impulse sampling		
29	Natural and Flat top Sampling		
30	Reconstruction of signal from its samples		
31	effect of under sampling –Aliasing		
32	Introduction to Band Pass sampling		
33	Tutorial		
4	Problems		

UNIT-IV ANALYSIS OF LINEAR SYSTEMS

CO4: Able to analyze the signal transmission through linear systems and how to apply correlation and convolution techniques for different signals.

TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.

35	Linear system, impulse response, Response of system		

	Linear time invariant (LTI) system, Linear time variant (LTV) system		
	Concept of convolution in time and frequency domain		
36	Graphical representation of convolution		
	Transfer function of a LTI system		
	Filter characteristics of linear systems		
	Distortion less transmission through a system		
	Signal bandwidth, system bandwidth		
37	Ideal LPF, HPF and BPF characteristics	From: 12/08/18 To: 31/08/18	Lecture interspersed with discussions
	Causality & Poly-Wiener criterion for physical realization		
	relationship between bandwidth and rise time		
	Cross-correlation and auto-correlation of functions		
	properties of correlation, Energy density spectrum		
38	Parseval's theorem, Power density spectrum		
	Relation between auto correlation function and ESD		
39	Relation between convolution and correlation		
	Detection of periodic signals in the presence of noise by correlation		
	Extraction of signal from noise by filtering		
40	Tutorial		
	Problems		
UNIT-V LAPLACE TRANSFORMS **CO5:** Able to Perform transformations on signals **TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.**			
41	Review of Laplace transforms		
42	Partial fraction expansion		
43	Inverse Laplace transform		

44	Concept of region of convergence (ROC) for LT	From: 02/09/18 To: 17/09/18	Lecture interspersed with discussions
45	constraints on ROC for various classes of signals		
46	Properties of L. T's		
47	Relation between L. T's, and F.T. of a signal		
48	Laplace transform of certain signals using waveform synthesis		
49	Problems		
UNIT-VI Z–TRANSFORMS **CO6:** Able to Perform transformations on signals. **TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.**			
50	Fundamental difference between continuous-time& discrete-time signals	From: 18/09/18 To: 05/10/18	Lecture interspersed with discussions
51	discrete time signal representation using complex exponential and sinusoidal components		
52	Periodicity of discrete time using complex exponential		
53	Concept of Z- Transform of a discrete sequence		
54	Distinction between Laplace, Fourier & Z Transform		
55	Region of convergence in Z-Transform		
56	constraints on ROC for various classes of signals		
57	Inverse Z-transform		
58	properties of Z-transforms		
59	Tutorial		

TB1: Signal and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.
TB2: Signals and Systems - A.V. Oppenheim, A.S. Willsky and S. H. Nawab, PHI, 2nd Edn
TB3: Signals, Systems & Communications - B.P. Lathi, BS Publications, 2003.

Signature of the Faculty 02/11/19

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TENTATIVE LESSON PLAN: R1621043
SIGNALS AND SYSTEMS

Course Title: SIGNALS AND SYSTEMS		
Section: Sec: II	**Date:** 11/6/2019	**Page No:** 1 to 4
Revision No: 00	**Prepared By:** Dr. B. Vanajakshi	**Approved By:** HOD

Tools: Black board, PPTs

S.No.	Topic	Date	Mode of Delivery
UNIT-I INTRODUCTION			
CO1: Able to learn about classifications of signals and systems and how to perform basic operations on signals and systems.			
TB1:Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.			
1	Definition of Signals and Systems	**From: 11/06/19** **To: 29/06/19**	Lecture interspersed with discussions
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4	Operations on signals: time-shifting, time-scaling, amplitude-shifting, amplitude-scaling		
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6	Complex exponential and sinusoidal signals		
7	Singularity functions: impulse function, step function signum function and ramp function.		
8	Analogy between vectors and signals		
9	orthogonal signal space		
10	Signal approximation using orthogonal functions		
11	Mean square error		
12	closed or complete set of orthogonal functions		
13	Orthogonality in complex functions		
UNIT-II FOURIER SERIES AND FOURIER TRANSFORM			
CO2: Able to perform transformations on signals.			
TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.			
14	Fourier series representation of continuous time periodic signals		

15	properties of Fourier series	From: 01/07/19 To: 20/07/19	Lecture interspersed with discussions
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17	Trigonometric &Exponential Fourier series		
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20	Fourier transform of arbitrary signal		
21	Fourier transform of standard signals		
22	Fourier transform of periodic signals		
23	properties of Fourier transforms		
24	Fourier transforms- impulse and Signum functions		
25	Introduction to Hilbert Transform		
26	Tutorial		
UNIT-III SAMPLING THEOREM **CO3:** Able to state sampling theorem and its applications. **TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.**			
27	Graphical and analytical proof for Band Limited Signals	From: 22/07/19 To: 03/08/19	Lecture interspersed with discussions
28	impulse sampling		
29	Natural and Flat top Sampling		
30	Reconstruction of signal from its samples		
31	effect of under sampling –Aliasing		
32	Introduction to Band Pass sampling		
33	Tutorial		
4	Problems		
UNIT-IV ANALYSIS OF LINEAR SYSTEMS **CO4:** Able to analyze the signal transmission through linear systems and how to apply correlation and convolution techniques for different signals. **TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.**			
35	Linear system, impulse response,Response of system		

	Linear time invariant (LTI) system, Linear time variant (LTV) system		
	Concept of convolution in time and frequency domain		
36	Graphical representation of convolution		
	Transfer function of a LTI system		
	Filter characteristics of linear systems		
	Distortion less transmission through a system		
	Signal bandwidth, system bandwidth		
37	Ideal LPF, HPF and BPF characteristics	**From: 12/08/19** **To: 31/08/19**	Lecture interspersed with discussions
	Causality & Poly-Wiener criterion for physical realization		
	relationship between bandwidth and rise time		
	Cross-correlation and auto-correlation of functions		
	properties of correlation, Energy density spectrum		
38	Parseval's theorem, Power density spectrum		
	Relation between auto correlation function and ESD		
39	Relation between convolution and correlation		
	Detection of periodic signals in the presence of noise by correlation		
	Extraction of signal from noise by filtering		
40	Tutorial		
	Problems		
UNIT-V LAPLACE TRANSFORMS **CO5:** Able to Perform transformations on signals **TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.**			
41	Review of Laplace transforms		
42	Partial fraction expansion		
43	Inverse Laplace transform		

44	Concept of region of convergence (ROC) for LT	From: 02/09/19 To: 17/09/19	Lecture interspersed with discussions
45	constraints on ROC for various classes of signals		
46	Properties of L. T's		
47	Relation between L. T's, and F.T. of a signal		
48	Laplace transform of certain signals using waveform synthesis		
49	Problems		
UNIT-VI Z–TRANSFORMS **CO6:** Able to Perform transformations on signals. **TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.**			
50	Fundamental difference between continuous-time& discrete-time signals	From: 18/09/19 To: 01/10/19	Lecture interspersed with discussions
51	discrete time signal representation using complex exponential and sinusoidal components		
52	Periodicity of discrete time using complex exponential		
53	Concept of Z- Transform of a discrete sequence		
54	Distinction between Laplace, Fourier & Z Transform		
55	Region of convergence in Z-Transform		
56	constraints on ROC for various classes of signals		
57	Inverse Z-transform		
58	properties of Z-transforms		
59	Tutorial		

TB1: Signal and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.
TB2: Signals and Systems - A.V. Oppenheim, A.S. Willsky and S. H. Nawab, PHI, 2nd Edn
TB3: Signals, Systems & Communications - B.P. Lathi, BS Publications, 2003.

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Signature of HOD

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TENTATIVE LESSON PLAN: R1621044

Course Title: NETWORK ANALYSIS (R1621044)		
Section: A	Date:12-06-2019	Page No: 1 of 3
Revision No:	Prepared by : P.RAVEENDRA	Approved by :HOD

Tools : Black board, PPTs

No.of periods	Topics	Date	Mode of Delivery
	UNIT-I:Introduction to Electrical Circuits **CO1 : Gain the knowledge on basic network elements.** **TB:: Network Analysis – ME Van Valkenburg, Prentice Hall of India, 3rd Edition, 2000** **TB:: Network Analysis by K.Satya Prasad and S Sivanagaraju, Cengage Learning. TB::Electric Circuit Analysis by Hayt and Kimmarle, TMH**		
1	Network elements classification	10.6.2019	Lecture interspersed with discussions
2	Electric charge, current, energy and potential	11.6.2019	
3	Electric charge, current, energy and potential	11.6.2019	
4	Resistance parameter - series and parallel combination	12.6.2019	
5	Inductance parameter -series and parallel combination	14.6.2019	
6	Capacitance parameter-series and parallel combination	15.6.2019	
7	Energy sources: Ideal, Non-ideal	17.6.2019	
8	Independent and dependent sources	18.6.2019	
9	Source transformation	18.6.2019	
10	Kirchoff's laws	19.6.2019	
11	Mesh analysis and Nodal analysis problem solving	21.6.2019	
12	Mesh analysis and Nodal analysis problem solving	22.6.2019	
	A.C Fundamentals and Network Topology		
13	Definitions of terms associated with periodic functions	24.6.2019	
14	Time period, Angular velocity and frequency	25.6.2019	
15	RMS value,Average value,Form factor and peak factor	25.6.2019	
16	RMS value,Average value,Form factor and peak factor	26.6.2019	
17	problem solving	28.6.2019	
18	problem solving	29.6.2019	
19	Phase angle, Phasor representation	01.7.2019	
20	Addition and subtraction of phasors	02.7.2019	
21	mathematical representation of sinusoidal quantities	02.7.2019	
22	explanation with relevant theory, problem solving	03.7.2019	
23	explanation with relevant theory, problem solving	05.7.2019	
24	Principal of Duality with examples	06.7.2019	
25	Definitions of branch, node, tree	08.7.2019	
26	planar, non-planar graph, incidence matrix	09.7.2019	
27	basic tie set schedule, basic cut set schedule	09.7.2019	

UNIT-II:Steady State Analysis of A.C Circuits :
CO2 : will analyze the RLC circuits behavior in detailed.
TB::Network Analysis – ME Van Valkenburg, Prentice Hall of India, 3rd Edition, 2000
TB::Network Analysis by K.Satya Prasad and S Sivanagaraju, CengageLearning TB::Electric Circuit Analysis by Hayt and Kimmarle, TMH

28	Response to sinusoidal excitation	12/7/2019	Lecture interspersed with discussions
29	impedance concept,phase angle	16/07/2019	
30	series R-L, R-C, R-L-C circuits problem solving	17/7/2019	
31	series R-L, R-C, R-L-C circuits problem solving	17/7/2019	
32	series R-L, R-C, R-L-C circuits problem solving	18/7/2019	
33	Complex impedance&phasor notation for RL,RC,RLC	19/07/2019	
34	problem solving using mesh and nodal analysis	20/7/2019	
35	problem solving using mesh and nodal analysis	23/7/2019	
36	Star-Delta conversion,problem solving	24/07/2019	
37	Star-Delta conversion,problem solving	24/07/2019	

UNIT-III:Coupled Circuits
CO3 : Analyze the performance of periodic waveforms.
TB:: Network Analysis – ME Van Valkenburg, Prentice Hall of India, 3rd Edition, 2000
TB::Network Analysis by K.Satya Prasad and S Sivanagaraju, Cengage Learning
TB::Electric Circuit Analysis by Hayt and Kimmarle, TMH

38	Self inductance, Mutual inductance	25/07/2019	Lecture interspersed with discussions
39	Coefficient of coupling, analysis of coupled circuits	25/07/2019	
40	Natural current, Dot rule of coupled circuits	26/07/2019	
41	Conductively coupled equivalent circuits	26/07/2019	
42	problem solving	27/07/2019	
43	Resonance: Introduction	27/07/2019	
44	Definition of Q, Series resonance	30/07/2019	
45	Bandwidth of series resonance, Parallel resonance	30/07/2019	
46	Condition for maximum impedance	31/07/2019	
47	current in anti resonance	31/07/2019	
48	Bandwidth of parallel resonance	1/8/2019	
49	general case- resistance present in both branches	2/8/2019	
50	anti resonance at all frequencies	3/8/2019	

UNIT-IV:Network Theorems:
CO4 : To Understand the Network Theorems.
TB :: Network Analysis – ME Van Valkenburg, Prentice Hall of India, 3rd Edition, 2000
TB::Network Analysis by K.Satya Prasad and S Sivanagaraju, Cengage Learning, TB::Electric Circuit Analysis by Hayt and Kimmarle, TMH

51	Thevinin's, Norton's	13/8/2019	Lecture interspersed with discussions
52	Milliman's, Reciprocity,Tellegens	14/8/2019	
53	Milliman's, Reciprocity,Tellegens	14/8/2019	
54	Compensation, Substitution	15/8/2019	
55	Superposition, Max Power Transfer	16/8/2019	
56	Superposition, Max Power Transfer	17/8/2019	
57	problem solving using dependent sources also	20/8/2019	
58	problem solving using dependent sources also	21/8/2019	

59	problem solving using dependent sources also	21/8/2019	
60	problem solving using dependent sources also	22/8/2019	
UNIT-V:Two-port networks **CO5 : gain the knowledge in characteristics of two port network parameters (Z, Y, ABCD, h & g).** **TB::Network Analysis – ME Van Valkenburg, Prentice Hall of India, 3rd Edition, 2000** **TB:: Network Analysis by K.Satya Prasad and S Sivanagaraju, Cengage Learning, TB::Electric Circuit Analysis by Hayt and Kimmarle, TMH**			
61	Relationship of two port networks	23/8/2019	Lecture interspersed with discussions
62	Z-parameters, Y- parameters	24/8/2019	
63	Transmission line parameters, h-parameters	27/8/2019	
64	Inverse h- parameters	28/8/2019	
65	Inverse Transmission line parameters	28/8/2019	
66	Relationship between parameter sets	29/8/2019	
67	Parallel connection of two port networks	30/8/2019	
68	Cascading of two port networks	31/8/2019	
69	series connection of two port networks	3/9/2019	
70	problem solving including dependent sources also	4/9/2019	
71	problem solving including dependent sources also	6/9/2019	
UNIT-VI:Transients: **CO6 : Analyze the filter design concepts in real world applications.** **TB::Network Analysis – ME Van Valkenburg, Prentice Hall of India, 3rd Edition, 2000** **TB::Network Analysis by K.Satya Prasad and S Sivanagaraju, Cengage Learning, TB::Electric Circuit Analysis by Hayt and Kimmarle, TMH**			
72	First order differential equations	7/9/2019	Lecture interspersed with discussions
73	Definition of time constants	10/9/2019	
74	R-L circuit, R-C circuit with DC excitation	11/9/2019	
75	R-L circuit, R-C circuit with DC excitation	12/9/2019	
76	Evaluating initial conditions procedure	13/9/2019	
77	second order differential equations	17/9/2019	
78	homogeneous, non- homogenous	18/9/2019	
79	problem solving using RLC elements with DC excitation	19/9/2019	
80	problem solving using RLC elements with AC excitation	20/9/2019	
81	Response as related to s-plane rotation of roots	24/9/2019	

P. Raveendra

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S. Sri Gouri

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TENTATIVE LESSON PLAN: R1621044

Course Title: NETWORK ANALYSIS (R1621044)

Section:B	**Date:11-06-2019**	**Page No: 1 of 3**
Revision No:	**Prepared by : S.NAGESWARA RAO**	**Approved by :HOD**

Tools : Black board, PPTs

No.of periods	Topics	Date	Mode of Delivery
	UNIT-I:Introduction to Electrical Circuits **CO1 : Gain the knowledge on basic network elements.** **TB:: Network Analysis – ME Van Valkenburg, Prentice Hall of India, 3rd Edition, 2000** **TB:: Network Analysis by K.Satya Prasad and S Sivanagaraju, Cengage Learning. TB::Electric Circuit Analysis by Hayt and Kimmarle, TMH**		
1	Network elements classification	11/6/2019	Lecture interspersed with discussions
2	Electric charge, current, energy and potential	12/6/2019	
3	Electric charge, current, energy and potential	13/6/19	
4	Resistance parameter - series and parallel combination	14/6/19	
5	Inductance parameter -series and parallel combination	15/6/19	
6	Capacitance parameter-series and parallel combination	15/6/19	
7	Energy sources: Ideal, Non-ideal	17/6/19	
8	Independent and dependent sources	18/6/19	
9	Source transformation	19/6/19	
10	Kirchoff's laws	20/6/19	
11	Mesh analysis and Nodal analysis problem solving	21/6/19	
12	Mesh analysis and Nodal analysis problem solving	22/06/19	
	A.C Fundamentals and Network Topology		
13	Definitions of terms associated with periodic functions	22/6/2019	
14	Time period, Angular velocity and frequency	24/6/19	
15	RMS value,Average value,Form factor and peak factor	25/6/19	
16	RMS value,Average value,Form factor and peak factor	26/6/19	
17	problem solving	27/6/19	
18	problem solving	28/6/19	
19	Phase angle, Phasor representation	29/6/19	
20	Addition and subtraction of phasors	29/6/19	
21	mathematical representation of sinusoidal quantities	1/7/2019	
22	explanation with relevant theory, problem solving	2/7/2019	
23	explanation with relevant theory, problem solving	3/7/2019	
24	Principal of Duality with examples	4/7/2019	
25	Definitions of branch, node, tree	5/7/2019	
26	planar, non-planar graph, incidence matrix	6/7/2019	
27	basic tie set schedule, basic cut set schedule	6/7/2019	

UNIT-II:Steady State Analysis of A.C Circuits :
CO2 : will analyze the RLC circuits behavior in detailed.
TB::Network Analysis – ME Van Valkenburg, Prentice Hall of India, 3rd Edition, 2000
TB::Network Analysis by K.Satya Prasad and S Sivanagaraju, CengageLearning TB::Electric Circuit Analysis by Hayt and Kimmarle, TMH

28	Response to sinusoidal excitation	8/7/2019	Lecture interspersed with discussions
29	impedance concept,phase angle	9/7/2019	
30	series R-L, R-C, R-L-C circuits problem solving	10/7/2019	
31	series R-L, R-C, R-L-C circuits problem solving	11/7/2019	
32	series R-L, R-C, R-L-C circuits problem solving	12/7/2019	
33	Complex impedance&phasor notation for RL,RC,RLC	13/07/2019	
34	problem solving using mesh and nodal analysis	13/07/2019	
35	problem solving using mesh and nodal analysis	15/07/2019	
36	Star-Delta conversion,problem solving	16/07/2019	
37	Star-Delta conversion,problem solving	17/7/2019	

UNIT-III:Coupled Circuits
CO3 : Analyze the performance of periodic waveforms.
TB:: Network Analysis – ME Van Valkenburg, Prentice Hall of India, 3rd Edition, 2000
TB::Network Analysis by K.Satya Prasad and S Sivanagaraju, Cengage Learning
TB::Electric Circuit Analysis by Hayt and Kimmarle, TMH

38	Self inductance, Mutual inductance	18/7/2019	Lecture interspersed with discussions
39	Coefficient of coupling, analysis of coupled circuits	19/07/2019	
40	Natural current, Dot rule of coupled circuits	20/7/2019	
41	Conductively coupled equivalent circuits	20/7/2019	
42	problem solving	23/7/2019	
43	Resonance: Introduction	24/07/2019	
44	Definition of Q, Series resonance	25/07/2019	
45	Bandwidth of series resonance, Parallel resonance	26/07/2019	
46	Condition for maximum impedance	27/07/2019	
47	current in anti resonance	29/07/2019	
48	Bandwidth of parallel resonance	30/07/2019	
49	general case- resistance present in both branches	31/07/2019	
50	anti resonance at all frequencies	1/8/2019	

UNIT-IV:Network Theorems:
CO4 : To Understand the Network Theorems.
TB :: Network Analysis – ME Van Valkenburg, Prentice Hall of India, 3rd Edition, 2000
TB::Network Analysis by K.Satya Prasad and S Sivanagaraju, Cengage Learning, TB::Electric Circuit Analysis by Hayt and Kimmarle, TMH

51	Thevinin's, Norton's	14/8/2019	Lecture interspersed with discussions
52	Milliman's, Reciprocity,Tellegens	16/8/2019	
53	Milliman's, Reciprocity,Tellegens	17/8/2019	
54	Compensation, Substitution	19/8/2019	
55	Superposition, Max Power Transfer	20/8/2019	
56	Superposition, Max Power Transfer	21/8/2019	
57	problem solving using dependent sources also	23/8/2019	
58	problem solving using dependent sources also	24/8/2019	

59	problem solving using dependent sources also	24/8/2019	
60	problem solving using dependent sources also	26/8/2019	

UNIT-V:Two-port networks

CO5 : gain the knowledge in characteristics of two port network parameters (Z, Y, ABCD, h & g).

TB::Network Analysis – ME Van Valkenburg, Prentice Hall of India, 3rd Edition, 2000

TB:: Network Analysis by K.Satya Prasad and S Sivanagaraju, Cengage Learning, TB::Electric Circuit Analysis by Hayt and Kimmarle, TMH

61	Relationship of two port networks	27/8/2019	Lecture interspersed with discussions
62	Z-parameters, Y- parameters	28/8/2019	
63	Transmission line parameters, h-parameters	29/8/2019	
64	Inverse h- parameters	30/8/2019	
65	Inverse Transmission line parameters	31/8/2019	
66	Relationship between parameter sets	2/9/2019	
67	Parallel connection of two port networks	4/9/2019	
68	Cascading of two port networks	5/9/2019	
69	series connection of two port networks	6/9/2019	
70	problem solving including dependent sources also	7/9/2019	
71	problem solving including dependent sources also	9/9/2019	

UNIT-VI:Transients:

CO6 : Analyze the filter design concepts in real world applications.

TB::Network Analysis – ME Van Valkenburg, Prentice Hall of India, 3rd Edition, 2000

TB::Network Analysis by K.Satya Prasad and S Sivanagaraju, Cengage Learning, TB::Electric Circuit Analysis by Hayt and Kimmarle, TMH

72	First order differential equations	10/9/2019	Lecture interspersed with discussions
73	Definition of time constants	11/9/2019	
74	R-L circuit, R-C circuit with DC excitation	12/9/2019	
75	R-L circuit, R-C circuit with DC excitation	14/9/2019	
76	Evaluating initial conditions procedure	17/9/2019	
77	second order differential equations	18/9/2019	
78	homogeneous, non- homogenous	19/9/2019	
79	problem solving using RLC elements with DC excitation	20/9/2019	
80	problem solving using RLC elements with AC excitation	24/9/2019	
81	Response as related to s-plane rotation of roots	25/9/2019	

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TENTATIVE LESSON PLAN: R1621045

Course Title: RANDOM VARIABLES AND STOCHASTIC PROCESS		
Section : Sec I	**Date : 10/06/2019**	
Revision No : 00	**Prepared By : P.Raveendra**	**Approved By : HOD**

Tools: Black board, PPTs

S NO:	TOPIC	Date	Mode of Delivery
UNIT-I THE RANDOM VARIABLE			
CO1: Able to know the most important distributions and their characteristics.			
TB1: PROBABILITY AND STOCHASTIC PROCESSES, Y.MALLIKARJUNA REDDY, Golden Era Publications.			
1	Introduction	10/06/19	Lecture interspersed with discussions
2	Definition of a Random Variable	11/06/19	
3	Conditions for Function to be a Random variable	12/06/19	
4	Discrete,Continuous & Mixed Random Variables	13/06/19	
5	Distribution and Density functions	14/06/19	
6	Properties	15/06/19	
7	Binomial, Poisson	17/06/19	
8	Uniform,Gaussian	18/06/19	
9	Exponential, Rayleigh	19/06/19	
10	Conditional Distribution	20/06/19	
11	**Tutorial**	20/06/19	
12	Conditional Density	21/06/19	
13	Properties	22/06/19	
UNIT-II OPERATION ON ONE RANDOM VARIABLE – EXPECTATIONS			
CO2: Able to understand, analyze, and solve typical problems in operations on one random variable.			
TB1: PROBABILITY AND STOCHASTIC PROCESSES, Y.MALLIKARJUNA REDDY, Golden Era Publications.			
14	Introduction	25/6/19	Lecture interspersed with discussions
15	Expected Value of a Random Variable	26/6/19	
16	Function of a RandomVariable	28/6/19	
17	Moments about the Origin, Central Moments	29/6/19	
18	Variance and Skew	01/07/19	
19	Chebychev's Inequality	03/07/19	
20	**Tutorial**	03/07/19	
21	Characteristic Function	05/07/19	
22	Moment Generating Function	05/07/19	
23	Transformations of a Random Variable	08/07/19	

24	Monotonic Transformations Random Variable	08/07/19	
25	Non monotonic Transformations of Continuous Random Variable	09/07/19	
UNIT-III MULTIPLE RANDOM VARIABLES **CO3:** Able to know the distribution and density functions of multiple random variables and operations on multiple random variables. **TB1:** PROBABILITY AND STOCHASTIC PROCESSES, Y.MALLIKARJUNA REDDY, Golden Era Publications.			
26	Vector Random Variables	12/07/19	Lecture interspersed with discussions
27	JointDistribution Function	15/07/19	
28	Properties of Joint Distribution	16/07/19	
29	Marginal DistributionFunctions	17/07/19	
30	Conditional Distribution and Density	17/07/19	
31	Statistical Independence	19/07/19	
32	Sum of Two Random Variables	20/07/19	
33	Sum of Several Random Variables	22/07/19	
34	CentralLimit Theorem: Unequal Distribution, Equal Distributions	22/07/19	
35	relationship between bandwidth and rise time	23/07/19	
36	**Tutorial**	27/07/19	
37	OPERATIONS ON MULTIPLE RANDOM VARIABLES	29/07/19	
38	Joint Moments about the Origin	30/07/19	
39	Joint Central Moments	30/07/19	
40	Joint Characteristic Functions	31/07/19	
41	Jointly Gaussian Random Variables	01/08/19	
42	Two Random Variables case	02/08/19	
43	N Random Variables case	02/08/19	
44	Properties	02/08/19	
45	Transformations of Multiple RandomVariables	03/08/19	
46	Linear Transformations of Gaussian Random Variables	05/08/19	
UNIT-IV RANDOM PROCESSES – TEMPORAL CHARACTERISTICS **CO4:** An ability to characterize stochastic processes with an emphasis on stationary random processes. **TB1:** PROBABILITY AND STOCHASTIC PROCESSES, Y.MALLIKARJUNA REDDY, Golden Era Publications.			
47	The Random Process Concept	06/08/19	
48	Classification of Processes	07/08/19	
49	Deterministic and Non deterministic Processes	09/08/19	
50	Distribution and Density Functions	09/08/19	

51	Concept of Stationary and Statistical Independence	14/08/19	Lecture interspersed with discussions
52	First-Order Stationary Processes	16/08/19	
53	Second- Order and Wide-Sense Stationary	17/08/19	
54	Nth-order and Strict-Sense Stationarity	18/08/19	
55	Time Averages and Ergodicity	20/08/19	
56	Autocorrelation Function and its Properties	21/08/19	
57	Cross-Correlation Function and its Properties	03/09/19	
58	**Tutorial**	04/09/19	
59	Covariance Functions	06/09/19	
60	Gaussian Random Processes	09/09/19	
61	Poisson Random Process	12/09/19	
UNIT-V RANDOM PROCESS-SPECTRAL CHARACTERISTICS **CO5:** An ability to characterize stochastic processes with an emphasis on stationary random processes. **TB1:** PROBABILITY AND STOCHASTIC PROCESSES,Y.MALLIKARJUNA REDDY, Golden Era Publications.			
62	The Power Spectrum	13.09.2018	Lecture interspersed with discussions
63	Properties	14.09.2018	
64	Relationship between Power Spectrum and Autocorrelation Function	16.09.2018	
65	The Cross-Power Density Spectrum	17.09.2018	
66	Properties	18.09.2018	
67	**Tutorial**	20.09.2018	
68	Relationship between Cross-Power Spectrum and Cross-Correlation Function	21.09.2018	
UNIT-VI LINEAR SYSTEMS WITH RANDOM INPUTS **CO6:** Able to know the response of linear system for random inputs and types of noise. **TB1:** PROBABILITY AND STOCHASTIC PROCESSES,Y.MALLIKARJUNA REDDY, Golden Era Publications.			
69	Random Signal Response of Linear Systems	23/09/19	Lecture interspersed with discussions
70	System Response	23/09/19	
71	Convolution	24/09/19	
72	Mean and Mean-squared Value of System Response	24/09/19	
73	Autocorrelation Function of Response	25/09/19	
74	Cross-Correlation Functions of Input and Output	25/09/19	
75	Spectral Characteristics of System Response	27/09/19	
76	Power Density Spectrum of Response	27/09/19	
77	Cross-Power Density Spectra of Input and Output	28/09/19	
78	Band pass, Band-Limited and Narrowband Processes, Properties	28/10/19	

79	Modeling of Noise Sources	28/09/19	
80	Resistive Noise Source,Arbitrary Noise Sources	28/09/19	
81	Effective Noise Temperature	30/09/19	
82	Average Noise Figure	30/09/19	
83	Average Noise Figure of cascaded networks	01/10/19	

TB1: PROBABILITY AND STOCHASTIC PROCESSES,Y.MALLIKARJUNA REDDY,Golden Era Publications.

TB2: PROBABILITY, RANDOM VARIABLES & RANDOM SIGNAL PRINCIPLES, PEYTONZ. PEEBLES, TMH, 4th Edition, 2001.

TB3: PROBABILITY, RANDOM VARIABLES AND STOCHASTIC PROCESSES, Athanasios Papoulis and S.Unnikrishna, PHI, 4th Edition, 2002

P. Raveendra
Signature of Faculty

S. Sri Gouri
Signature of HOD

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TENTATIVE LESSON PLAN: R1621045

Course Title: RANDOM VARIABLES AND STOCHASTIC PROCESS		
Section : Sec II	Date : 10/06/2019	
Revision No : 00	Prepared By : P.Raveendra	Approved By : HOD

Tools: Black board, PPTs

S NO:	TOPIC	Date	Mode of Delivery
UNIT-I THE RANDOM VARIABLE **CO1:** Able to know the most important distributions and their characteristics. **TB1:** PROBABILITY AND STOCHASTIC PROCESSES,Y.MALLIKARJUNA REDDY, Golden Era Publications.			
1	Introduction	17/06/19	Lecture interspersed with discussions
2	Definition of a Random Variable	17/06/19	
3	Conditions for Function to be a Random variable	19/06/19	
4	Discrete,Continuous & Mixed Random Variables	19/06/19	
5	Distribution and Density functions	20/06/19	
6	Properties	20/06/19	
7	Binomial, Poisson	22/06/19	
8	Uniform,Gaussian	22/06/19	
9	Exponential, Rayleigh	23/06/19	
10	Conditional Distribution	23/06/19	
11	**Tutorial**	25/06/19	
12	Conditional Density	25/06/19	
13	Properties	29/07/19	
UNIT-II OPERATION ON ONE RANDOM VARIABLE – EXPECTATIONS **CO2:** Able to understand, analyze, and solve typical problems in operations on one random variable. **TB1:** PROBABILITY AND STOCHASTIC PROCESSES,Y.MALLIKARJUNA REDDY, Golden Era Publications.			
14	Introduction	29/07/19	Lecture interspersed with discussions
15	Expected Value of a Random Variable	01/07/19	
16	Function of a RandomVariable	01/07/19	
17	Moments about the Origin, Central Moments	03/07/19	
18	Variance and Skew	04/07/19	
19	Chebychev's Inequality	04/07/19	
20	**Tutorial**	06/07/19	
21	Characteristic Function	06/07/19	
22	Moment Generating Function	08/07/19	
23	Transformations of a Random Variable	08/07/19	

24	Monotonic Transformations Random Variable	09/07/19	
25	Non monotonic Transformations of Continuous Random Variable	11/07/19	
UNIT-III MULTIPLE RANDOM VARIABLES **CO3:** Able to know the distribution and density functions of multiple random variables and operations on multiple random variables. **TB1:** PROBABILITY AND STOCHASTIC PROCESSES,Y.MALLIKARJUNA REDDY, Golden Era Publications.			
26	Vector Random Variables	13/07/19	Lecture interspersed with discussions
27	JointDistribution Function	14/07/19	
28	Properties of Joint Distribution	15/07/19	
29	Marginal DistributionFunctions	15/07/19	
30	Conditional Distribution and Density	17/07/19	
31	Statistical Independence	19/07/19	
32	Sum of Two Random Variables	20/07/19	
33	Sum of Several Random Variables	21/07/19	
34	CentralLimit Theorem: Unequal Distribution, Equal Distributions	22/07/19	
35	relationship between bandwidth and rise time	23/07/19	
36	**Tutorial**	26/07/19	
37	OPERATIONS ON MULTIPLE RANDOM VARIABLES	28/07/19	
38	Joint Momentsa bout the Origin	29/07/19	
39	Joint Central Moments	29/07/19	
40	Joint Characteristic Functions	30/07/19	
41	Jointly Gaussian Random Variables	01/08/19	
42	Two Random Variables case	02/08/19	
43	N Random Variables case	02/08/19	
44	Properties	02/08/19	
45	Transformations of Multiple RandomVariables	03/08/19	
46	Linear Transformations of Gaussian Random Variables	04/08/19	
UNIT-IV RANDOM PROCESSES – TEMPORAL CHARACTERISTICS **CO4:** An ability to characterize stochastic processes with an emphasis on stationary random processes. **TB1:** PROBABILITY AND STOCHASTIC PROCESSES,Y.MALLIKARJUNA REDDY, Golden Era Publications.			
47	The Random Process Concept	05/08/19	
48	Classification of Processes	05/08/19	
49	Deterministic and Non deterministic Processes	07/08/19	
50	Distribution and Density Functions	07/08/19	

51	Concept of Stationary and Statistical Independence	8/08/19	Lecture interspersed with discussions
52	First-Order Stationary Processes	8/08/19	
53	Second- Order and Wide-Sense Stationary	9/08/19	
54	Nth-order and Strict-Sense Stationarity	04908/19	
55	Time Averages and Ergodicity	09/08/19	
56	Autocorrelation Function and its Properties	11/08/19	
57	Cross-Correlation Function and its Properties	13/08/19	
58	**Tutorial**	14/08/19	
59	Covariance Functions	16/08/19	
60	Gaussian Random Processes	17/08/19	
61	Poisson Random Process	18/08/19	
UNIT-V RANDOM PROCESS-SPECTRAL CHARACTERISTICS **CO5:** An ability to characterize stochastic processes with an emphasis on stationary random processes. **TB1:** PROBABILITY AND STOCHASTIC PROCESSES,Y.MALLIKARJUNA REDDY, Golden Era Publications.			
62	The Power Spectrum	05.09.2018	Lecture interspersed with discussions
63	Properties	05.09.2018	
64	Relationship between Power Spectrum and Autocorrelation Function	06.09.2018	
65	The Cross-Power Density Spectrum	08.09.2018	
66	Properties	10.09.2018	
67	**Tutorial**	11.09.2018	
68	Relationship between Cross-Power Spectrum and Cross-Correlation Function	12.09.2018	
UNIT-VI LINEAR SYSTEMS WITH RANDOM INPUTS **CO6:** Able to know the response of linear system for random inputs and types of noise. **TB1:** PROBABILITY AND STOCHASTIC PROCESSES,Y.MALLIKARJUNA REDDY, Golden Era Publications.			
69	Random Signal Response of Linear Systems	20/09/19	Lecture interspersed with discussions
70	System Response	20/09/19	
71	Convolution	22/09/19	
72	Mean and Mean-squared Value of System Response	22/09/19	
73	Autocorrelation Function of Response	23/09/19	
74	Cross-Correlation Functions of Input and Output	23/09/19	
75	Spectral Characteristics of System Response	25/09/19	
76	Power Density Spectrum of Response	25/09/19	
77	Cross-Power Density Spectra of Input and Output	26/09/19	
78	Band pass, Band-Limited and Narrowband Processes, Properties	26/10/19	

79	Modeling of Noise Sources	27/09/19	
80	Resistive Noise Source,Arbitrary Noise Sources	28/09/19	
81	Effective Noise Temperature	30/09/19	
82	Average Noise Figure	30/09/19	
83	Average Noise Figure of cascaded networks	01/10/19	

TB1: PROBABILITY AND STOCHASTIC PROCESSES,Y.MALLIKARJUNA REDDY,Golden Era Publications.

TB2: PROBABILITY, RANDOM VARIABLES & RANDOM SIGNAL PRINCIPLES, PEYTONZ. PEEBLES, TMH, 4th Edition, 2001.

TB3: PROBABILITY, RANDOM VARIABLES AND STOCHASTIC PROCESSES, Athanasios Papoulis and S.Unnikrishna, PHI, 4th Edition, 2002

P. Raveendra

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S. Sri Gauri

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TENTATIVE LESSON PLAN: R1621026
MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS

Course Title: MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS(R1621026)		
Section: Sec A	**Date:**	**Page No:** 01 of 03
Revision No: 00	**Prepared By: SRINIVAS.V**	**Approved By: HOD**

Tools: Black board, PPTs,

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I	**INTRODUCTION TO MANAGERIAL ECONOMICS**		
CO1: To acquaint the student with basic knowledge of managerial economics, managerial decision areas, basic economics tools, concept of demand, law of demand, elasticity of demand, types of elasticity measurements of elasticity and demand forecasting.			
TB: A.R. Arya Sri, "Managerial Economics & Financial Analysis", 2005, TMH.			
1.	Introduction to Managerial Economics, Definitions, Characteristics of ME	14-06-2019	Lecture interspersed with discussions.
2.	Nature and Scope of Managerial Economics	14-06-2019	
3.	Managerial Economics related to Other Areas	18-06-2019	
4.	Basic Economic Tools in ME	18-06-2019	
5.	Introduction to Demand – Meaning & Definition, Features of Demand	19-06-2019	
6.	Determinants of Demand	20-06-2019	
7.	Law of Demand & Its exceptions, Demand Function	21-06-2019	
8.	Introduction to Elasticity of Demand	24-06-2019	
9.	Types of Elasticity of Demand	25-06-2019	
10.	Types of price Elasticity of Demand	26-06-2019	
11.	Measurement of Price Elasticity of Demand	27-06-2019	
12.	Introduction: Demand Forecasting	30-06-2019	
13.	Importance of Demand Forecasting	01-06-2019	
14.	Demand Forecasting Methods	03-06-2019	
UNIT –II	**PRODUCTION & COST ANALYSIS**		
CO2: TO acquaint the student with basic knowledge of production, factors of production, various production functions, least cost combinations of inputs, cost concepts, breakeven analysis to avoid losses.			
TB: A.R. Arya Sri, "Managerial Economics & Financial Analysis", 2005, TMH.			
15.	Introduction to Production: Meaning & Definition, Production Function	06-07-2019	Lecture interspersed with discussions
16.	Factors of production, production function with one variable factor	06-07-2019	
17.	Law of Variable Proportions	07-07-2019	
18.	Factors of production, production function with two variable factors	10-07-2019	
19.	Concept of Iso-costs, Isoquants	10-07-2019	
20.	MRTS, Least Cost Combination	14-07-2019	

UNIT – V INTRODUCTION TO FINANCIAL ACCOUNTING

CO5: TO know and understand about accounting process, types of accounts, principles of accounting, preparation of journal, ledger, trail balance and final accounts with

No. of Periods	TOPIC	DATE	Mode of Delivery
49.	Introduction to Accounting : Meaning & Definition, Classification of Accounts	25/08/2019	Lecture interspersed with discussions
50.	Accounting Process	30/08/2019	
51.	Principles of accounting(GAAP)	03/09/2019	
52.	Accounting cycle	03/09/2019	
53.	Preparation of Journal : Problems	04/09/2019	
54.	Preparation of Ledger : Problems	05/09/2019	
55.	Preparation of Trail Balance : Problems	05/09/2019	
56.	Final Accounts (Trading ,profit & loss A/C, Balance Sheet)	06/09/2019	
57.	Final Accounts with Adjustments	06/09/2019	
58.	Treatment of adjustments in preparation of final accounts.	06/09/2019	
59.	Introduction to Financial Statement Analysis: Importance, Objectives.	09/09/2019	Lecture interspersed with discussions
60.	Classification of Ratios : Liquidity Ratios	10/09/2019	
61.	Classification of Ratios : Activity Ratios	12/09/2019	
62.	Classification of Ratios : Solvency Ratios	12/09/2019	
63.	Classification of Ratios :Profitability Ratios	12/09/2019	
64.	Preparation of Changes in Working Capital	13/09/2019	
65.	Preparation of Funds Flow Statement	13/09/2019	
66.	Preparation of Cash Flow Statement	13/09/2019	

UNIT – VI CAPITAL, CAPITAL BUDGETING DECISIONS

CO6: TO understand about Capital, types of capital, capital budgeting decisions, process of capital budgeting, methods or techniques of capital budgeting.

TB: A.R.Arya sri, "Managerial Economics & Financial Analysis", 2005, TMH

No. of Periods	TOPIC	DATE	Mode of Delivery
67.	Introduction to Capital Budgeting: Meaning, Definition, Need.	13/10/2019	Lecture interspersed with discussions
68.	Methods of Capital Budgeting: Pay Back Period (PBP),	14/10/2019	
69.	Calculation of Accounting Rate of Return (ARR)	15/10/2019	
70.	Calculation of Net Present Value (NPV)	16/10/2019	
71.	Calculation of Internal Rate of Return (IRR)	19/10/2019	
72.	Calculation of Profitability Index	23/10/2019	
73.	Merits and Demerits of Capital Budgeting Techniques.	25/10/2019	
74.	Previous QP problems solution	25/10/2019	

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Sreenivas. V

S. Sri Gowri

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TENTATIVE LESSON PLAN: R1621026
MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS

Course Title: MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS(R1621026)		
Section: B	**Date: 14-06-2019**	**Page No:** 01 of 03
Revision No: 00	**Prepared By: V. SRINIVAS**	**Approved By: HOD**

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I	**INTRODUCTION TO MANAGERIAL ECONOMICS**		
CO1: To acquaint the student with basic knowledge of managerial economics, managerial decision areas, basic economics tools, concept of demand, law of demand, elasticity of demand, types of elasticity measurements of elasticity and demand forecasting.			
TB: A.R.Arya sri, "Managerial Economics & Financial Analysis", 2005, TMH.			
1.	Introduction to Managerial Economics, Definitions, Characteristics of ME	14-06-2019	Lecture interspersed with discussions
2.	Nature and Scope of Managerial Economics	17-06-2019	
3.	Managerial Economics related to Other Areas	18-06-2019	
4.	Basic Economic Tools in ME	19-06-2019	
5.	Introduction to Demand – Meaning & Definition, Features of Demand	19-06-2019	
6.	Determinants of Demand	20-06-2019	
7.	Law of Demand & Its exceptions, Demand Function	21-06-2019	
8.	Introduction to Elasticity of Demand	22-06-2019	
9.	Types of Elasticity of Demand	24-06-2019	
10.	Types of price Elasticity of Demand	25-06-2019	
11.	Measurement of Price Elasticity of Demand	26-06-2019	
12.	Introduction Demand Forecasting	27-06-2019	
13.	Importance of Demand Forecasting	01-07-2019	
14.	Demand Forecasting Methods	02-07-2019	
15.	**Tutorial**	03-07-2019	
UNIT –II	**PRODUCTION, PRODUCTION FUNCTION&COST ANALYSIS**		
CO2: TO acquaint the student with basic knowledge of production, factors of production, various production functions, least cost combinations of inputs, cost concepts, breakeven analysis to avoid losses.			
TB: A.R.Arya sri, "Managerial Economics & Financial Analysis", 2005, TMH.			
16.	Introduction to Production : Meaning & Definition, Production Function	05/07/2019	Lecture interspersed with discussions
17.	Factors of production, production function with one variable factor	06/07/2019	
18.	Law of Variable Proportions	08/07/2019	
19.	Factors of production, production function with two variable factors	09/07/2019	
20.	Concept of Isocosts, Isoquants	10/07/2019	
21.	MRTS, Least Cost Combination	11/07/2019	

No. of Periods	TOPIC	DATE	Mode of Delivery
22.	Cobb-Douglas Production Function	13/07/2019	Lecture interspersed with discussions
23.	Economies of Scale& diseconomies of scale	14/07/2019	
24.	Returns to Scale & returns to factors	15/07/2019	
25.	Concept of cost & Various Cost Concepts	16/07/2019	
26.	Introduction to Break Even Analysis	20/07/2019	
27.	Determination of Break Even Point with Graph	23/07/2019	
28.	Calculation of Break Even Point (BEP) algebraic method	25/07/2019	
29.	**Tutorial**	31/07/2019	
UNIT - III MARKETS AND COMPETITION , PRICING POLICIES **CO3: Gain knowledge about market, types of markets, competition, price determination under different market conditions, And various pricing methods.** **TB: A.R.Arya sri, "Managerial Economics & Financial Analysis", 2005, TMH.**			
30.	Introduction to Markets: Meaning & Definition, Features	01/08/2019	Lecture interspersed with discussions
31.	Types of markets, market structure	03/08/2019	
32.	Price Determination under perfect competition	04/08/2019	
33.	Equilibrium point of firm and industry	05/08/2019	
34.	Price Determination under Monopoly	07/08/2019	
35.	Equilibrium point of firm and industry in monopoly	08/08/2019	
36.	Price Determination under Monopolistic Competition	12/08/2019	
37.	Price Determination under Oligopoly	14/08/2019	
38.	Managerial Theories of the Firm	15/08/2019	
39.	Marries and Williamson theory of firm	16/08/2019	
40.	Pricing, pricing objectives.	17/08/2019	
41.	Various Methods of Pricing	19/08/2019	
UNIT – IV FORMS OF BUSINESS ORGANIZATIONS AND BUSINESS CYCLE **CO4: TO understand about business, types of business like sole trader ship, partnership, joint stock companies, business cycle.** **TB: A.R.Arya sri, "Managerial Economics & Financial Analysis", 2005, TMH**			
42.	Introduction to Business: Definition, Features	20/08/2019	Lecture interspersed with discussions
43.	Sole Proprietorship : Features, Merits, Demerits	21/08/2019	
44.	Partnership : Features, Merits, Demerits,kinds of partners	22/08/2019	
45.	Joint Stock Company : Features, Merits, Demerits	23/08/2019	
46.	Public limited and private limited companies, features	23/08/2019	
47.	Public Enterprises : Features, Merits, Demerits	24/08/2019	
48.	Phases of Business Cycles	26/08/2019	

UNIT – V INTRODUCTION TO FINANCIAL ACCOUNTING

CO5: TO know and understand about accounting process, types of accounts, principles of accounting, preparation of journal, ledger, trail balance and final accounts with

No. of Periods	TOPIC	DATE	Mode of Delivery
49.	Introduction to Accounting : Meaning & Definition, Classification of Accounts	27/08/2019	Lecture interspersed with discussions
50.	Accounting Process	31/08/2019	
51.	Principles of accounting(GAAP)	02/09/2019	
52.	Accounting cycle	03/09/2019	
53.	Preparation of Journal : Problems	04/09/2019	
54.	Preparation of Ledger : Problems	05/09/2019	
55.	Preparation of Trail Balance : Problems	06/09/2019	
56.	Final Accounts (Trading ,profit & loss A/C, Balance Sheet)	07/09/2019	
57.	Final Accounts with Adjustments	09/09/2019	
58.	Treatment of adjustments in preparation of final accounts.	10/09/2019	
59.	Introduction to Financial Statement Analysis: Importance, Objectives.	11/09/2019	Lecture interspersed with discussions
60.	Classification of Ratios : Liquidity Ratios	12/09/2019	
61.	Classification of Ratios : Activity Ratios	13/09/2019	
62.	Classification of Ratios : Solvency Ratios	14/09/2019	
63.	Classification of Ratios :Profitability Ratios	16/09/2019	
64.	Preparation of Changes in Working Capital	21/09/2019	
65.	Preparation of Funds Flow Statement	23/09/2019	
66.	Preparation of Cash Flow Statement	28/09/2019	

UNIT – VI CAPITAL, CAPITAL BUDGETING DECISIONS

CO6: TO understand about Capital, types of capital, capital budgeting decisions, process of capital budgeting, methods or techniques of capital budgeting.

TB: A.R.Arya sri, "Managerial Economics & Financial Analysis", 2005, TMH

No. of Periods	TOPIC	DATE	Mode of Delivery
67.	Introduction to Capital Budgeting: Meaning, Definition, Need.	01/10/2019	Lecture interspersed with discussions
68.	Methods of Capital Budgeting: Pay Back Period (PBP),	05/10/2019	
69.	Calculation of Accounting Rate of Return (ARR)	07/10/2019	
70.	Calculation of Net Present Value (NPV)	09/10/2019	
71.	Calculation of Internal Rate of Return (IRR)	11/10/2019	
72.	Calculation of Profitability Index	14/10/2019	
73.	Merits and Demerits of Capital Budgeting Techniques.	21/10/2019	
74.	Previous QP problems solution	25/10/2019	

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TENTAIVE LESSON PLAN: R1631041

Course Title: COMPUTER ARCHITECTURE & ORGANIZATION (R1631041)		
Section : A	**Date : 10/6/19**	**Page No :** 01 of 03
Revision No : 00	**Prepared By : B.S.S.TEJESH**	**Approved By : HOD**

Tools : Black board, PPTs, Moodle

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I BASIC STRUCTURE OF COMPUTERS **CO1:** Student can understand the architecture of modern computers. **TB :: Computer Organization, CARL HAMASCHER 5TH EDITION.**			
1	Functional unit	11,13.6.19	Lecture interspersed with discussions
2	Basic operational concepts	14,15.6.19	
3	Bus structures	18,19.6.19	
4	System software	20.6.19	
5	Performance	21.6.19	
6	The history of the computer development	22,22,23.6.19	
UNIT –2 MACHINE INSTRUCTION AND PROGRAM **CO2:** Student can analyze the performance of a computer using performance equation **TB :: Computer Organization, CARL HAMASCHER 5TH EDITION.**			
7	Instruction and instruction sequencing	29.6.19	Lecture interspersed with discussions
8	Register transfer notation	29.6.19	
9	Assembly language notation	2,20.7.19	
10	Basic instruction types	3,4,21.7.19	
11	Addressing Modes	5,23.7.19	
12	The role of stacks and queues in computer programming equation	6,25.7.19	
13	Component of instructions	6.7.19	
14	Logic instructions	26.7.19	
15	Shift and rotate instructions, revision	9.7.19	
UNIT –III TYPES OF INSTRUCTIONS **CO3:** Student can understand the different instruction types. **TB :: Computer Organization, CARL HAMASCHER 5TH EDITION.**			
16	Arithmetic and logic instructions	10,11,27.7.19	Lecture interspersed with discussions
17	Branch instructions	12,13,27.7.19	
18	Addressing modes	13,28.7.19	
19	Input/Output operations and tutorials	16.30.7.19	

TENTATIVE LESSON PLAN: R1631041

Course Title: COMPUTER ARCHITECTURE AND ORGANIZATION (R1631041)

Section : A	**Date : 10/6/19**	**Page No :** 02 of 03
Revision No : 00	**Prepared By : B.S.S.TEJESH**	**Approved By : HOD**

Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
	UNIT –IV INPUT/OUTPUT ORGANIZATION **CO4:** Student can understand the effective address of an operand by addressing modes. **TB :: Computer Organization, CARL HAMASCHER 5TH EDITION.**		
20	Accessing I/O devices	31.7.19	Lecture interspersed with discussions
21	Interrupt hardware and tutorials	1,14.8.19	
22	Enabling and disabling interrupts	3,4,16.8.19	
23	Handling multiple devices	17.8.19	
24	Direct memory access	21.8.19	
25	Buses: Synchronous bus	23,25.8.19	
26	Asynchronous bus	25,28.8.19	
27	Interface circuits	29.8.19	
28	Standard I/O interface	4,5.9.19	
29	Peripheral component interconnect (PCI) bus	7,9.9.19	
	UNIT - V THE MEMORY SYSTEM **CO5 :** Student can understand how computer stores positive and negative numbers **TB TB :: Computer Organization, CARL HAMASCHER 5TH EDITION.**		
31	Basic memory circuits	11.9.19	Lecture interspersed with discussions
32	Memory system consideration	12.9.19	
33	Read only memory (ROM)	14.9.19	
34	PROM, EPROM, EEPROM, Flash memory	14,15.9.19	
35	Cache memories	17.9.19	
36	Interleaving	18.9.19	
37	Mapping functions	17.9.19	
38	Magnetic hard disks	19.9.19	
39	Optical disks	20.9.18	
	UNIT – VI PROCESSING UNIT AND MICRO PROGRAMMED UNIT **CO6 :** Understand of how a computer performs arithmetic operations of positive and negative numbers **TB :: Computer Organization, CARL HAMASCHER 5TH EDITION..**		
40	Fundamental concepts	21.9.19	Lecture interspersed with discussions
41	Register transfers	22.9.19	
42	Performing an arithmetic or logic operation	24.9.19	
43	Fetching a word from memory	26.9.19	
44	Execution of complete instruction	27.9.19	
45	Hardwired control	28.9.19	

TENTATIVE LESSON PLAN: R1631041

Course Title: COMPUTER ARCHITECTURE AND ORGANIZATION (R1631041)		
Section : A	**Date : 10/6/19**	**Page No :** 03 of 03
Revision No : 00	**Prepared By : B.S.S.TEJESH**	**Approved By : HOD**
Tools : Black board, PPTs		

No. of Periods	TOPIC	Date	Mode of Delivery
46	Microinstructions	29.9.19	
47	Micro program sequencing	1.10.19	
48	Wide branch addressing	1.10.19	
49	Microinstructions with next address field	3.10.19	

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TENTAIVE LESSON PLAN: R1631041

Course Title: COMPUTER ARCHITECTURE & ORGANIZATION (R1631041)		
Section : B	**Date : 10/6/19**	**Page No :** 01 of 03
Revision No : 00	**Prepared By : S.NEERAJA**	**Approved By : HOD**

Tools : Black board, PPTs, Moodle

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I BASIC STRUCTURE OF COMPUTERS **CO1:** Student can understand the architecture of modern computers. **TB :: Computer Organization, CARL HAMASCHER 5TH EDITION.**			
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4	System software	20.6.19	
5	Performance	21.6.19	
6	The history of the computer development	22,22,23.6.19	
UNIT –2 MACHINE INSTRUCTION AND PROGRAM **CO2:** Student can analyze the performance of a computer using performance equation **TB :: Computer Organization, CARL HAMASCHER 5TH EDITION.**			
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9	Assembly language notation	2,20.7.19	
10	Basic instruction types	3,4,21.7.19	
11	Addressing Modes	5,23.7.19	
12	The role of stacks and queues in computer programming equation	6,25.7.19	
13	Component of instructions	6.7.19	
14	Logic instructions	26.7.19	
15	Shift and rotate instructions, revision	9.7.19	
UNIT –III TYPES OF INSTRUCTIONS **CO3:** Student can understand the different instruction types. **TB :: Computer Organization, CARL HAMASCHER 5TH EDITION.**			
16	Arithmetic and logic instructions	10,11,27.7.19	Lecture interspersed with discussions
17	Branch instructions	12,13,27.7.19	
18	Addressing modes	13,28.7.19	
19	Input/Output operations and tutorials	16.30.7.19	

TENTATIVE LESSON PLAN: R1631041

Course Title: COMPUTER ARCHITECTURE AND ORGANIZATION (R1631041)

Section : B	**Date : 10/6/19**	**Page No :** 02 of 03
Revision No : 00	**Prepared By : S.NEERAJA**	**Approved By : HOD**

Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
	UNIT –IV INPUT/OUTPUT ORGANIZATION **CO4:** Student can understand the effective address of an operand by addressing modes. **TB :: Computer Organization, CARL HAMASCHER 5TH EDITION.**		
20	Accessing I/O devices	31.7.19	Lecture interspersed with discussions
21	Interrupt hardware and tutorials	1,14.8.19	
22	Enabling and disabling interrupts	3,4,16.8.19	
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24	Direct memory access	21.8.19	
25	Buses: Synchronous bus	23,25.8.19	
26	Asynchronous bus	25,28.8.19	
27	Interface circuits	29.8.19	
28	Standard I/O interface	4,5.9.19	
29	Peripheral component interconnect (PCI) bus	7,9.9.19	
	UNIT - V THE MEMORY SYSTEM **CO5 :** Student can understand how computer stores positive and negative numbers **TB TB :: Computer Organization, CARL HAMASCHER 5TH EDITION.**		
31	Basic memory circuits	11.9.19	Lecture interspersed with discussions
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33	Read only memory (ROM)	14.9.19	
34	PROM, EPROM, EEPROM, Flash memory	14,15.9.19	
35	Cache memories	17.9.19	
36	Interleaving	18.9.19	
37	Mapping functions	17.9.19	
38	Magnetic hard disks	19.9.19	
39	Optical disks	20.9.18	
	UNIT – VI PROCESSING UNIT AND MICRO PROGRAMMED UNIT **CO6 :** Understand of how a computer performs arithmetic operations of positive and negative numbers **TB :: Computer Organization, CARL HAMASCHER 5TH EDITION..**		
40	Fundamental concepts	21.9.19	Lecture interspersed with discussions
41	Register transfers	22.9.19	
42	Performing an arithmetic or logic operation	24.9.19	
43	Fetching a word from memory	26.9.19	
44	Execution of complete instruction	27.9.19	
45	Hardwired control	28.9.19	

TENTATIVE LESSON PLAN: R1631041

Course Title: COMPUTER ARCHITECTURE AND ORGANIZATION (R1631041)		
Section : B	**Date : 10/6/19**	**Page No :** 03 of 03
Revision No : 00	**Prepared By : S.NEERAJA**	**Approved By : HOD**
Tools : Black board, PPTs		

No. of Periods	TOPIC	Date	Mode of Delivery
46	Microinstructions	29.9.19	
47	Micro program sequencing	1.10.19	
48	Wide branch addressing	1.10.19	
49	Microinstructions with next address field	3.10.19	

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S. Sri Gowri
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TENTATIVE LESSON PLAN: R1631042

Course Title: LINEAR IC APPLICATIONS		
Section: III ECE-A	**Date :10-06-2019**	**Page No :** 01 of 03
Revision No : 00	**Prepared By : V. SRILAKSHMI**	**Approved By : HOD**

Tools : Black board, PPTs,

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I	**Introduction To Operational Amplifier**		
CO 1: Student will be able to analyze different issues related to the differential Amplifiers and Operational Amplifier			
T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHI.			
T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International.			
1.	Introduction	10-06-19	Lecture interspersed with discussions
2.	Differential Amplifier- DC analysis of a differential amplifier	11-06-19	
3.	AC analysis of Dual input -Balanced output differential amplifier	12-06-19	
4.	Properties of other differential amplifier configuration (Dual Input-Unbalanced Output).	13-06-19	
5.	Properties of other differential amplifier configuration (Dual Input-Unbalanced Output).	14-06-19	
6.	Properties of other differential amplifier configuration (Single Ended Input -Balanced Output).	15-06-19	
7.	Properties of other differential amplifier (Single Ended Input- Unbalanced Output).	17-06-19	
8.	DC Coupling	19-06-19	
9.	Cascade Differential Amplifier Stages	20-06-19	
10.	Level translator	22-06-19	
11.	**Tutorial**	24-06-19	
UNIT –II	**OP–AMP**		
CO 2: Student can understand how to use op amp in real time applications.			
T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHI.			
T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International.			
12.	Characteristics of OP-Amps	26-06-19	Lecture interspersed with discussions
13.	Integrated circuits-Types, Classification	29-06-19	
14.	Package Types and Temperature ranges, Power supplies	01-07-19	
15.	Op-amp Block Diagram	02-07-19	
16.	DC characteristics	03-07-19	
17.	AC characteristics	04-07-19	
18.	741 op-amp & its features	05-07-19	
19.	Op-Amp parameters & Measurement	06-07-19	
20.	Input & Out put Off set voltages	08-07-19	
21.	Input & Out put Off set currents	09-07-19	
22.	slew rate, CMRR	10-07-19	
23.	PSRR, Drift	11-07-19	
24.	Frequency Compensation techniques	12-07-19	

25.	**Tutorial**	12-07-19	
UNIT - III LINEAR and NON-LINEAR APPLICATIONS OF OP-AMPS **CO 3: Ability to use OP Amp as summer, Subtractor, Integrator and so.** **T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHI.** **T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International..**			
26.	Inverting amplifier	19-07-19	Lecture interspersed with discussions
27.	Non-Inverting amplifier.	20-07-19	
28.	Integrator	24-07-19	
29.	Differentiator	25-07-19	
30.	Difference amplifier	25-07-19	
31.	Instrumentation amplifier	26-07-19	
32.	AC amplifier	27-07-19	
33.	V to I converters.	29-07-19	
34.	I to V converters, Buffers	30-07-19	
35.	Non- Linear function generation	01-08-19	
36.	Comparators, Precision rectifiers	02-08-19	
37.	Multivibrators, Triangular wave generator	03-08-19	
38.	Log Amplifiers, Anti log Amplifiers	16-08-19	

No. of Periods	TOPIC	DATE	Mode of Delivery
UNIT - IV ACTIVE FILTERS, ANALOG MULTIPLIERS AND MODULATORS **CO 4: Ability to use OP Amp as filters** **T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International.**			
39.	Introduction	17-08-19	Lecture interspersed with discussions
40.	Butter worth filters – 1st order LPF, HPF	19-08-19	
41.	Butter worth filters – 2^{nd} order LPF, HPF	20-08-19	
42.	Band pass filter	21-08-19	
43.	Band reject filter	22-08-19	
44.	All pass filter, Four Quadrant multiplier	24-08-19	
UNIT – V TIMERS & PHASE LOCKED LOOPS **CO 5: Able to use OP Amp to generate different waveforms and as PLL, Timer.** **T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHI.**			
45.	Introduction to 555 timer	26-08-19	Lecture interspersed with discussions
46.	functional diagram	27-08-19	
47.	Monostable operations and applications	27-08-19	
48.	Monostable applications	28-08-19	
49.	Astable operations and applications	31-08-19	
50.	Astable applications	03-09-19	
51.	Schmitt Trigger	07-09-19	
52.	PLL - introduction, block schematic	09-09-19	
53.	PLL -principles and description of individual blocks	16-09-19	
54.	Tutorial	17-09-19	
55.	IC-565 PLL	18-09-19	
56.	Applications of PLL – frequency multiplication	19-09-19	
57.	frequency translation	20-09-19	

58.	Lock range	21-09-19	
59.	Capture range	21-09-19	
60.	AM modulation	23-09-19	
61.	FM & FSK demodulators	23-09-19	
62.	Applications of VCO (566)	24-09-19	

UNIT – VI DIGITAL TO ANALOG AND ANALOG TO DIGITAL CONVERTERS
CO 6: Able to use OP Amp to as analog to digital and digital to analog converter.
T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International.

63.	Introduction, Basic DAC techniques	25-09-19	Lecture interspersed with discussions
64.	Weighted resistor DAC,	26-09-19	
65.	R-2R ladder DAC	27-09-19	
66.	Inverted R-2R DAC	28-09-19	
67.	IC 1408 DAC	28-09-19	
68.	Parallel Comparator type ADC	28-09-19	
69.	Counter type ADC	30-09-19	
70.	Successive approximation ADC	01-10-19	
71.	Dual slope ADC	03-10-19	

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TENTATIVE LESSON PLAN: R1631042

Course Title: LINEAR IC APPLICATIONS		
Section: III ECE-B	Date :11-06-2019	Page No : 01 of 03
Revision No : 00	Prepared By : V. SRILAKSHMI	Approved By : HOD

Tools : Black board, PPTs,

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I	**Introduction To Operational Amplifier**		
CO 1: Student will be able to analyze different issues related to the differential Amplifiers and Operational Amplifier			
T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHI.			
T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International.			
1.	Introduction	11-06-19	Lecture interspersed with discussions
2.	Block diagram of Typical Op–Amp With Various Stages	11-06-19	
3.	BJT Differential Amplifier With R_E DC Analysis	12-06-19	
4.	BJT differential amplifier with constant current source	12-06-19	
5.	dual input balanced output- DC & AC Analysis	13-06-19	
6.	Tutorial	15-06-19	
7.	dual input balanced output- DC & AC Analysis	17-06-19	
8.	dual input unbalanced output- DC & AC Analysis	18-06-19	
9.	dual input unbalanced output- DC & AC Analysis	18-06-19	
10.	single input balanced output- DC & AC Analysis	19-06-19	
11.	single input balanced output- DC & AC Analysis	19-06-19	
12.	single input unbalanced output- DC & AC Analysis	20-06-19	
13.	Tutorial	22-06-19	
14.	Current repeater circuits	22-06-19	
15.	Level translator	25-06-19	
16.	Cascade differential amplifier	26-06-19	
17.	FET differential amplifier	27-06-19	
18.	Tutorial	29-06-19	
UNIT –II	**OP–AMP**		
CO 2: Student can understand how to use op amp in real time applications.			
T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHI.			
T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International.			
19.	Integrated circuits-Types, Classification	01-07-19	Lecture interspersed with discussions
20.	Package Types and Temperature ranges, Power supplies	02-07-19	
21.	DC and AC characteristics	03-07-19	
22.	741 op-amp & its features	03-07-19	
23.	Input & Out put Off set voltages & currents	04-07-19	
24.	Input & Out put Off set voltages compensating techniques	06-07-19	
25.	Input & Out put Off set currents compensating techniques	08-07-19	
26.	slew rate,	09-07-19	
27.	Problems	10-07-19	
28.	CMRR,	10-07-19	
29.	PSRR,	11-07-19	
30.	Thermal Drift		

	Frequency Compensation techniques	23-07-19	
32.	**Tutorial**	23-07-19	
UNIT - III LINEAR and NON-LINEAR APPLICATIONS OF OP-AMPS **CO 3: Ability to use OP Amp as summer, Subtractor, Integrator and so.** **T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHI.** **T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International..**			
33.	Inverting amplifier	24-07-19	Lecture interspersed with discussions
34.	Non-Inverting amplifier.	24-07-19	
35.	Integrator	25-07-19	
36.	Differentiator	27-07-19	
37.	Difference amplifier	29-07-19	
38.	Instrumentation amplifier	30-07-19	
39.	AC amplifier	31-07-19	
40.	V to I converters.	01-08-19	
41.	I to V converters, Buffers	03-08-19	
42.	Non- Linear function generation	13-08-19	
43.	Comparators, Precision rectifiers	13-08-19	
44.	Multivibrators	14-08-19	
45.	Triangular wave generator	14-08-19	
46.	Log Amplifiers, Anti log Amplifiers	17-08-19	

No. of Periods	TOPIC	DATE	Mode of Delivery
UNIT - IV ACTIVE FILTERS, ANALOG MULTIPLIERS AND MODULATORS **CO 4: Ability to use OP Amp as filters** **T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International.**			
47.	Introduction	19-08-19	Lecture interspersed with discussions
48.	Butter worth filters – 1st order LPF	19-08-19	
49.	Butter worth filters – 1st order HPF	20-08-19	
50.	Butter worth filters – 2nd order LPF	21-08-19	
51.	Butter worth filters – 2nd order HPF	22-08-19	
52.	Band pass filter	24-08-19	
53.	Band reject filter, All pass filter	31-08-19	
54.	Four Quadrant multiplier, Balanced modulator IC1496	03-09-19	
55.	Sample & Hold circuits, **Tutorial**	03-09-19	
UNIT – V TIMERS & PHASE LOCKED LOOPS **CO 5: Able to use OP Amp to generate different waveforms and as PLL, Timer.** **T1: OP-AMPS and Linear Integrated Circuits, Ramakanth A Gayakwad, PHI.**			
56.	Introduction to 555 timer	07-09-19	Lecture
57.	functional diagram	09-09-19	
58.	Monostable operations and applications	11-09-19	
59.	Astable operations and applications	11-09-19	
60.	Schmitt Trigger	16-09-19	
61.	PLL - introduction, block schematic	17-09-19	
62.	PLL -principles and description of individual blocks	18-09-19	
63.	565 PLL	18-09-19	
63.	565 PLL		

	Applications of PLL – frequency multiplication, frequency translation	19-09-19	interspersed with discussions
65.	AM, FM & FSK demodulators	20-09-19	
66.	Applications of VCO (566)	21-09-19	
UNIT – VI DIGITAL TO ANALOG AND ANALOG TO DIGITAL CONVERTERS **CO 6: Able to use OP Amp to as analog to digital and digital to analog converter.** **T2: Linear Integrated Circuits, D. Roy Choudary, Sahil B jain, New Age International.**			
67.	Introduction, Basic DAC techniques	22-09-19	Lecture interspersed with discussions
68.	Weighted resistor DAC,	23-09-19	
69.	R-2R ladder DAC	24-09-19	
70.	Inverted R-2R DAC	25-09-19	
71.	Parallel Comparator type ADC	25-09-19	
72.	Counter type ADC	25-09-19	
73.	Successive approximation ADC	25-09-19	
74.	Dual slope ADC	26-09-19	
75.	Specifications AD 574(12 bit ADC)	27-09-19	
76.	Tutorial	28-09-19	

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TENTATIVE LESSON PLAN: R1631043

Course Title: DIGITAL IC APPLICATIONS (R1631043)		
Section : SecA	Date : 11/6/2019	Page No : 01 of 03
Revision No : 00	Prepared By : N.MAYURI	Approved By : HOD

Tools: Black board, power-point presentation

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I **Digital Logic Families and Interfacing** **CO1:: Introduces the electrical behavior of CMOS both in static and dynamic conditions and also the diode/transistor-transistor logic and Emitter coupled logic.** TB :: Digital Design – Principles & Practices – John.F.Wakerly, PHI/Pearson Education Asia, 3rd Edition, 2005			
1.	Introduction to logic families	11,12/6/19	Lecture interspersed with discussions
2.	CMOS logic	19/6/19	
3.	CMOS steady state and dynamic electrical behavior	20/6/19	
4.	CMOS logic families	24/6/19	
5.	TUTORIAL	25/6/19	
6.	Bipolar logic,	26/6/19	
7.	transistor-transistor logic,	27/6/19	
8.	TTL families, CMOS/TTL interfacing	27/6/19	
9.	low voltage CMOS logic and interfacing,	28/6/19	
10.	Emitter coupled logic.	01/7/19	
UNIT –II VHDL Modeling **CO2:: Introduces the Modeling of VHDL, it's simulation and synthesis approaches** **TB :: 1. Digital Design – Principles & Practices – John.F.Wakerly, PHI/Pearson Education Asia, 3rd Edition, 2005** **2. VHDL Primer – J. Bhasker, Pearson Education/PHI, 3rd Edition** **3. VHDL: Analysis and Modeling of Digital Systems– Zainalabedin Navabi, Mc Graw Hill, 1993.**			
11.	Design flow	02/7/19	Lecture interspersed with discussions
12.	program structure, , levels of abstraction	03/7/19	
13.	Elements of VHDL: Data types	04/7/19	
14.	TUTORIAL	06/7/19	
15.	Data objects, operators and identifiers	08/7/19	
16.	Packages, Libraries and Bindings	10/7/19	
17.	Subprograms	11/7/19	
18.	VHDL Programming using structural and data flow modeling.	11/7/19	
19.	TUTORIAL	12/7/19	
UNIT - III **Digital Design Using HDL** **CO3:: Introduces the programming concepts of Hardware Description Language, VHDL.** **TB :: 1. Digital Design – Principles & Practices – John.F.Wakerly, PHI/Pearson Education Asia, 3rd Edition, 2005** **2. VHDL Primer – J. Bhasker, Pearson Education/PHI, 3rd Edition**			
20.	Behavioral Modeling: Process statement, variable assignment statement,	15/7/19	
21.	signal assignment statement, wait statement	16/7/19	
22.	if statement, case statement	17/7/19	

No. of Periods	TOPIC	Date	Mode of Delivery
23.	null statement, loop statement, exit statement	18/7/19	Lecture interspersed with discussions
24.	Tutorial	20/7/19	
25.	next statement ,assertion statement	22/7/19	
26.	more on signal assignment statement ,Inertial Delay Model, Transport Delay Model ,	23/7/19	
27.	Creating Signal Waveforms,	24,25/7/19	
28.	Signal Drivers	27/7/19	
29.	Other Sequential Statements , Multiple Processes	29,30/7/19	
30.	Tutorial	31/7/19	
31.	Logic synthesis,inside alogic synthesis	01/8/19	
32.	Sequential logic design with examples	03/8/19	

UNIT –I V Combinational Logic Design

CO4:: Introduces the internal circuits for different combinational ICs and programming of the ICs using VHDL.

TB:: 1. Digital Design – Principles & Practices – John.F.Wakerly, PHI/Pearson Education Asia, 3rd Edition, 2005

2. Digital IC Applications – A.P.Godse, Technical Publications

33.	Combinational Logic Design: Binary Adder-Subtractor	13/8/19	Lecture interspersed with discussions
34.	Ripple Adder, Look Ahead Carry Generator	14/8/19	
35.	Alu, Decoders,	17/8/19	
36.	Encoders	19/8/19	
37.	Tutorial	20/8/19	
38.	Multiplexers And Demultiplexers	21/8/19	
39.	Parity Circuits, Comparators	22/8/19	
40.	Barrel Shifter, Simple Floating-Point Encoder,	24/8/19	
41.	Dual Priority Encoder	26/8/19	
42.	Design Considerations Of The Above Combinational Logic Circuits With Relevant Digital Ics, Modeling Of Above Ics Using VHDL	27/8/19	

UNIT –V Sequential Logic Design

CO5:: Introduces the internal circuits of different sequential ICs and programming of the ICs using VHDL.

TB:: Digital Design – Principles & Practices – John.F.Wakerly, PHI/Pearson Education Asia, 3rd Edition, 2005

43.	Sequential Logic Design: SSI Latches And Flip Flops	28/8/19	Lecture interspersed with discussions
44.	Ring Counter	30/8/19	
45.	Johnson Counter	03/9/19	
46.	Design Of Modulus N Synchronous Counters	07/9/19	
47.	Shift Registers	09/9/19	
48.	Universal Shift Registers	16/9/19	
49.	Tutorial	17/9/19	
50.	Design Considerations Of The Above sequential Logic Circuits	18/9/19	

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT - VI Synchronous and asynchronous Sequential circuits **CO6:: Introduces the internal circuits of different sequential ICs and programming of the ICs using VHDL.** **TB:: Digital Design – Principles & Practices – John.F.Wakerly, PHI/Pearson Education Asia, 3rd Edition, 2005**			
51.	State Diagram	19/9/19	Lecture interspersed with discussions
52.	State Table, State Assignment	21/9/19	
53.	Choice Of Flip Flops And Derivation Of Next State And Output Expressions	21/9/19	
54.	Timing Diagram, Assignment Problem: One Hot Encoding.	23/9/19	
55.	Mealy And Moore Type FSM For Serial Adder	23/9/19	
56.	Tutorial	24/9/19	
57.	VHDL Code For The Serial Adder.	25/9/19	
58.	Analysis Of Asynchronous Circuits, State Reduction	25/9/19	
59.	State Assignment	26/9/19	
60.	A Complete Design Example: The Vending Machine Controller	26/9/19	

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TENTATIVE LESSON PLAN: R1631043

Course Title: DIGITAL IC APPLICATIONS (R1631043)		
Section : SecB	Date : 11/6/19	Page No : 01 of 03
Revision No : 00	Prepared By : N.MAYURI	Approved By : HOD

Tools: Black board, power-point presentation

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I **Digital Logic Families and Interfacing** **CO1 :: Introduces the electrical behavior of CMOS both in static and dynamic conditions and also the diode/transistor-transistor logic and Emitter coupled logic.** **TB :: Digital Design – Principles & Practices – John.F.Wakerly, PHI/Pearson Education Asia, 3rd Edition, 2005**			
1.	Introduction to logic families	11-6-18	Lecture interspersed with discussions
2.	CMOS logic	12-6-18	
3.	CMOS steady state electrical behavior	13-6-18	
4.	TUTORIAL	15-6-18	
5.	CMOS dynamic electrical behavior CMOS logic families	23-6-18	
6.	Bipolar logic	23 -6-18	
7.	transistor-transistor logic,	25 -6-18	
8.	TTL families, CMOS/TTL interfacing	26 -6-18	
9.	low voltage CMOS logic and interfacing,	27-6-18	
10.	Emitter coupled logic.	28-6-18	
11.	TUTORIAL	29-6-18	
UNIT –II VHDL Modeling **CO2:: Introduces the Modeling of VHDL, it's simulation and synthesis approaches** **TB :: 1. Digital Design – Principles & Practices – John.F.Wakerly, PHI/Pearson Education Asia, 3rd Edition, 2005** **2. VHDL Primer – J. Bhasker, Pearson Education/PHI, 3rd Edition** **3. VHDL: Analysis and Modeling of Digital Systems– Zainalabedin Navabi, Mc Graw Hill, 1993.**			
12.	Design flow	02/7/19	Lecture interspersed with discussions
13.	program structure,	03/7/19	
14.	levels of abstraction	04/7/19	
15.	Elements of VHDL	05/7/19	
16.	TUTORIAL	06/7/19	
17.	Data types Data objects	08/7/19	
18.	operators and identifiers	10/7/19	
19.	Packages, Libraries and Bindings	11/7/19	
20.	Subprograms	12/7/19	
21.	VHDL Programming using structural and data flow modeling.	15/7/19	
UNIT - III Digital Design Using HDL **CO3:: Introduces the programming concepts of Hardware Description Language, VHDL.** **TB :: 1. Digital Design – Principles & Practices – John.F.Wakerly, PHI/Pearson Education Asia, 3rd Edition, 2005** **2. VHDL Primer – J. Bhasker, Pearson Education/PHI, 3rd Edition**			
22.	Behavioral Modeling: Process statement, variable assignment statement,	16/7/19	

No. of Periods	TOPIC	Date	Mode of Delivery
23.	Process statement	17/7/19	Lecture interspersed with discussions
24.	variable assignment statement,	18/7/19	
25.	signal assignment statement, wait statement	19/7/19	
26.	if statement, case statement	20/7/19	
27.	null statement, loop statement, exit statement	22/7/19	
28.	Tutorial	23/7/19	
29.	next statement ,assertion statement	24/7/19	
30.	more on signal assignment statement	25/7/19	
31.	Inertial Delay Model	26/7/19	
32.	Transport Delay Model	27/7/19	
33.	Creating Signal Waveforms, Signal Drivers	29/7/19	
34.	Other Sequential Statements , Multiple Processes	30/7/19	
35.	Tutorial	31/7/19	
36.	Logic Synthesis	01/8/19	
37.	Inside a logic Synthesizer.	02,3/8/19	
UNIT –I V Combinational Logic Design **CO4:: Introduces the internal circuits for different combinational ICs and programming of the ICs using VHDL.** **TB:: 1. Digital Design – Principles & Practices – John.F.Wakerly, PHI/Pearson Education Asia, 3rd Edition, 2005** **2. Digital IC Applications – A.P.Godse, Technical Publications**			
38.	Combinational Logic Design: Binary Adder-Subtractor	13/8/19	Lecture interspersed with discussions
39.	Ripple Adder, Look Ahead Carry Generator	14/8/19	
40.	Alu, Decoders,	16/8/19	
41.	Encoders	17/8/19	
42.	Tutorial	19/8/19	
43.	Multiplexers And Demultiplexers	20/8/19	
44.	Parity Circuits, Comparators	21/8/19	
45.	Tutorial	22/8/19	
46.	Barrel Shifter, Simple Floating-Point Encoder,	24/8/19	
47.	Dual Priority Encoder	26/8/19	
48.	Design Considerations Of The Above Combinational Logic Circuits With Relevant Digital Ics	03,6/9/19	
UNIT –V Sequential Logic Design **CO6:: Introduces the internal circuits of different sequential ICs and programming of the ICs using VHDL.** **TB:: Digital Design – Principles & Practices – John.F.Wakerly, PHI/Pearson Education Asia, 3rd Edition, 2005**			
49.	Sequential Logic Design: SSI Latches And Flip Flops	07/9/19	Lecture interspersed with discussions
50.	Ring Counter	07/9/19	
51.	Johnson Counter	11/9/19	
52.	Design Of Modulus N Synchronous Counters	16/9/19	
53.	Shift Registers	17,18/9/19	
54.	Flip flop conversions	18/9/19	
55.	Universal Shift Registers	19/9/19	

No. of Periods	TOPIC	Date	Mode of Delivery
56.	Design Considerations Of The Above Combinational Logic Circuits With Relevant Digital Ics	20/9/19	
UNIT - VI Synchronous and asynchronous Sequential circuits **CO6:: Introduces the internal circuits of different sequential ICs and programming of the ICs using VHDL.** **TB:: Digital Design – Principles & Practices – John.F.Wakerly, PHI/Pearson Education Asia, 3rd Edition, 2005**			
57.	State Diagram	20/9/19	Lecture interspersed with discussions
58.	State Table, State Assignment	21/9/19	
59.	Choice Of Flip Flops And Derivation Of Next State And Output Expressions	21/9/19	
60.	Timing Diagram.	23/9/19	
61.	Assignment Problem: One Hot Encoding.	23/9/19	
62.	Mealy And Moore Type FSM For Serial Adder	24/9/19	
63.	VHDL Code For The Serial Adder.	25/9/19	
64.	Analysis Of Asynchronous Circuits, State Reduction	26/9/19	
65.	State Assignment	27/9/19	
66.	A Complete Design Example: The Vending Machine Controller	28/9/19	

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SRK INSTITUTE OF TECHNOLOGY
ENIKEPADU, VIJAYAWADA

TENTATIVE LESSON PLAN: R1631044

Course Title: DIGITAL COMUNICATIONS (R1631044)		
Section : Sec A	Date : 10-6-2019	Page No : 01 of 03
Revision No : 00	Prepared By : P Ratna Bhaskar	Approved By : HOD

Tools: Black board

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I Pulse Digital Modulation **CO1:: Understand the working of Pulse Digital Modulation systems such as PCM, DPCM and DM.** **TB :: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.** **2. Digital communications - Simon Haykin, John Wiley, 2005**			
1.	Elements of digital communication systems	**12-6-19**	Lecture interspersed with discussions
2.	Advantages of digital communication systems	**17-6-19**	
3.	Elements of PCM: Sampling	**17-6-19**	
4.	Quantization and coding	**18-6-19**	
5.	Quantization error	**19-6-19**	
6.	Companding in PCM systems	**20-6-19**	
7.	Differential PCM	**21-6-19**	
8.	Delta Modulation and its drawbacks	**22-6-19**	
9.	Adaptive Delta Modulation	**22-6-19**	
10.	Adaptive Delta Modulation	**24-6-19**	
11.	Comparison of PCM and DM systems	**25-6-19**	
12.	Noise in PCM and DM systems	**26-6-19**	
UNIT –II Digital Modulation Techniques **CO2:: Learn various digital passband modulations techniques such as ASK, FSK, PSK, QPSK,DPSK and M-ary modulation techniques.** **TB :: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.** **2. Digital communications - Simon Haykin, John Wiley, 2005.** **3. Communication Systems-Analog & Digital – Singh & Sapre, TMH, 2004.**			
13.	Introduction	**27-6-19**	Lecture interspersed with discussions
14.	Introduction	**28-6-19**	
15.	ASK	**1-7-19**	
16.	FSK	**1-7-19**	
17.	PSK	**2-7-19**	
18.	DPSK	**3-7-19**	
19.	DEPSK	**4-7-19**	
20.	QPSK	**5-7-19**	
21.	M-ary PSK	**8-7-19**	
22.	M-ary ASK	**9-7-19**	
23.	M-ary FSK	**10-7-19**	
24.	Similarity of BFSK and BPSK	**11-7-19**	
UNIT - III Data Transmission			

CO3:: Analyze the performance of various Digital Modulation systems in terms of probability of error. **TB :: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.** **2. Digital communications - Simon Haykin, John Wiley, 2005**			
25.	Baseband signal receiver	**15-7-19**	Lecture interspersed with discussions
26.	Probability of error	**16-7-19**	
27.	The optimum filter	**17,18-7-19**	
28.	Matched filter	**19,22-7-19**	
29.	Matched filter	**22,23-7-19**	
30.	Probability of error using Matched filter	**24-7-19**	
31.	Coherent reception	**25,29-7-19**	
32.	Non-coherent detection of FSK	**30-7-19**	
33.	Calculation of error probability of ASK	**31-7-19**	
34.	Calculation of error probability of BPSK	**1-8-19**	
35.	Calculation of error probability of BFSK	**2-8-19**	
36.	Calculation of error probability of QPSK	**3-8-19**	
UNIT –I V Information Theory **CO4:: Understand the concepts of Information Theory and the need for source coding.** **TB :: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.**			
37.	Discrete messages	**13-8-19**	Lecture interspersed with discussions
38.	Concept of amount of information and its properties	**13-8-19**	
39.	Average Information	**14-8-19**	
40.	Entropy and its properties	**14-8-19**	
41.	Information rate	**16-8-19**	
42.	Mutual Information and its properties	**19-8-19**	
43.	Mutual Information and its properties	**19-8-19**	
UNIT –V Source Coding **CO5:: Learn the theorems governing the transmission of information over a noisy channel and perform the efficiency calculations.** **TB :: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.**			
44.	Introduction, Advantages	**20-8-19**	Lecture interspersed with discussions
45.	Shannon's Theorem	**21-8-19**	
46.	Shannon-Fano Coding	**22-8-19**	
47.	Huffman Coding	**26-8-19**	
48.	Efficiency calculations	**27-8-19**	
49.	Channel capacity of discrete and analog channels	**28-8-19**	
50.	Capacity of a Gaussian channel	**30-8-19**	
51.	Bandwidth-S/N trade-off	**3-9-19**	
UNIT - VI Linear Block Codes and Convolution Codes **CO6:: Perform channel coding using linear block codes, cyclic codes and convolution codes.** **TB :: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.**			
52.	Introduction to Linear Block Codes	**6-9-19**	

53.	Matrix description of linear block codes	**9-9-19**	Lecture interspersed with discussions
54.	Error detection and correction capabilities of LBC	**9-9-19**	
55.	Hamming codes	**16-9-19**	
56.	Hamming codes	**17-9-19**	
57.	Binary cyclic codes	**18-9-19**	
58.	Binary cyclic codes	**19-9-19**	
59.	Algebraic structure	**20-9-19**	
60.	Encoding	**20-9-19**	
61.	Syndrome Calculation	**21-9-19**	
62.	BCH codes	**24-9-19**	
63.	Introduction to Convolution Codes	**25-9-19**	
64.	Encoding of convolution codes	**26-9-19**	
65.	Time-domain approach	**26-9-19**	
66.	Time-domain approach	**27-9-19**	
67.	Transform-domain approach	**27-9-19**	
68.	Graphical approach: State diagram	**28-9-19**	
69.	Graphical approach: State diagram	**30-9-19**	
70.	Tree and Trellis decoding using Viterbi Algorithm	**30-9-19**	
71.	Tree and Trellis decoding using Viterbi Algorithm	**1-10-19**	

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ENIKEPADU, VIJAYAWADA

TENTATIVE LESSON PLAN: R1631044

Course Title: DIGITAL COMUNICATIONS (R1631044)		
Section : Sec B	Date : 10-6-19	Page No : 01 of 03
Revision No : 00	Prepared By : P Ratna Bhaskar	Approved By : HOD

Tools: Black board

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I Pulse Digital Modulation **CO1:: Understand the working of Pulse Digital Modulation systems such as PCM, DPCM and DM.** **TB :: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.** **2. Digital communications - Simon Haykin, John Wiley, 2005**			
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8.	Delta Modulation and its drawbacks	**22-6-19**	
9.	Adaptive Delta Modulation	**24-6-19**	
10.	Adaptive Delta Modulation	**25-6-19**	
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12.	Noise in PCM and DM systems	**26-6-19**	
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13.	Introduction	**27-6-19**	Lecture interspersed with discussions
14.	Introduction	**28-6-19**	
15.	ASK	**1-7-19**	
16.	FSK	**2-7-19**	
17.	PSK	**3-7-19**	
18.	DPSK	**4-7-19**	
19.	DEPSK	**4-7-19**	
20.	QPSK	**5-7-19**	
21.	M-ary PSK	**8-7-19**	
22.	M-ary ASK	**9-7-19**	
23.	M-ary FSK	**11-7-19**	
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UNIT - III Data Transmission			

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25.	Baseband signal receiver	**15-7-19**	Lecture interspersed with discussions
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29.	Matched filter	**23,24-7-19**	
30.	Probability of error using Matched filter	**24-7-19**	
31.	Coherent reception	**25,29-7-19**	
32.	Non-coherent detection of FSK	**30-7-19**	
33.	Calculation of error probability of ASK	**31-7-19**	
34.	Calculation of error probability of BPSK	**1-8-19**	
35.	Calculation of error probability of BFSK	**3-8-19**	
36.	Calculation of error probability of QPSK	**3-8-19**	
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41.	Information rate	**19-8-19**	
42.	Mutual Information and its properties	**19-8-19**	
43.	Mutual Information and its properties	**20-8-19**	
UNIT –V Source Coding **CO5:: Learn the theorems governing the transmission of information over a noisy channel and perform the efficiency calculations.** **TB :: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.**			
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50.	Capacity of a Gaussian channel	**30-8-19**	
51.	Bandwidth-S/N trade-off	**3-9-19**	
UNIT - VI Linear Block Codes and Convolution Codes **CO6:: Perform channel coding using linear block codes, cyclic codes and convolution codes.** **TB :: 1. Communication Systems - Simon Haykin, John Wiley, 3/e.**			
52.	Introduction to Linear Block Codes	**6-9-19**	

53.	Matrix description of linear block codes	**9-9-19**	Lecture interspersed with discussions
54.	Error detection and correction capabilities of LBC	**16-9-19**	
55.	Hamming codes	**17-9-19**	
56.	Hamming codes	**18-9-19**	
57.	Binary cyclic codes	**19-9-19**	
58.	Binary cyclic codes	**19-9-19**	
59.	Algebraic structure	**20-9-19**	
60.	Encoding	**21-9-19**	
61.	Syndrome Calculation	**24-9-19**	
62.	BCH codes	**25-9-19**	
63.	Introduction to Convolution Codes	**25-9-19**	
64.	Encoding of convolution codes	**26-9-19**	
65.	Time-domain approach	**27-9-19**	
66.	Time-domain approach	**28-9-19**	
67.	Transform-domain approach	**30-9-19**	
68.	Graphical approach: State diagram	**30-9-19**	
69.	Graphical approach: State diagram	**30-9-19**	
70.	Tree and Trellis decoding using Viterbi Algorithm	**1-10-19**	
71.	Tree and Trellis decoding using Viterbi Algorithm	**1-10-19**	

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ENIKEPADU, VIJAYAWADA-521 108

TENTATIVELESSON PLAN: R1631045
ANTENNAS AND WAVE PROPAGATION

Course Title: ANTENNAS AND WAVE PROPAGATION		
Section : Sec I	Date : 08/06/2019	Page No : 01 of 04
Revision No : 00	Prepared By: T.MANOGNA	Approved By : HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-IANTENNA FUNDAMENTALS **CO1: Identify basic antenna parameters** **TB:"Antennas and Wave Propagation", K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.**			
1	Radiation Mechanism – single wire, 2 wire, dipoles	10-06-19	Lecture interspersed with discussions
2	Current Distribution on a thin wire antenna	11-06-19	
3	Antenna Parameters - Radiation Patterns	13-06-19	
4	Patterns in Principal Planes, Main Lobe and Side Lobes	14-06-19	
5	Beam widths, Polarization	15-06-19	
6	Beam Area, Radiation Intensity	17-06-19	
7	Beam Efficiency, Directivity	18-06-19	
8	Gain and Resolution	19-06-19	
9	Antenna Apertures, Aperture Efficiency	20-06-19	
10	Effective Height	21-06-19	
11	**Tutorial**	22-06-19	
UNIT-IITHIN LINEAR WIRE ANTENNAS **CO2: Design and analyze wire antennas and loop antennas&Quantify the fields radiated by various types of antennas** **TB: "Antennas and Wave Propagation", K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.**			
12	Retarded Potentials	24-06-19	
13	Radiation from Small Electric Dipole	25-06-19	
14	Quarter wave Monopole and Half wave Dipole	26-06-19	
15	Current Distributions, Evaluation of Field Components	27-06-19	
16	Power Radiated, Radiation Resistance, Beam widths, Directivity	28-06-19	
17	Effective Area and Effective Height	28-06-19	

No. of Periods	TOPIC	Date	Mode of Delivery
18	Natural current distributions	29-06-19	Lecture interspersed with discussions
19	fields and patterns of Thin Linear Center-fed Antennas of different lengths	02-07-19	
20	Radiation Resistance at a point which is not current maximum	03-07-19	
21	Antenna Theorems – Applicability and Proofs for equivalence of directional characteristics	04-07-19	
22	Loop Antennas: Small Loops - Field Components.	05-07-19	
23	Comparison of far fields of small loop and short dipole	06-07-19	
24	Concept of short magnetic dipole, D and Rr relations for small loops	08-07-19	
25	**Tutorial**	09-07-19	
UNIT-III ANTENNA ARRAYS **CO3: Design and analyze antenna arrays** **TB: "Antennas and Wave Propagation", K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.**			
26	2 element arrays – different cases	11-07-19	Lecture interspersed with discussions
27	Principle of Pattern Multiplication	12-07-19	
28	N element Uniform Linear Arrays – Broadside, End- fire Arrays	15-07-19	
29	EFA with Increased Directivity	16-07-19	
30	Derivation of their characteristics and comparison	17-07-19	
31	Concept of Scanning Arrays. Directivity Relations (no derivations).	18-07-19	
32	Binomial Arrays	19-07-19	
33	Effects of Uniform and Non-uniform Amplitude Distributions, Design Relations	22-07-19	
34	Arrays with Parasitic Elements, Yagi-Uda Arrays	24-07-19	
35	Folded Dipoles and their characteristics.	26-07-19	
36	**Tutorial**	26-07-19	
UNIT-IV NON-RESONANT RADIATORS **CO4: Design and analyze long wire antennas,microstrip antennas and helical antennas** **TB: "Antennas and Wave Propagation", K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.**			
37	Introduction, Traveling wave radiators– basic concepts	27-07-19	
38	Long wire antennas – field strength calculations and patterns	29-08-19	
39	Microstrip Antennas-Introduction, Features, Advantages and Limitations	31-08-19	

No. of Periods	TOPIC	Date	Mode of Delivery
40	Rectangular Patch Antennas –Geometry and Parameters, Impact of different parameters on characteristics	01-08-19	Lecture interspersed with discussions
41	Helical Antennas – Significance, Geometry, basic properties	02-08-19	
42	Design considerations for monofilar helical antennas in Axial Mode and Normal Modes (Qualitative Treatment).	14-08-19	
43	**Tutorial**	16-08-19	
UNIT-V VHF, UHF AND MICROWAVE ANTENNAS **CO5: Design and analyzereflector antennas, lens antennas, horn antennas andAnalyze antenna measurements to assess antenna's performance** **TTB: "Antennas and Wave Propagation", K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.**			
44	Reflector Antennas: Flat Sheet and Corner Reflectors	17-08-19	Lecture interspersed with discussions
45	Paraboloidal Reflectors – Geometry, characteristics, types of feeds	18-08-19	
46	F/D Ratio, Spill Over, Back Lobes, Aperture Blocking	19-08-19	
47	Off-set Feeds, Cassegrain Feeds	20-08-19	
48	Horn Antennas – Types, Optimum Horns	21-08-19	
49	Design Characteristics of Pyramidal Horns	22-08-19	
50	Lens Antennas – Geometry, Features	23-08-19	
51	Dielectric Lenses and Zoning, Applications	23-08-19	
52	Antenna Measurements – Patterns Required, Set Up, Distance Criterion	24-08-19	
53	Directivity and Gain Measurements (Comparison, Absolute and 3-Antenna Methods).	25-08-19	
54	**Tutorial**	26-08-19	
UNIT-VI WAVE PROPAGATION **CO6: Identify the characteristics of radio wave propagation.** **TB: "Antennas and Wave Propagation", K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.**			
55	Concepts of Propagation – frequency range	27-08-19	
56	Types of propagation	30-08-19	
57	Ground Wave Propagation–Characteristics, Parameters	31-08-19	
58	Wave Tilt, Flat and Spherical Earth Considerations	05-09-19	
59	Formation of Ionospheric Layers and their Characteristics	06-09-19	

No. of Periods	TOPIC	Date	Mode of Delivery
60	Mechanism of Reflection and Refraction	14-09-19	Lecture interspersed with discussions
61	Critical Frequency, MUF, Skip Distance	15-09-19	
62	Calculations for flat and spherical earth cases	16-09-19	
63	Optimum Frequency, LUHF, Virtual Height	17-09-19	
64	Ionosphere Abnormalities	18-09-19	
65	Ionosphere Absorption	19-09-19	
66	Fundamental Equation for Free Space Propagation	21-09-19	
67	Basic Transmission Loss Calculations, Space Wave Propagation	22-09-19	
68	LOS and Radio Horizon	23-09-19	
69	Tropospheric Wave Propagation – Radius of Curvature of path	24-09-19	
70	Effective Earth's Radius, Effect of Earth's Curvature	25-09-19	
71	Field Strength Calculations, M-curves	26-09-19	
72	Duct Propagation, Tropospheric Scattering	27-09-19	
73	**Tutorial**	28-09-19	

Signature of faculty

S. Sri Gowri
Signature of HOD

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TENTATIVELESSON PLAN: R1631045
ANTENNAS AND WAVE PROPAGATION

Course Title: ANTENNAS AND WAVE PROPAGATION		
Section : Sec II	Date : 11/6/2018	Page No : 01 of 04
Revision No : 00	Prepared By: T.MANOGNA	Approved By : HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
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2	Current Distribution on a thin wire antenna	11-06-19	
3	Antenna Parameters - Radiation Patterns	12-06-19	
4	Patterns in Principal Planes, Main Lobe and Side Lobes	14-06-19	
5	Beam widths, Polarization	15-06-19	
6	Beam Area, Radiation Intensity	17-06-19	
7	Beam Efficiency, Directivity	18-06-19	
8	Gain and Resolution	19-06-19	
9	Antenna Apertures, Aperture Efficiency	20-06-19	
10	Effective Height	21-06-19	
11	**Tutorial**	22-06-19	
UNIT-IITHIN LINEAR WIRE ANTENNAS **CO2: Design and analyze wire antennas and loop antennas&Quantify the fields radiated by various types of antennas** **TB: "Antennas and Wave Propagation", K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.**			
12	Retarded Potentials	24-06-19	Lecture interspersed with discussions
13	Radiation from Small Electric Dipole	25-06-19	
14	Quarter wave Monopole and Half wave Dipole	26-06-19	
15	Current Distributions, Evaluation of Field Components	27-06-19	
16	Power Radiated, Radiation Resistance, Beam widths, Directivity	28-06-19	
17	Effective Area and Effective Height	28-06-19	

No. of Periods	TOPIC	Date	Mode of Delivery
18	Natural current distributions	29-06-19	
19	fields and patterns of Thin Linear Center-fed Antennas of different lengths	02-07-19	
20	Radiation Resistance at a point which is not current maximum	03-07-19	
21	Antenna Theorems – Applicability and Proofs for equivalence of directional characteristics	04-07-19	
22	Loop Antennas: Small Loops - Field Components.	05-07-19	
23	Comparison of far fields of small loop and short dipole	06-07-19	
24	Concept of short magnetic dipole, D and Rr relations for small loops	08-07-19	
25	**Tutorial**	09-07-19	
UNIT-III ANTENNA ARRAYS **CO3: Design and analyze antenna arrays** **TB: "Antennas and Wave Propagation", K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.**			
26	2 element arrays – different cases	11-07-19	Lecture interspersed with discussions
27	Principle of Pattern Multiplication	12-07-19	
28	N element Uniform Linear Arrays – Broadside, End- fire Arrays	15-07-19	
29	EFA with Increased Directivity	16-07-19	
30	Derivation of their characteristics and comparison	17-07-19	
31	Concept of Scanning Arrays. Directivity Relations (no derivations). Related Problems	18-07-19	
32	Binomial Arrays	19-07-19	
33	Effects of Uniform and Non-uniform Amplitude Distributions, Design Relations	22-07-19	
34	Arrays with Parasitic Elements, Yagi-Uda Arrays	24-07-19	
35	Folded Dipoles and their characteristics.	26-07-19	
36	**Tutorial**	26-07-19	
UNIT-IV NON-RESONANT RADIATORS **CO4: Design and analyze long wire antennas,microstrip antennas and helical antennas** **TB: "Antennas and Wave Propagation", K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.**			
37	Introduction, Traveling wave radiators– basic concepts	27-07-19	
38	Long wire antennas – field strength calculations and patterns	29-08-19	
39	Microstrip Antennas-Introduction, Features, Advantages and Limitations	31-08-19	

No. of Periods	TOPIC	Date	Mode of Delivery
40	Rectangular Patch Antennas –Geometry and Parameters, Impact of different parameters on characteristics	01-08-19	Lecture interspersed with discussions
41	Helical Antennas – Significance, Geometry, basic properties	02-08-19	
42	Design considerations for monofilar helical antennas in Axial Mode and Normal Modes (Qualitative Treatment).	14-08-19	
43	**Tutorial**	14-08-19	
UNIT-V VHF, UHF AND MICROWAVE ANTENNAS **CO5: Design and analyze reflector antennas, lens antennas, horn antennas and Analyze antenna measurements to assess antenna's performance** **TTB: "Antennas and Wave Propagation", K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.**			
44	Reflector Antennas: Flat Sheet and Corner Reflectors	16-08-19	Lecture interspersed with discussions
45	Paraboloidal Reflectors – Geometry, characteristics, types of feeds	17-08-19	
46	F/D Ratio, Spill Over, Back Lobes, Aperture Blocking	18-08-19	
47	Off-set Feeds, Cassegrain Feeds	19-08-19	
48	Horn Antennas – Types, Optimum Horns	20-08-19	
49	Design Characteristics of Pyramidal Horns	21-08-19	
50	Lens Antennas – Geometry, Features	22-08-19	
51	Dielectric Lenses and Zoning, Applications	23-08-19	
52	Antenna Measurements – Patterns Required, Set Up, Distance Criterion	24-08-19	
53	Directivity and Gain Measurements (Comparison, Absolute and 3-Antenna Methods).	26-08-19	
54	**Tutorial**	26-08-19	
UNIT-VI WAVE PROPAGATION **CO6: Identify the characteristics of radio wave propagation.** **TB: "Antennas and Wave Propagation", K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.**			
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56	Types of propagation	30-08-19	
57	Ground Wave Propagation–Characteristics, Parameters	31-08-19	
58	Wave Tilt, Flat and Spherical Earth Considerations	05-09-19	
59	Formation of Ionospheric Layers and their Characteristics	06-09-19	

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61	Critical Frequency, MUF, Skip Distance	15-09-19	
62	Calculations for flat and spherical earth cases	16-09-19	
63	Optimum Frequency, LUHF, Virtual Height	17-09-19	
64	Ionospheric Abnormalities	18-09-19	
65	Ionospheric Absorption	19-09-19	
66	Fundamental Equation for Free Space Propagation	21-09-19	
67	Basic Transmission Loss Calculations, Space Wave Propagation	22-09-19	
68	LOS and Radio Horizon	23-09-19	
69	Tropospheric Wave Propagation – Radius of Curvature of path	24-09-19	
70	Effective Earth's Radius, Effect of Earth's Curvature	25-09-19	
71	Field Strength Calculations, M-curves	26-09-19	
72	Duct Propagation, Tropospheric Scattering	27-09-19	
73	**Tutorial**	28-09-19	

Signature of faculty

S. Sri Gouri
Signature of HOD

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TENTATIVE LESSON PLAN
RADAR SYSTEMS: R1641041

Course Title: RADAR SYSTEMS		
Section : Sec I	Date :10/6/2019	Page No : 01 of 03
Revision No : 00	Prepared By : N.V.K Maha Lakshmi	Approved By : HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I BASICS OF RADAR **CO1: Derive the radar range equation and to solve some analytical problems.** **TB: Introduction to Radar Systems – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed., 2007.**			
1	Introduction	10/6/19	Lecture interspersed with discussions
2	Maximum Unambiguous Range, simple Radar range Equation	11/6/19	
3	Radar Block Diagram and Operation	12/6/19	
4	Radar Frequencies and Applications	13/6/19	
5	Prediction of Range Performance	15/6/19	
6	Minimum Detectable Signal, Receiver Noise	17/6/19	
7	**Radar Equation:** Modified Radar Range Equation	18/6/19	
8	SNR, probability of detection	19/6/19	
9	probability of False Alarm, Integration of Radar Pulses	20/6/19	
10	Radar Cross Section of Targets (simple targets - sphere, cone-sphere)	22/6/19	
11	Creeping Wave, Transmitter Power	24/6/19	
12	PRF and Range Ambiguities	25/6/19	
13	System Losses (qualitative treatment)	26/6/19	
14	Illustrative Problems	27/6/19	
UNIT-II CW AND FREQUENCY MODULATED RADAR **CO2: Understand the working of different types of radars and its applications; CW and FMCW radars** **TB: Introduction to Radar Systems – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed., 2007.**			
15	Doppler Effect	29/6/19	
16	CW Radar – Block Diagram	1/7/19	
17	Isolation between Transmitter and Receiver	2/7/19	
18	Non-zero IF Receiver	3/7/19	
19	Receiver Bandwidth Requirements, Applications of CW radar	4/7,6/7/19	

No. of Periods	TOPIC	Date	Mode of Delivery
20	**FM-CW Radar:** Range and Doppler Measurement	8/7,9/7/19	Lecture interspersed with discussions
21	Block Diagram and Characteristics	10/7,11//7/19	
22	FM-CW altimeter	13/7/19	
23	Multiple Frequency CW Radar	15/7/19	
24	Illustrative Problems	16/7,17/7/19	
UNIT-III MTI AND PULSE DOPPLER RADAR **CO3: Understand the working of different types of radars and its applications; MTI and pulse Doppler radars** **TB: Introduction to Radar Systems – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed.2007**			
25	Introduction, Principle	18/7/19	Lecture interspersed with Discussions
26	MTI Radar with - Power Amplifier Transmitter and Power Oscillator Transmitter	20/7,22/7/19	
27	Delay Line Cancellers – Filter Characteristics	23/7/19	
28	Blind Speeds, Double Cancellation	24/7/19	
29	N th Cancellation Staggered PRFs	25/7/19	
30	Range Gated Doppler Filters, MTI Radar Parameters	27/7,29/7/19	
31	Limitations to MTI Performance	30/7,31/7/19	
32	MTI versus Pulse Doppler Radar	1/8/19	
33	Illustrative Problems	3/8/19	
UNIT-IV TRACKING RADAR **CO4: Understand the concept of tracking and different tracking techniques.** **TB: Introduction to Radar Systems – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed., 2007**			
34	Tracking with Radar, Sequential Lobing	13/8,14/8/19	Lecture interspersed with discussions
35	Conical Scan, Mono pulse Tracking Radar	17/8,19/8/19	
36	Amplitude Comparison Mono pulse (one- and two- coordinates)	20/8,21/8/19	
37	Phase Comparison Mono pulse	24/8,26/8/19	
38	Tracking in Range, Acquisition and Scanning Patterns	27/8,28/8/19	
39	Comparison of Trackers	29/8,30//8/19	
UNIT-V DETECTION OF RADAR SIGNALS IN NOISE **CO5: Understand the characteristics of a matched filter receiver and its Performance.** **TB: Introduction to Radar Systems – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed., 2007**			
40	Introduction, Matched Filter Receiver – Response Characteristics and Derivation	31/8,3/9,4/9/19	Lecture interspersed with discussions
41	Correlation detection and Cross-correlation Receiver	5/9,7/9/19	
42	Efficiency of Non-matched Filters	9/9,11/9/19	
43	Matched Filter with Non-white Noise	12/9,14/9/19	

No. of Periods	TOPIC	Date	Mode of Delivery
44	Noise Figure and Noise Temperature	16/9,17/9/19	
45	Illustrative Problems	18/9/19	
UNIT-VI RADAR RECEIVERS **CO6: Understand the various components of radar receiver and its performance.** **TB: Introduction to Radar Systems – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed., 2007**			
46	Displays – types	19/9/19	Lecture interspersed with discussions
47	Duplexers – Branch type and Balanced type	21/9,23/9/19	
48	Circulators as Duplexers	24/9/19	
49	Introduction to Phased Array Antennas – Basic Concepts	25/9/19	
50	Radiation Pattern, Beam Steering and Beam Width changes	26/9,28/9/19	
51	Series versus parallel feeds	30/9,1/10//19	
52	Applications, Advantages and Limitations	3/10,4/10/19	
53	Radomes	5/10/19	

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TENTATIVE LESSON PLAN
RADAR SYSTEMS: R1641041

Course Title: RADAR SYSTEMS		
Section : Sec II	**Date :10/6/2019**	**Page No : 01 of 03**
Revision No : 00	**Prepared By : N.V.K Maha Lakshmi**	**Approved By : HOD**

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I BASICS OF RADAR **CO1: Derive the radar range equation and to solve some analytical problems.** **TB: Introduction to Radar Systems – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed., 2007.**			
1	Introduction	10/6/19	Lecture interspersed with discussions
2	Maximum Unambiguous Range, simple Radar range Equation	11/6/19	
3	Radar Block Diagram and Operation	11/6/19	
4	Radar Frequencies and Applications	14/6/19	
5	Prediction of Range Performance	15/6/19	
6	Minimum Detectable Signal, Receiver Noise	17/6/19	
7	**Radar Equation:** Modified Radar Range Equation	18/6/19	
8	SNR, probability of detection	18/6/19	
9	probability of False Alarm, Integration of Radar Pulses	21/6/19	
10	Radar Cross Section of Targets (simple targets - sphere, cone-sphere)	22/6/19	
11	Creeping Wave, Transmitter Power	24/6/19	
12	PRF and Range Ambiguities	25/6/19	
13	System Losses (qualitative treatment)	25/6/19	
14	Illustrative Problems	28/6/19	
UNIT-II CW AND FREQUENCY MODULATED RADAR **CO2: Understand the working of different types of radars and its applications; CW and FMCW radars** **TB: Introduction to Radar Systems – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed., 2007.**			
15	Doppler Effect	29/6/19	
16	CW Radar – Block Diagram	1/7/19	
17	Isolation between Transmitter and Receiver	2/7/19	
18	Non-zero IF Receiver	2/7/19	
19	Receiver Bandwidth Requirements, Applications of CW radar	5/7,6/7/19	

No. of Periods	TOPIC	Date	Mode of Delivery
20	**FM-CW Radar:** Range and Doppler Measurement	8/7,9/7/19	Lecture interspersed with discussions
21	Block Diagram and Characteristics	9/7,12//7/19	
22	FM-CW altimeter	13/7/19	
23	Multiple Frequency CW Radar	15/7/19	
24	Illustrative Problems	16/7,16/7/19	
UNIT-III MTI AND PULSE DOPPLER RADAR **CO3: Understand the working of different types of radars and its applications; MTI and pulse Doppler radars** **TB: Introduction to Radar Systems – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed.2007**			
25	Introduction, Principle	19/7/19	Lecture interspersed with Discussions
26	MTI Radar with - Power Amplifier Transmitter and Power Oscillator Transmitter	20/7,22/7/19	
27	Delay Line Cancellers – Filter Characteristics	23/7/19	
28	Blind Speeds, Double Cancellation	23/7/19	
29	N th Cancellation Staggered PRFs	26/7/19	
30	Range Gated Doppler Filters, MTI Radar Parameters	27/7,29/7/19	
31	Limitations to MTI Performance	30/7,30/7/19	
32	MTI versus Pulse Doppler Radar	2/8/19	
33	Illustrative Problems	3/8/19	
UNIT-IV TRACKING RADAR **CO4: Understand the concept of tracking and different tracking techniques.** **TB: Introduction to Radar Systems – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed., 2007**			
34	Tracking with Radar, Sequential Lobing	13/8,13/8/19	Lecture interspersed with discussions
35	Conical Scan, Mono pulse Tracking Radar	16/8,17/8/19	
36	Amplitude Comparison Mono pulse (one- and two- coordinates)	19/8,20/8/19	
37	Phase Comparison Mono pulse	20/8,24/8/19	
38	Tracking in Range, Acquisition and Scanning Patterns	26/8,27/8/19	
39	Comparison of Trackers	27/8,30//8/19	
UNIT-V DETECTION OF RADAR SIGNALS IN NOISE **CO5: Understand the characteristics of a matched filter receiver and its Performance.** **TB: Introduction to Radar Systems – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed., 2007**			
40	Introduction, Matched Filter Receiver – Response Characteristics and Derivation	31/8,3/9,3/9/19	Lecture interspersed with discussions
41	Correlation detection and Cross-correlation Receiver	6/9,7/9/19	
42	Efficiency of Non-matched Filters	9/9,13/9/19	
43	Matched Filter with Non-white Noise	14/9/19	

No. of Periods	TOPIC	Date	Mode of Delivery
44	Noise Figure and Noise Temperature	16/9,17/9/19	
45	Illustrative Problems	17/9/19	
UNIT-VI RADAR RECEIVERS **CO6: Understand the various components of radar receiver and its performance.** **TB: Introduction to Radar Systems – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed., 2007**			
46	Displays – types	20/9/19	Lecture interspersed with discussions
47	Duplexers – Branch type and Balanced type	21/9,23/9/19	
48	Circulators as Duplexers	24/9/19	
49	Introduction to Phased Array Antennas – Basic Concepts	24/9/19	
50	Radiation Pattern, Beam Steering and Beam Width changes	27/9,28/9/19	
51	Series versus parallel feeds	30/9,1/10//19	
52	Applications, Advantages and Limitations	1/10,4/10/19	
53	Radomes	5/10/19	

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TENTATIVE PLAN: R1641042

Course Title: DIGITAL IMAGE PROCESSING (R1641042)		
Section : A	Date : 6.11.2019	Page No : 01 of 04
Revision No : 00	Prepared By : A.V.P.Sarvari	Approved By : HOD

Tools : Black board, PPTs, Moodle

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I	**INTRODUCTION AND IMAGE TRANSFORMS**		
CO1: Student can perform different transforms on images useful for image processing applications.			
TB: R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, prentice Hall, 2008.			
1.	**INTRODUCTION**	10.6.2019	Lecture interspersed with discussions
2.	Fundamental steps in digital image processing	11.6.2019	
3.	Components of an image processing system	12.6.2019	
4.	Image sensing and acquisition	13.6.2019	
5.	Image sampling and quantization	15.6.2019	
6.	Some basic relationships between pixels	17.6.2019	
7.	An introduction to the mathematical tools used in digital image processing	18.6.2019	
	IMAGE TRANSFORMS		
8.	Need for image transforms	19.6.2019	
9.	Discrete Fourier transform of one variable	20.6.2019	
10.	Extension to functions of two variables	22.6.2019	
11.	Some properties of the 2-D DFT	24.6.2019	
12.	Importance of phase	25.6.2019	
13.	Discrete cosine transform	27.6.2019	
14.	Walsh transform	1.7.2019	
15.	Hadamard transform	2.7.2019	
16.	Haar transform	3.7.2019	
17.	Slant transforms	4.7.2019	
18.	SVD and KL transforms or hotelling transform	6.7.2019	
19.	Radon transform	8.7.2019	
20.	Comparision of different image transforms	9.7.2019	
21.	**Tutorial**	10.7.2019	
UNIT – II INTENSITY TRANSFORMATIONS AND SPATIAL FILTERING, FILTERING IN THE FREQUENCY DOMAIN			
CO2: Able to perform spatial and frequency domain filtering on image and can implement all smoothing and sharpening operations on images.			
TB: R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, prentice Hall, 2008.			
22.	Background	11.7.2019	Lecture interspersed with discussions
23.	Some basic intensity transformation functions	15.7.2019	
24.	Histogram processing	16.7.2019	
25.	Fundamentals of spatial filtering	17.7.2019	
26.	Smoothing spatial filters	18.7.2019	

TENTATIVE PLAN: R1641042

Course Title: DIGITAL IMAGE PROCESSING (R1641042)		
Section : A	Date : 6.11.2019	Page No : 02 of 04
Revision No : 00	Prepared By : A.V.P.Sarvari	Approved By : HOD

Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
27.	Sharpening spatial filters Combining spatial enhancement methods	20.7.2019	Lecture interspersed with discussions
28.	Preliminary concepts	22.7.2019	
29.	The basic of filtering in the frequency domain	23.7.2019	
30.	Image smoothing using frequency domain filters	24.7.2019	
31.	Image sharpening using frequency domain filters	25.7.2019	
32.	Selective filtering	27.7.2019	
33.	**Tutorial**	29.7.2019	
UNIT –III IMAGE RESTORATION AND RECONSTRUCTION **CO3: Student can perform image restoration operations/techniques on images.** **TB: R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, prentice Hall, 2008.**			
34.	A model of the image degradation/restoration process	30.7.2019	Lecture interspersed with discussions
35.	Noise models	31.7.2019	
36.	Restoration in the presence of noise only spatial filtering	1.8.2019	
37.	Periodic noise reduction by frequency domain filtering	3.8.2019	
38.	Linear, position invariant degradations	13.8.2019	
39.	Estimation the degradation function	14.8.2019	
40.	Inverse filtering		
41.	Minimum mean square error (mean) filtering	17.8.2019	
42.	Constrained least squares filtering	19.8.2019	
43.	Geometric mean filtering	20.8.2019	
44.	Image reconstruction from projections		
45.	**Tutorial**	21.8.2019	
UNIT – IV WAVELETS AND MULTI-RESOLUTION PROCESSING, IMAGE COMPRESSION **CO5: Student can understand wavelet based image processing and image compression using Wavelets.** **TB: R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, prentice Hall, 2008.**			
46.	Fundamentals	22.8.2019	Lecture interspersed with discussions
47.	Basic compression methods: Huffman coding		
48.	Golomb coding	24.8.2019	
49.	Arithmetic coding	26.8.2019	
50.	LZW coding	27.8.2019	
51.	Run length coding	28.8.2019	
52.	Symbol based coding	29.8.2019	

TENTATIVE PLAN: R1641042

Course Title: DIGITAL IMAGE PROCESSING (R1641042)		
Section : A	Date : 6.11.2019	Page No : 03 of 04
Revision No : 00	Prepared By : A.V.P.Sarvari	Approved By : HOD

Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
53.	Bit plane coding	31.8.2019	Lecture interspersed with discussions
54.	Block transform coding	3.9.2019	
55.	Predictive coding	4.9.2019	
56.	Image pyramids		
57.	Sub band coding	5.9.2019	
58.	Multi resolution expressions		
59.	Wavelet transforms in one dimensions	7.9.2019	
60.	Wavelet transforms in two dimensions	9.9.2019	
61.	Wavelet coding		
62.	**Tutorial**	10.9.2019	
UNIT - V MORPHOLOGICAL IMAGE PROCESSING, IMAGE SEGMENTATION **CO6 : Student can perform all morphological operations on images and can be able to do image segmentation also.** **TB : R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, prentice Hall, 2008.**			
63.	Fundamentals	11.9.2019	Lecture interspersed with discussions
64.	Point, line, edge detection		
65.	Thresholding	12.9.2019	
66.	Region based segmentation	16.9.2019	
67.	Preliminaries	17.9.2019	
68.	Erosion and dilation	18.9.2019	
69.	Opening and closing	19.9.2019	
70.	Basic morphological algorithms for boundary extraction		
71.	Thinning	20.9.2019	
72.	Grey scale morphology		
73.	Segmentation using morphological watersheds	21.9.2019	
74.	**Tutorial**	24.9.2019	
UNIT - VI COLOR IMAGE PROCESSING **CO4: Able to operate effectively on color images and different color conversions on images and can code images to achieve good compression.** **TB: R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, prentice Hall, 2008.**			
75.	Color fundamentals	25.9.2019	Lecture interspersed with discussions
76.	Color models		
77.	Pseudo color image processing	26.9.2019	
78.	Basic of full color image processing	28.9.2019	

TENTATIVE PLAN: R1641042

Course Title: DIGITAL IMAGE PROCESSING (R1641042)		
Section : A	**Date : 6.11.2019**	**Page No :** 04 of 04
Revision No : 00	**Prepared By : A.V.P.Sarvari**	**Approved By : HOD**

Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
79.	Color transformations	30.9.2019	Lecture interspersed with discussions
80.	Smoothing and sharpening		
81.	Image segmentation based on color	1.10.2019	
82.	Noise in color images	2.10.2019	
83.	Color image compression		
84.	**Tutorial**	3.10.2019	

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TENTATIVE PLAN: R1641042

Course Title: DIGITAL IMAGE PROCESSING (R1641042)		
Section : B	Date : 6.11.2019	Page No : 01 of 04
Revision No : 00	Prepared By : A.V.P.Sarvari	Approved By : HOD

Tools : Black board, PPTs, Moodle

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I	**INTRODUCTION AND IMAGE TRANSFORMS**		
CO1: Student can perform different transforms on images useful for image processing applications.			
TB: R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, prentice Hall, 2008.			
1.	**INTRODUCTION**	10.6.2019	Lecture interspersed with discussions
2.	Fundamental steps in digital image processing	11.6.2019	
3.	Components of an image processing system	12.6.2019	
4.	Image sensing and acquisition	13.6.2019	
5.	Image sampling and quantization	14.6.2016	
6.	Some basic relationships between pixels	15.6.2019	
7.	An introduction to the mathematical tools used in digital image processing	17.6.2019	
	IMAGE TRANSFORMS		
8.	Need for image transforms	18.6.2019	
9.	Discrete Fourier transform of one variable	19.6.2019	
10.	Extension to functions of two variables	20.6.2019	
11.	Some properties of the 2-D DFT	21.6.2019	
12.	Importance of phase	22.6.2019	
13.	Discrete cosine transform	24.6.2019	
14.	Walsh transform	25.6.2019	
15.	Hadamard transform	27.6.2019	
16.	Haar transform	28.6.2019	
17.	Slant transforms	1.7.2019	
18.	SVD and KL transforms or hotelling transform	2.7.2019	
19.	Radon transform	3.7.2019	
20.	Comparision of different image transforms	4.7.2019	
21.	**Tutorial**	5.7.2019	
UNIT – II INTENSITY TRANSFORMATIONS AND SPATIAL FILTERING, FILTERING IN THE FREQUENCY DOMAIN			
CO2: Able to perform spatial and frequency domain filtering on image and can implement all smoothing and sharpening operations on images.			
TB: R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, prentice Hall, 2008.			
22.	Background	6.7.2019	Lecture interspersed with discussions
23.	Some basic intensity transformation functions	8.7.2019	
24.	Histogram processing	9.7.2019	
25.	Fundamentals of spatial filtering	10.7.2019	
26.	Smoothing spatial filters	11.7.2019	

TENTATIVE PLAN: R1641042

Course Title: DIGITAL IMAGE PROCESSING (R1641042)		
Section : B	Date : 6.11.2019	Page No : 02 of 04
Revision No : 00	Prepared By : A.V.P.Sarvari	Approved By : HOD

Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
27.	Sharpening spatial filters Combining spatial enhancement methods	12.7.2019	Lecture interspersed with discussions
28.	Preliminary concepts	15.7.2019	
29.	The basic of filtering in the frequency domain	16.7.2019	
30.	Image smoothing using frequency domain filters	17.7.2019	
31.	Image sharpening using frequency domain filters	18.7.2019	
32.	Selective filtering	19.7.2019	
33.	**Tutorial**	20.7.2019	
UNIT –III IMAGE RESTORATION AND RECONSTRUCTION **CO3: Student can perform image restoration operations/techniques on images.** **TB: R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, prentice Hall, 2008.**			
34.	A model of the image degradation/restoration process	22.7.2019	Lecture interspersed with discussions
35.	Noise models	23.7.2019	
36.	Restoration in the presence of noise only spatial filtering	24.7.2019	
37.	Periodic noise reduction by frequency domain filtering	25.7.2019	
38.	Linear, position invariant degradations	26.7.2019	
39.	Estimation the degradation function	27.7.2019	
40.	Inverse filtering	29.7.2019	
41.	Minimum mean square error (mean) filtering	30.7.2019	
42.	Constrained least squares filtering	31.7.2019	
43.	Geometric mean filtering	1.8.2019	
44.	Image reconstruction from projections	2.8.2019	
45.	**Tutorial**	3.8.2019	
UNIT – IV WAVELETS AND MULTI-RESOLUTION PROCESSING, IMAGE COMPRESSION **CO5: Student can understand wavelet based image processing and image compression using Wavelets.** **TB: R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, prentice Hall, 2008.**			
46.	Fundamentals	13.8.2019	Lecture interspersed with discussions
47.	Basic compression methods: Huffman coding	14.8.2019	
48.	Golomb coding	16.8.2019	
49.	Arithmetic coding	17.8.2019	
50.	LZW coding	19.8.2019	
51.	Run length coding	20.8.2019	
52.	Symbol based coding	21.8.2019	

TENTATIVE PLAN: R1641042

Course Title: DIGITAL IMAGE PROCESSING (R1641042)		
Section : B	Date : 6.11.2019	Page No : 03 of 04
Revision No : 00	Prepared By : A.V.P.Sarvari	Approved By : HOD

Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
53.	Bit plane coding	22.8.2019	Lecture interspersed with discussions
54.	Block transform coding	24.8.2019	
55.	Predictive coding	26.8.2019	
56.	Image pyramids	27.8.2019	
57.	Sub band coding	28.8.2019	
58.	Multi resolution expressions	29.8.2019	
59.	Wavelet transforms in one dimensions	30.8.2019	
60.	Wavelet transforms in two dimensions	31.8.2019	
61.	Wavelet coding	3.9.2019	
62.	Tutorial	4.9.2019	
UNIT - V MORPHOLOGICAL IMAGE PROCESSING, IMAGE SEGMENTATION **CO6 : Student can perform all morphological operations on images and can be able to do image segmentation also.** **TB : R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, prentice Hall, 2008.**			
63.	Fundamentals	5.9.2019	Lecture interspersed with discussions
64.	Point, line, edge detection	6.9.2019	
65.	Thresholding	7.9.2019	
66.	Region based segmentation	9.9.2019	
67.	Preliminaries	10.9.2019	
68.	Erosion and dilation	11.9.2019	
69.	Opening and closing	12.9.2019	
70.	Basic morphological algorithms for boundary extraction	13.9.2019	
71.	Thinning	16.9.2019	
72.	Grey scale morphology	17.9.2019	
73.	Segmentation using morphological watersheds	18.9.2019	
74.	Tutorial	19.9.2019	
UNIT - VI COLOR IMAGE PROCESSING **CO4: Able to operate effectively on color images and different color conversions on images and can code images to achieve good compression.** **TB: R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, prentice Hall, 2008.**			
75.	Color fundamentals	20.9.2019	Lecture interspersed with discussions
76.	Color models	21.9.2019	
77.	Pseudo color image processing	24.9.2019	
78.	Basic of full color image processing	25.9.2019	

TENTATIVE PLAN: R1641042

Course Title: DIGITAL IMAGE PROCESSING (R1641042)		
Section : B	Date : 6.11.2019	Page No : 04 of 04
Revision No : 00	Prepared By : A.V.P.Sarvari	Approved By : HOD

Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
79.	Color transformations	26.9.2019	Lecture interspersed with discussions
80.	Smoothing and sharpening	27.9.2019	
81.	Image segmentation based on color	28.9.2019	
82.	Noise in color images	30.9.2019	
83.	Color image compression	1.10.2019	
84.	Tutorial	3.10.2019	

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TENTATIVE LESSON PLAN: R1641043

Course Title: COMPUTER NETWORKS (R1641043)		
Section : Sec A	Date : 10/6/19	Page No : 01 of 03
Revision No : 00	Prepared By : G.SURYA PRAKASH	Approved By : HOD

Tools: Black board, power-point presentation

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I INTRODUCTION			
CO1:: Understand various network topologies required for communication, network architecture and some example networks.			
TB :: 1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.			
2. Data Communications and Networking – Behrouz A. Forouzan.Third Edition TMH.			
1	Introduction	**11-06-19**	Lecture interspersed with discussions
2	OSI	**26-06-19**	
3	TCP/IP	**26-06-19**	
4	Other Network Models	**01-07-19**	
5	Examples of Networks: Novell Networks	**01-07-19**	
6	Arpanet, Internet	**24-06-19**	
8	Network Topologies	**24-06-19**	
9	WAN, LAN, MAN	**03-07-19**	
10	Tutorial-Classification of Networks	**01-07-19**	
UNIT –II PHYSICAL LAYER			
CO1:: Understand the physical layer processes such as switching and encoding and the behavior of various transmission media,.			
TB :: 1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.			
2. Data Communications and Networking – Behrouz A. Forouzan, Third Edition TMH.			
3. Data Communications and Networks – Achyut.S.Godbole, TMH.			
11	Transmission media, Copper	**03-07-19**	Lecture interspersed with discussions
12	Twisted Pair Wireless	**03-07-19**	
13	Switching and Encoding	**04-07-19**	
14	Asynchronous Communications	**05-07-19**	
15	Data Link layer Introduction, Error Detection & Correction, CRC	**10-07-19**	
16	ATM-Tutorial	**07-07-19**	
UNIT - III DATA LINK LAYER			
CO3:: Understand the general principles behind addressing, reliable transmission and other MAC protocols and basics of Ethernet.			
TB :: 1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.			
2. Data Communications and Networking – Behrouz A. Forouzan, Third Edition TMH.			
17	Introduction, Design Issues	**11-07-19**	Lecture interspersed with discussions
18	Framing	**12-07-19**	
19	Elementary Protocol-stop and wait	**12-07-19**	
20	Sliding Window	**20-07-19**	
UNIT –IV MEDIUM ACCESS CONTROL SUBLAYER			

UNIT –IV MEDIUM ACCESS CONTROL SUBLAYER

CO4:: Understand the general principles behind addressing, routing, reliable transmission and other MAC protocols with specific examples.

TB :: 1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.
2. Data Communications and Networking – Behrouz A. Forouzan, Third Edition TMH.

21	MAC Sub Layer: ALOHA	**20-08-19**	Lecture interspersed with discussions
22	Carrier Sense Multiple Access	**21-18-19**	
23	Ethernet-Classic Ethernet Physical Layer-Classic Ethernet MAC Sub layer Protocol-Ethernet Performance	**27-08-19**	
24	Wireless Lans-The 802.11 Architecture and Protocol Stack-The 802.11 Physical Layer	**28-08-19**	
25	The802.11 MAC Súb layer Protocol-The 805.11 Frame Structure-Services - Tutorial	**30-08-19**	

UNIT –V NETWORK LAYER

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

TB :: 1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.
2. Data Communications and Networking – Behrouz A. Forouzan, Third Edition TMH.

26	Virtual Circuit & Datagram Subnets	**10-09-19**	Lecture interspersed with discussions
27	Routing algorithms - Shortest Path Routing	**11-09-19**	
28	Flooding, Hierarchical routing	**12-09-19**	
29	Broad cast, Multi cast, Distance Vector routing	**12-09-19**	
30	Dynamic Routing - Broadcast routing	**13-09-19**	
31	Rotary for mobility	**13-09-19**	
32	Congestion Control Algorithms – General Principles of Congestion prevention policies.	**17-09-19**	
33	The Network layer in the internet	**19-09-19**	
34	The Network layer in the ATM Networks-Tutorial	**19-09-19**	
35	Tutorial	**20-09-19**	

UNIT –VI TRANSPORT LAYER & APPLICATION LAYER

CO6:: Understand the transport layer services and study the TCP and UDP protocols. Have an informed view of common Internet applications and protocols.

TB :: 1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.
2. Data Communications and Networking – Behrouz A. Forouzan, Third Edition TMH.

36	Transport Services	**21-09-19**	Lecture interspersed with discussions Lecture interspersed with discussions
37	Connection management	**24-09-19**	
38	TCP and UDP protocols	**25-09-19**	
39	TCP Congestion Control, Timer Management	**25-09-19**	
40	Domain name system	**26-09-19**	
41	Electronic Mail	**27-09-19**	
42	The World Web	**27-09-19**	
43	Multi Media.	**28-09-19**	
44	Tutorial	**28-09-19**	

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TENTATIVE LESSON PLAN: R1641043

Course Title: COMPUTER NETWORKS (R1641043)		
Section : Sec B	Date : 10/6/19	Page No : 01 of 03
Revision No : 00	Prepared By : G.SURYA PRAKASH	Approved By : HOD

Tools: Black board, power-point presentation

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I INTRODUCTION **CO1:: Understand various network topologies required for communication, network architecture and some example networks.** **TB :: 1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.** **2. Data Communications and Networking – Behrouz A. Forouzan.Third Edition TMH.**			
1	Introduction	**21,22-06-19**	Lecture interspersed with discussions
2	OSI	**26-06-19**	
3	TCP/IP	**27-06-19**	
4	Other Network Models	**01-07-19**	
5	Examples of Networks: Novell Networks	**01-07-19**	
6	Arpanet, Internet	**24-06-19**	
8	Network Topologies	**24-06-19**	
9	WAN, LAN, MAN	**01-07-19**	
10	Tutorial-Classification of Networks	**01-07-19**	
UNIT –II PHYSICAL LAYER **CO1:: Understand the physical layer processes such as switching and encoding and the behavior of various transmission media,.** **TB :: 1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.** **2. Data Communications and Networking – Behrouz A. Forouzan, Third Edition TMH.** **3. Data Communications and Networks – Achyut.S.Godbole, TMH.**			
11	Transmission media, Copper	**03-07-19**	Lecture interspersed with discussions
12	Twisted Pair Wireless	**03-07-19**	
13	Switching and Encoding	**04-07-19**	
14	Asynchronous Communications	**05-07-19**	
15	Data Link layer Introduction, Error Detection & Correction, CRC	**10-07-19**	
16	ATM-Tutorial	**10-07-19**	
UNIT - III DATA LINK LAYER **CO3:: Understand the general principles behind addressing, reliable transmission and other MAC protocols and basics of Ethernet.** **TB :: 1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.** **2. Data Communications and Networking – Behrouz A. Forouzan, Third Edition TMH.**			
17	Introduction, Design Issues	**11-07-19**	Lecture interspersed with discussions
18	Framing	**12-07-19**	
19	Elementary Protocol-stop and wait	**12-07-19**	
20	Sliding Window	**19-07-19**	

UNIT –IV MEDIUM ACCESS CONTROL SUBLAYER

CO4:: Understand the general principles behind addressing, routing, reliable transmission and other MAC protocols with specific examples.

TB :: 1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.
2. Data Communications and Networking – Behrouz A. Forouzan, Third Edition TMH.

21	MAC Sub Layer: ALOHA	16-08-19	Lecture interspersed with discussions
22	Carrier Sense Multiple Access	21-18-19	
23	Ethernet-Classic Ethernet Physical Layer-Classic Ethernet MAC Sub layer Protocol-Ethernet Performance	27-08-19	
24	Wireless Lans-The 802.11 Architecture and Protocol Stack-The 802.11 Physical Layer	28-08-19	
25	The802.11 MAC Sub layer Protocol-The 805.11 Frame Structure-Services - Tutorial	31-08-19	

UNIT –V NETWORK LAYER

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

TB :: 1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.
2. Data Communications and Networking – Behrouz A. Forouzan, Third Edition TMH.

26	Virtual Circuit & Datagram Subnets	11-09-19	Lecture interspersed with discussions
27	Routing algorithms - Shortest Path Routing	11-09-19	
28	Flooding, Hierarchical routing	12-09-19	
29	Broad cast, Multi cast, Distance Vector routing	12-09-19	
30	Dynamic Routing - Broadcast routing	13-09-19	
31	Rotary for mobility	13-09-19	
32	Congestion Control Algorithms – General Principles of Congestion prevention policies.	17-09-19	
33	The Network layer in the internet	19-09-19	
34	The Network layer in the ATM Networks-Tutorial	19-09-19	
35	Tutorial	19-09-19	

UNIT –VI TRANSPORT LAYER & APPLICATION LAYER

CO6:: Understand the transport layer services and study the TCP and UDP protocols. Have an informed view of common Internet applications and protocols.

TB :: 1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.
2. Data Communications and Networking – Behrouz A. Forouzan, Third Edition TMH.

36	Transport Services	22-09-19	Lecture interspersed with discussions Lecture interspersed with discussions
37	Connection management	24-09-19	
38	TCP and UDP protocols	25-09-19	
39	TCP Congestion Control, Timer Management	25-09-19	
40	Domain name system	26-09-19	
41	Electronic Mail	27-09-19	
42	The World Web	27-09-19	
43	Multi Media.	28-09-19	
44	Tutorial	28-09-19	

G. Soumya Reddy
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S. Sri Gouri
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TENTATIVE LESSON PLAN: R1641044
OPTICAL COMMUNICATIONS

Course Title: OPTICAL COMMUNICATIONS		
Section : Sec I	Date : 10/6/19	Page No : 1 to 4
Revision No : 00	Prepared By : P.Koteswara Rao	Approved By : HOD

Tools: Black board, PPTs

S.NO.	TOPIC	Date	Mode of Delivery
UNIT –I OVERVIEW OF OPTICAL FIBER COMMUNICATION **CO1: The necessary components required in modern Optical communications systems and build optical fiber experiments in the laboratory, and learn how to Calculate electromagnetic modes in waveguides** **TB : Optical Fiber Communications – Gerd Keiser, Mc Graw-Hill International edition, 3rd Edition, 2000**			
1	Overview of optical fiber communication- Historical development	**From: 10/06/2019 To: 29/06/2019**	Lecture interspersed with discussions
2	The general system,advantages of optical fiber communications		
3	Optical fiber waveguides- Introduction,Ray theory transmission		
4	Total Internal Reflection,Acceptance angle		
5	Numerical Aperture,skew rays		
6	Cylindrical fibers, modes ,v-number		
7	Mode coupling, Step Index fibers		
8	Graded Index fibers, Single mode fibers		
9	Cut off wavelength, Mode Field Diameter		
10	Effective Refractive Index, Related problems.		
11	**Tutorial**		

UNIT –II FIBER MATERIALS

CO2: The properties of optical fiber and the amount of light lost going through an Optical system, dispersion of optical fibers

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

12	Fiber materials:- Glass, Halide, Active glass	**From: 1/07/2019 To: 13/07/2019**	Lecture interspersed with discussions
13	Chalgenide glass, Plastic optical fibers		
14	Signal distortion in optical fibers- Attenuation,Absorption		
15	Scattering and Bending losses		
16	Core and Cladding losses, Information capacity determination		
17	Group delay, Types of Dispersion:- Material dispersion		
18	Wave-guide dispersion, Polarization-Mode dispersion		
19	Intermodal dispersion, Pulse broadening in Graded index		
20	Related problems		

UNIT –III OPTICAL FIBER CONNECTORS

CO3: To know the principles of single and multi-mode optical fiber connectors and their characteristics

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

21	Optical fiber Connectors-Connector types	**From: 15/7/2019 To: 03/08/2019**	Lecture interspersed with discussions
22	Single mode fiber connectors, Connector return loss		
23	Fiber Splicing- Splicing techniques		
24	Splicing single mode fibers, Fiber alignment & joint loss		
25	Multimode fiber joints, single mode fiber joints.		
26	**Tutorial**		
27	Revision		

UNIT –IV OPTICAL SOURCES AND DETECTORS

CO4: The working of semiconductor lasers, and analyze the operation of LEDs, laser diodes And also able to analyze the use of different types of photo detectors

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

28	Optical sources- LEDs, Structures	**From: 12/08/2019 To: 31/08/2019**	Lecture interspersed with discussions
29	Materials		
30	Quantum efficiency		
31	Power, Modulation, Power bandwidth product		
32	Injection Laser Diodes-Modes		
33	Threshold conditions, External quantum efficiency		
34	Laser diode rate equations		
35	Resonant frequencies		
36	Reliability of LED&ILD		
37	Optical detectors- Physical principles of PIN		
38	Physical principles of APD		
39	Detector response time, Temperature effect on Avalanche gain, Comparison of Photo detectors, Related problems		

UNIT – V SOURCE TO FIBER POWER LAUNCHING

CO5: To know the design of optical fiber communication and source to fiber power coupling.

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

40	Source to fiber power launching - Output patterns	**From: 02/09/2019 To: 14/09/2019**	Lecture interspersed with discussions
41	Power coupling, Power launching		
42	Equilibrium Numerical Aperture, Laser diode to fiber coupling		
43	Optical receiver operation- Fundamental receiver operation		
44	Digital signal transmission, error sources		

45	Receiver configuration, Digital receiver performance		
46	Probability of Error, Quantum limit, Analog receivers		

UNIT –VI OPTICAL SYSTEM DESIGN

CO6: The ability to analyze, design, build, and demonstrate optical fiber experiments in the laboratory

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

47	Optical system design - Point-to-point links, Component choice and considerations	**From: 06/09/2019 To: 05/10/2019**	Lecture interspersed with discussions
48	Link power budget with examples		
49	Rise time budget with examples		
50	Line coding in Optical links, WDM		
51	Measurement of Attenuation		
52	Eye pattern		

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

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TENTATIVE LESSON PLAN: R1641044
OPTICAL COMMUNICATIONS

Course Title: OPTICAL COMMUNICATIONS		
Section : Sec II	Date : 10/6/19	Page No : 1 to 4
Revision No : 00	Prepared By : P.Koteswara Rao	Approved By : HOD

Tools: Black board, PPTs

S.NO.	TOPIC	Date	Mode of Delivery
UNIT –I OVERVIEW OF OPTICAL FIBER COMMUNICATION **CO1: The necessary components required in modern Optical communications systems and build optical fiber experiments in the laboratory, and learn how to Calculate electromagnetic modes in waveguides** **TB : Optical Fiber Communications – Gerd Keiser, Mc Graw-Hill International edition, 3rd Edition, 2000**			
1	Overview of optical fiber communication- Historical development	**From: 10/06/2019 To: 29/06/2019**	Lecture interspersed with discussions
2	The general system,advantages of optical fiber communications		
3	Optical fiber waveguides- Introduction,Ray theory transmission		
4	Total Internal Reflection,Acceptance angle		
5	Numerical Aperture,skew rays		
6	Cylindrical fibers, modes ,v-number		
7	Mode coupling, Step Index fibers		
8	Graded Index fibers, Single mode fibers		
9	Cut off wavelength, Mode Field Diameter		
10	Effective Refractive Index, Related problems.		
11	**Tutorial**		

UNIT –II FIBER MATERIALS

CO2: The properties of optical fiber and the amount of light lost going through an Optical system, dispersion of optical fibers

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

12	Fiber materials:- Glass, Halide, Active glass	**From: 1/07/2019 To: 13/07/2019**	Lecture interspersed with discussions
13	Chalgenide glass, Plastic optical fibers		
14	Signal distortion in optical fibers- Attenuation,Absorption		
15	Scattering and Bending losses		
16	Core and Cladding losses, Information capacity determination		
17	Group delay, Types of Dispersion:- Material dispersion		
18	Wave-guide dispersion, Polarization-Mode dispersion		
19	Intermodal dispersion, Pulse broadening in Graded index		
20	Related problems		

UNIT –III OPTICAL FIBER CONNECTORS

CO3: To know the principles of single and multi-mode optical fiber connectors and their characteristics

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

21	Optical fiber Connectors-Connector types	**From: 15/7/2019 To: 03/08/2019**	Lecture interspersed with discussions
22	Single mode fiber connectors, Connector return loss		
23	Fiber Splicing- Splicing techniques		
24	Splicing single mode fibers, Fiber alignment & joint loss		
25	Multimode fiber joints, single mode fiber joints.		
26	**Tutorial**		
27	Revision		

UNIT –IV OPTICAL SOURCES AND DETECTORS

CO4: The working of semiconductor lasers, and analyze the operation of LEDs, laser diodes And also able to analyze the use of different types of photo detectors

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

28	Optical sources- LEDs, Structures	**From: 12/08/2019 To: 31/08/2019**	Lecture interspersed with discussions
29	Materials		
30	Quantum efficiency		
31	Power, Modulation, Power bandwidth product		
32	Injection Laser Diodes-Modes		
33	Threshold conditions, External quantum efficiency		
34	Laser diode rate equations		
35	Resonant frequencies		
36	Reliability of LED&ILD		
37	Optical detectors- Physical principles of PIN		
38	Physical principles of APD		
39	Detector response time, Temperature effect on Avalanche gain, Comparison of Photo detectors, Related problems		

UNIT – V SOURCE TO FIBER POWER LAUNCHING

CO5: To know the design of optical fiber communication and source to fiber power coupling.

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

40	Source to fiber power launching - Output patterns	**From: 02/09/2019 To: 14/09/2019**	Lecture interspersed with discussions
41	Power coupling, Power launching		
42	Equilibrium Numerical Aperture, Laser diode to fiber coupling		
43	Optical receiver operation- Fundamental receiver operation		
44	Digital signal transmission, error sources		

45	Receiver configuration, Digital receiver performance		
46	Probability of Error, Quantum limit, Analog receivers		

UNIT –VI OPTICAL SYSTEM DESIGN

CO6: The ability to analyze, design, build, and demonstrate optical fiber experiments in the laboratory

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

47	Optical system design - Point-to- point links, Component choice and considerations	**From: 06/09/2019 To: 05/10/2019**	Lecture interspersed with discussions
48	Link power budget with examples		
49	Rise time budget with examples		
50	Line coding in Optical links, WDM		
51	Measurement of Attenuation		
52	Eye pattern		

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

26/10/19

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29/10/19

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TENTATIVE LESSON PLAN: R164104B

Course Title: ELECTRONIC SWITCHING SYSTEMS (R164104B)		
Section : Sec A	Date : 10-6-2019	Page No : 01 of 03
Revision No : 00	Prepared By : K.Venkateswara Rao	Approved By : HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
	UNIT –I TELECOMMUNICATION SWITCHING SYSTEMS **CO1:: Introduced telecommunication switching systems and operation of different switching Systems** **TB1: Tele communication switching system and networks - Thyagarajan Viswanath, PHI, 2000.**		
1.	Evolution of Telecommunications	**From:** **10/06/19** **To:** **26/06/19**	Lecture interspersed with discussions
2.	Simple Telephone Communication		
3.	Basics of Switching System		
4.	Manual Switching System		
5.	Major Telecommunication Networks		
6.	**STROWGER SWITCHING SYSTEM**		
7.	Signaling tones		
8.	Step by step switching system		
9.	Design parameters		
10.	Designs of 100 line exchange		
11.	Design with Uni selectors and Two motion selectors		
12.	**CROSS BARSWITCHING**		
13.	Principles of Common Control		
14.	Touch Tone Dial Telephone		
15.	Principles of Crossbar Switching		
16.	Crossbar Switch Configurations		
17.	Cross point Technology		
18.	Crossbar Exchange Organization		
19.	Tutorial.		
	UNIT –III Time Division Switching **CO3:: Obtained the knowledge of different Time Division Space Switching, Basic Time Division Time Switching and Combination Switching** **TB1: Telecommunication switching system and networks – Thyagarajan Viswanath, PHI 2000.**		
20.	Basic Time Division Space Switching		
21.	Basic Time Division Time Switching Generalised time division Space switch	**From:** **16/07/19** **To:** **03/08/19**	Lecture interspersed with discussions
22.	Basic Time division time switching: modes of operation		
23.	simple problems		
24.	Time Multiplexed Space Switching		
25.	Time Multiplexed Time Switching		

26.	Combination Switching		
27.	Time Space (TS) Switching		
28.	Space-time (ST) Switching		
29.	Three-Stage Combination Switching		
30.	n- Stage Combination Switching		
31.	Tutorial		

UNIT - II ELECTRONIC SPACE DIVISION SWITCHING

CO2:: Obtained the knowledge of different electronic Space Division switching systems.

TB1: Telecommunication switching system and networks – Thyagarajan Viswanath, PHI 2000.

No. of Periods	TOPIC	DATE	Mode of Delivery
32.	Stored Program Control	From: 27/06/19 To: 15/07/19	Lecture interspersed with discussions
33.	Centralized SPC		
34.	Distributed SPC		
35.	Software Architecture		
36.	Application Software, Enhanced Services		
37.	Two-Stage Networks		
38.	Three-Stage Networks, n- Stage Networks.		
39.	Tutorial		

UNIT –I V TELEPHONE NETWORKS

CO4:: Analyzed the performance of telecommunication network and implement the signaling technique In communication networks

TB3: Advanced Electronic Communications systems – Wayne Tomasi, PHI 2004.

40.	Subscriber Loop System	From: 12/08/19 To: 30/08/19	Lecture interspersed with discussions
41.	Switching Hierarchy and Routing		
42.	Transmission Plan, Transmission Systems		
43.	Numbering Plan and Charging Plan		
44.	Numbering Plan and Charging Plan		
45.	In-channel Signaling, Common Channel Signaling		
46.	CCITT Signaling System no.6		
47.	CCITT Signaling System no.7		
48.	Statistical Multiplexing		
49.	Local- Area and Wide- Area Networks		
50.	Broad band Networks,		
51.	Large scale networks		
52.	Large-scale Networks		

UNIT - VI INTEGRATED SERVICES DIGITAL NETWORK (ISDN)

CO6 : Obtained the knowledge of network architecture and its protocols and Introduced ISDN and BISDN services in existing data networks

TB1:: Telecommunication switching system and networks – Thyagarajan Viswanath, PHI 2000.

No. of Periods	TOPIC	DATE	Mode of Delivery
54	Introduction and Motivation	From: 16/09/19 To: 6/10/19	Lecture interspersed with discussions
55	New Services		
56	ISDN Network and Protocol architecture		
57	Transmission Channels		
58	User- Network Interfaces		
59	Signaling, Numbering and Addressing		
60	Service Characterization		
61	Interworking		
62	ISDN Standards		
63	Expert Systems in ISDN		
64	Broadband ISDN		
65	Voice Data Integration		
66	Tutorial		

UNIT – V SWITCHING NETWORKS

CO5:: Gained understanding on different switching networks and information on Telecommunications Traffic

TB1: Telecommunication switching system and networks – Thyagarajan Viswanath, PHI 2000.

TB2: Telecommunications Switching, Traffic and Networks- J. E. Flood, 2006, Pearson Education

67	Single- Stage Networks	From 2/09/19 To: 14/9/19	Lecture interspersed with discussions
68	Grading, Link Systems		
69	Grades of service of link systems		
70	Application of Graph Theory to link Systems		
71	Use of Expansion		
72	Call Packing		
73	Rearrange-able Networks		
74	Strict- Sense non-blocking Networks		
75	Sectionalized Switching Networks		
76	Tutorial		
77	The Unit of Traffic, Congestion, Traffic Measurement		
78	A Mathematical Model		
79	Lost-call Systems, Queuing Systems		

Signature of the Faculty
Date: 1/11/19

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Signature of the HOD
Date: 2/11/19

TENTATIVE LESSON PLAN: R164104B

Course Title: ELECTRONIC SWITCHING SYSTEMS (R164104B)		
Section : Sec B	Date : 10-6-2019	Page No : 01 of 03
Revision No : 00	Prepared By : K.Venkateswara Rao	Approved By : HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I	**TELECOMMUNICATION SWITCHING SYSTEMS**		
CO1:: Introduced telecommunication switching systems and operation of different switching Systems			
TB1: Tele communication switching system and networks - Thyagarajan Viswanath, PHI, 2000.			
1.	Evolution of Telecommunications	**From: 10/06/19 To: 26/06/19**	Lecture interspersed with discussions
2.	Simple Telephone Communication		
3.	Basics of Switching System		
4.	Manual Switching System		
5.	Major Telecommunication Networks		
6.	**STROWGER SWITCHING SYSTEM**		
7.	Signaling tones		
8.	Step by step switching system		
9.	Design parameters		
10.	Designs of 100 line exchange		
11.	Design with Uni selectors and Two motion selectors		
12.	**CROSS BARSWITCHING**		
13.	Principles of Common Control		
14.	Touch Tone Dial Telephone		
15.	Principles of Crossbar Switching		
16.	Crossbar Switch Configurations		
17.	Cross point Technology		
18.	Crossbar Exchange Organization		
19.	Tutorial.		
UNIT –III	**Time Division Switching**		
CO3:: Obtained the knowledge of different Time Division Space Switching, Basic Time Division Time Switching and Combination Switching			
TB1: Telecommunication switching system and networks – Thyagarajan Viswanath, PHI 2000.			
20.	Basic Time Division Space Switching	**From: 16/07/19 To: 03/08/19**	Lecture interspersed with discussions
21.	Basic Time Division Time Switching Generalised time division Space switch		
22.	Basic Time division time switching: modes of operation		
23.	simple problems		
24.	Time Multiplexed Space Switching		
25.	Time Multiplexed Time Switching		

26.	Combination Switching		
27.	Time Space (TS) Switching		
28.	Space-time (ST) Switching		
29.	Three-Stage Combination Switching		
30.	n- Stage Combination Switching		
31.	Tutorial		

UNIT - II ELECTRONIC SPACE DIVISION SWITCHING

CO2:: Obtained the knowledge of different electronic Space Division switching systems.

TB1: Telecommunication switching system and networks – Thyagarajan Viswanath, PHI 2000.

No. of Periods	TOPIC	DATE	Mode of Delivery
32.	Stored Program Control	**From:** **27/06/19** **To:** **15/07/19**	Lecture interspersed with discussions
33.	Centralized SPC		
34.	Distributed SPC		
35.	Software Architecture		
36.	Application Software, Enhanced Services		
37.	Two-Stage Networks		
38.	Three-Stage Networks, n- Stage Networks.		
39.	Tutorial		

UNIT –I V TELEPHONE NETWORKS

CO4:: Analyzed the performance of telecommunication network and implement the signaling technique In communication networks

TB3: Advanced Electronic Communications systems – Wayne Tomasi, PHI 2004.

40.	Subscriber Loop System	**From:** **12/08/19** **To:** **30/08/19**	Lecture interspersed with discussions
41.	Switching Hierarchy and Routing		
42.	Transmission Plan, Transmission Systems		
43.	Numbering Plan and Charging Plan		
44.	Numbering Plan and Charging Plan		
45.	In-channel Signaling, Common Channel Signaling		
46.	CCITT Signaling System no.6		
47.	CCITT Signaling System no.7		
48.	Statistical Multiplexing		
49.	Local- Area and Wide- Area Networks		
50.	Broad band Networks,		
51.	Large scale networks		
52.	Large-scale Networks		

UNIT - VI INTEGRATED SERVICES DIGITAL NETWORK (ISDN)

CO6 : Obtained the knowledge of network architecture and its protocols and Introduced ISDN and BISDN services in existing data networks

TB1:: Telecommunication switching system and networks – Thyagarajan Viswanath, PHI 2000.

No. of Periods	TOPIC	DATE	Mode of Delivery
54	Introduction and Motivation	From: 16/09/19 To: 6/10/19	Lecture interspersed with discussions
55	New Services		
56	ISDN Network and Protocol architecture		
57	Transmission Channels		
58	User- Network Interfaces		
59	Signaling, Numbering and Addressing		
60	Service Characterization		
61	Interworking		
62	ISDN Standards		
63	Expert Systems in ISDN		
64	Broadband ISDN		
65	Voice Data Integration		
66	Tutorial		

UNIT – V SWITCHING NETWORKS

CO5:: Gained understanding on different switching networks and information on Telecommunications Traffic

TB1: Telecommunication switching system and networks – Thyagarajan Viswanath, PHI 2000.

TB2: Telecommunications Switching, Traffic and Networks- J. E. Flood, 2006, Pearson Education

67	Single- Stage Networks	From 2/09/19 To: 14/9/19	Lecture interspersed with discussions
68	Grading, Link Systems		
69	Grades of service of link systems		
70	Application of Graph Theory to link Systems		
71	Use of Expansion		
72	Call Packing		
73	Rearrange-able Networks		
74	Strict- Sense non-blocking Networks		
75	Sectionalized Switching Networks		
76	Tutorial		
77	The Unit of Traffic, Congestion, Traffic Measurement		
78	A Mathematical Model		
79	Lost-call Systems, Queuing Systems		

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2/11/19

TENTATIVE LESSON PLAN: R164104D

Course Title: EMBEDDED SYSTEMS (R164104D)		
Section : A	Date : 4/11/19	Page No : 01 of 03
Revision No : 00	Prepared By : MD.SHABEENA BEGUM	Approved By : HOD

Tools : Black board, PPTs, Moodle

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I INTRODUCTION			
CO1: Understand the building blocks of typical embedded systems and different memory technology and memory types.			
TB : Embedded Systems by Shibu k.v.			
1.	Embedded Systems Definition	17/6/19	Lecture interspersed with discussions
2.	Embedded vs General computing Systems, History of Embedded Systems.	17/6/19	
3.	Classifications of Embedded Systems	18/6/19	
4.	major applications of Embedded Systems	19/6/19	
5.	The Typical Embedded System-Core of the Embedded Systems	20/6/19	
6.	Memory	21/6/19	
7.	Passive System and other system Components	22/6/19	
8.	Sensors and Actuators	24/6/19	
9.	Embedded Firmware	1/7/19	
10.	Domain Specific Examples of an Embedded Systems	2/7/19	
11.	Communication Interface	3,4/7/19	
12.	Characteristics and Quality attributes of an Embedded Systems Application Specific Embedded System-Washing Machine	5,8,8/7/19	
13.	Tutorial	8/7/19	
UNIT –II EMBEDDED HARDWARE DESIGN			
CO2: Student can understand the principles and the implementation of various communication devices.			
TB : Embedded Systems by Shibu k.v.			
14.	Analog and Digital Electronic Components	9/7/19	Lecture interspersed with discussions
15.	I/O Types and Examples	11/7/19	
16.	Serial Communication Devices	12/7/19	
17.	Parallel Device Ports	12/7/19	
18.	Wireless Devices	15/7/19	
19.	Timer and Counting devices	16/7/19	
20.	Real time Clock, Watchdog Timer	17,17/7/19	

TENTATIVE LESSON PLAN: R164104D

Course Title: EMBEDDED SYSTEMS (R164104D)		
Section : A	Date : 4/11/19	Page No : 02 of 03
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Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –III EMBEDDED FIRMWARE DESIGN **CO3:** Student can understand the concept of firmware design approaches, ISR concept and interrupt sources. **TB : Embedded Systems by Shibu k.v.**			
21.	Embedded Firmware design approaches	19/7/19	Lecture interspersed with discussions
22.	Embedded Firmware development languages	24/7/19	
23.	Concepts of C vs Embedded C , Compiler vs Cross Compiler	25/7/19	
24.	ISR concept, Interrupt Sources	29/7/19	
25.	Interrupt Servicing mechanisms	30/7/19	
26.	DMA	31/7/19	
27.	Device Driver Programming	16,16/8/19	
28.	Embedded Firmware design approaches	17/8/19	
UNIT –IV REAL TIME OPERATIONG SYSTEM AND HARDWARE SOFTWARE CO DESIGN **CO4:** Student can understand the os basics and rtos and also the design of hardware and software interfaces **TB1: Embedded systems by Shibu k.v.**			
29.	Operating Systems Basics	21/8/19	Lecture interspersed with discussions
30.	Types of Operating Systems	22/8/19	
31.	Task, Process and Threads	24/8/19	
32.	Multiprocessing, Multitasking	26/8/19	
33.	Device Drivers	30/8/19	
34.	Task Scheduling	30/8/19	
35.	Threads processes scheduling	31/8/19	
36.	Task Communication	3/9/19	
37.	Task Synchronization, How to choose an RTOS	3/9/19	
38.	Fundamental Issues in Hardware Software Co-Design	9/9/19	
39.	Computational Models in Embedded design	11/9/19	
40.	Hardware Software Trade-Offs	11/9/19	
41.	Integration of Hardware and Firmware, ICE	16,17/9/19	

TENTATIVE LESSON PLAN: R164104D

Course Title: EMBEDDED SYSTEMS (R164104D)		
Section : A	Date : 4/11/19	Page No : 03 of 03
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Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –V EMBEDDED SYSTEM DEVELOPMENT **CO5:** Student can understand the concept of IDE and Hardware debugging. **TB : EMBEDDED SYSTEMS ARCHITECTURE BY TAMMY NEORGAARD.**			
42.	The Integrated development Environment	18/9/19	Lecture interspersed with discussions
43.	Types of files generated on Cross-Compilation	18/9/19	
44.	Dissemblers / Decompiler	19/9/19	
45.	Embedded tools	19/9/19	
46.	Simulators, Emulators, Debugging	21/9/19	
47.	Target Hardware debugging	23,23/9/19	
48.	Boundary Scan, Embedded Software Development process and tools		
49.	TUTORIAL	24/9/19	
UNIT –VI EMBEDDED SYSTEM DEVELOPMENT AND TESTING **CO6:** Student can understand the debugging tools and testing tools **TB1: EMBEDDED SYSTEMS ARCHITECTURE BY TAMMY NEORGAARD.**			
50.	The Main Software Utility Tool	25/9/19	Lecture interspersed with discussions
51.	CAD and the Hardware	25/9/19	
52.	Translation tools pre-processors	26/9/19	
53.	Debugging Tools	26/9/19	
54.	Quality assurance and Testing of the design	26/9/19	
55.	Testing on host machine	27,28/9/19	
56.	Simulators		
57.	Laboratory Tools		
58.	TUTORIAL	28/9/19	

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TENTATIVE LESSON PLAN: R164104D

Course Title: EMBEDDED SYSTEMS (R164104D)		
Section : B	Date : 4/11/19	Page No : 01 of 03
Revision No : 00	Prepared By : MD.SHABEENA BEGUM	Approved By : HOD

Tools : Black board, PPTs, Moodle

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I INTRODUCTION **CO1:** Understand the building blocks of typical embedded systems and different memory technology and memory types. **TB : Embedded Systems by Shibu k.v.**			
1.	Embedded Systems Definition	17/6/19	Lecture interspersed with discussions
2.	Embedded vs General computing Systems, History of Embedded Systems.	17/6/19	
3.	Classifications of Embedded Systems	18/6/19	
4.	major applications of Embedded Systems	19/6/19	
5.	The Typical Embedded System-Core of the Embedded Systems	20/6/19	
6.	Memory	22/6/19	
7.	Passive System and other system Components	22/6/19	
8.	Sensors and Actuators	24/6/19	
9.	Embedded Firmware	25/6/19	
10.	Domain Specific Examples of an Embedded Systems	1,1/7/19	
11.	Communication Interface	2,2/7/19	
12.	Characteristics and Quality attributes of an Embedded Systems Application Specific Embedded System-Washing Machine	4/7/19	
13.	Tutorial	2/8/19	
UNIT –II EMBEDDED HARDWARE DESIGN **CO2:** Student can understand the principles and the implementation of various communication devices. **TB : Embedded Systems by Shibu k.v.**			
14.	Analog and Digital Electronic Components	5/7/19	Lecture interspersed with discussions
15.	I/O Types and Examples	6,6/7/19	
16.	Serial Communication Devices	8/7/19	
17.	Parallel Device Ports	9/7/19	
18.	Wireless Devices	11/7/19	
19.	Timer and Counting devices	15,16/7/19	
20.	Real time Clock, Watchdog Timer	16/7/19	

TENTATIVE LESSON PLAN: R164104D

Course Title: EMBEDDED SYSTEMS (R164104D)		
Section : B	Date : 4/11/19	Page No : 02 of 03
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Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –III EMBEDDED FIRMWARE DESIGN **CO3:** Student can understand the concept of firmware design approaches, ISR concept and interrupt sources. **TB : Embedded Systems by Shibu k.v.**			
21.	Embedded Firmware design approaches	18/7/19	Lecture interspersed with discussions
22.	Embedded Firmware development languages	22,22/7/19	
23.	Concepts of C vs Embedded C , Compiler vs Cross Compiler	23/7/19	
24.	ISR concept, Interrupt Sources	25/7/19	
25.	Interrupt Servicing mechanisms	27/7/19	
26.	DMA	27/7/19	
27.	Device Driver Programming	29/7/19	
28.	Embedded Firmware design approaches	30/7/19	
UNIT –IV REAL TIME OPERATIONG SYSTEM AND HARDWARE SOFTWARE CO DESIGN **CO4:** Student can understand the os basics and rtos and also the design of hardware and software interfaces **TB1: Embedded systems by Shibu k.v.**			
29.	Operating Systems Basics	17/8/19	Lecture interspersed with discussions
30.	Types of Operating Systems	19/8/19	
31.	Task, Process and Threads	19/8/19	
32.	Multiprocessing, Multitasking	20/8/19	
33.	Device Drivers	21/8/19	
34.	Task Scheduling	22/8/19	
35.	Threads processes scheduling	24/8/19	
36.	Task Communication	26/8/19	
37.	Task Synchronization, How to choose an RTOS	27/8/19	
38.	Fundamental Issues in Hardware Software Co-Design	28,31/8/19	
39.	Computational Models in Embedded design	3/9/19	
40.	Hardware Software Trade-Offs	9/9/19	
41.	Integration of Hardware and Firmware, ICE	12/9/19	

TENTATIVE LESSON PLAN: R164104D

Course Title: EMBEDDED SYSTEMS (R164104D)		
Section : B	Date : 4/11/19	Page No : 03 of 03
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Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –V EMBEDDED SYSTEM DEVELOPMENT **CO5:** Student can understand the concept of IDE and Hardware debugging. **TB : EMBEDDED SYSTEMS ARCHITECTURE BY TAMMY NEORGAARD.**			
42.	The Integrated development Environment	13/9/19	Lecture interspersed with discussions
43.	Types of files generated on Cross-Compilation	16/9/19	
44.	Dissemblers / Decompiler	17/9/19	
45.	Embedded tools	20/9/19	
46.	Simulators, Emulators, Debugging	21/9/19	
47.	Target Hardware debugging	21/9/19	
48.	Boundary Scan, Embedded Software Development process and tools		
49.	TUTORIAL		
UNIT –VI EMBEDDED SYSTEM DEVELOPMENT AND TESTING **CO6:** Student can understand the debugging tools and testing tools **TB1: EMBEDDED SYSTEMS ARCHITECTURE BY TAMMY NEORGAARD.**			
50.	The Main Software Utility Tool	23/9/19	Lecture interspersed with discussions
51.	CAD and the Hardware	24/9/19	
52.	Translation tools pre-processors	25/9/19	
53.	Debugging Tools	26/9/19	
54.	Quality assurance and Testing of the design	28/9/19	
55.	Testing on host machine	28/9/19	
56.	Simulators		
57.	Laboratory Tools		
58.	TUTORIAL		

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TENTATIVE LESSON PLAN: R164104F
NETWORK SECURITY AND CRYPTOGRAPHY

Course Title: NETWORK SECURITY AND CRYPTOGRAPHY		
Branch : ECE-A	**Date : 10/06/19**	**Page No :** 01 of 03
Revision No : 00	**Prepared By: D.RAVI TEJ**	**Approved By : HOD**

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I Basic Principles **CO1: Understand the Basic Principles of Security Goals, Cryptographic Attacks** **T1:- Cryptography and Network Security, Behrouz A Forouzan, Debdeep Mukhopadhyay, (3e) Mc Graw Hill."**			
1	Security Goals	10,11/6/19	Lecture interspersed with discussions
2	Cryptographic Attacks	12 /6/19	
3	Services and Mechanisms	13/6/19	
4	Mathematics of Cryptography.	14/6/19	
5	Security fundamentals	15/6/19	
6	Security requirements	18/6/19	
7	Relation Between services and mechanisms	19/6/19	
8	Attacks on integrity	20/6/19	
9	Attack on availability	24/6/19	
10	Cryptography	25/6/19	
11	Stereography	20,24/6/19	
12	Availability	26,28/6/19	
13	Security Goals	1,2,3/7/19	
14	tutorial	5,6/7/19	
UNIT-II Symmetric Encryption **CO2:UnderstandtheSymmetricEncryptionofMathematics of Symmetric Key Cryptography** **T1:- Cryptography and Network Security, Behrouz A Forouzan, Debdeep Mukhopadhyay, (3e) Mc Graw Hill."**			
15	Mathematics of Symmetric Key Cryptography	8/7/19	Lecture interspersed with discussions
16	Introduction to Modern	9/7/19	
17	Symmetric Key Ciphers,	10/7/19	
18	Data Encryption Standard,	11/7/19	
19	Advanced Encryption Standard	12/7/19	
20	tutorial	15/7/19	
UNIT-III Asymmetric Encryption **CO3: Learn about the Asymmetric Encryption of Mathematics of Asymmetric Key** **T1:- Cryptography and Network Security, Behrouz A Forouzan, Debdeep Mukhopadhyay, (3e) Mc Graw Hill."**			
21	Mathematics of Asymmetric Key	16/7/19	
22	Substitution ciphers	17/7/19	
23	tutorial	19/7/19	

24	Transposition ciphers	20/7/19	Lecture interspersed with discussions
25	Asymmetric Key Cryptography	22/7/19	
26	Stream and block ciphers	23/7/19	
27	Combination ciphers	24,26/7/19	
28	Digital Signature	30,31/7/19	
29	tutorial	2,5/8/19	
30	Key Management	7/8/19	
UNIT-IV Data Integrity, Digital Signature Schemes & Key Management **CO4: Gain knowledge about Data Integrity, Digital Signature Schemes& Key Management** **T1:- Cryptography and Network Security, Behrouz A Forouzan, Debdeep Mukhopadhyay, (3e) Mc Graw Hill."**			
31	Message Integrity and MessageAuthentication	7,9/8/19	Lecture interspersed with discussions
32	tutorial	13/8/19	
33	Cryptographic Hash Functions	14/8/19	
34	Digital Signature	16/8/19	
35	Key Management	28/8/19	
36	tutorial	30/8/19	
UNIT-V Transistor Biasing and Thermal Stabilization **CO5: : Network Security-I** **T1:- Cryptography and Network Security, Behrouz A Forouzan, Debdeep Mukhopadhyay, (3e) Mc Graw Hill."**			
37	Security at application layer:	7,9/8/19	Lecture interspersed with discussions
38	Pre image resistance	13/8/19	
39	PGP and S/MIME	14/8/19	
40	Random oracle model	16/8/19	
41	Security at the Transport Layer	17/8/19	
42	Birthday problem	28/8/19	
43	Comparison process	30/8/19	
44	SSL and TLS	4/9/19	
45	tutorial	6/9/19	
UNIT-VI Network Security-II **CO6: Understand the Security at the Network Layer: IPSec, System Security** **T1:- Cryptography and Network Security, Behrouz A Forouzan, Debdeep Mukhopadhyay, (3e) Mc Graw Hill."**			
46	Security at the Network Layer:	6,7/9/19	Lecture interspersed with discussions
47	IPSec	9,12/9/19	
48	System Security	13,16/9/19	
49	tutorial	17/9/19	

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TENTATIVE LESSON PLAN: R164104F
NETWORK SECURITY AND CRYPTOGRAPHY

Course Title: NETWORK SECURITY AND CRYPTOGRAPHY		
Branch : ECE-B	**Date : 10/06/19**	**Page No :** 01 of 03
Revision No : 00	**Prepared By: D.RAVI TEJ**	**Approved By : HOD**

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I Basic Principles **CO1: Understand the Basic Principles of Security Goals, Cryptographic Attacks** **T1:- Cryptography and Network Security, Behrouz A Forouzan, Debdeep Mukhopadhyay, (3e) Mc Graw Hill."**			
1	Security Goals	10,11/6/19	Lecture interspersed with discussions
2	Cryptographic Attacks	12 /6/19	
3	Services and Mechanisms	13/6/19	
4	Mathematics of Cryptography.	14/6/19	
5	Security fundamentals	15/6/19	
6	Security requirements	18/6/19	
7	Relation Between services and mechanisms	19/6/19	
8	Attacks on integrity	20/6/19	
9	Attack on availability	24/6/19	
10	Cryptography	25/6/19	
11	Stereography	20,24/6/19	
12	Availability	26,28/6/19	
13	Security Goals	1,2,3/7/19	
14	tutorial	5,6/7/19	
UNIT-II Symmetric Encryption **CO2:UnderstandtheSymmetricEncryptionofMathematics of Symmetric Key Cryptography** **T1:- Cryptography and Network Security, Behrouz A Forouzan, Debdeep Mukhopadhyay, (3e) Mc Graw Hill."**			
15	Mathematics of Symmetric Key Cryptography	8/7/19	Lecture interspersed with discussions
16	Introduction to Modern	9/7/19	
17	Symmetric Key Ciphers,	10/7/19	
18	Data Encryption Standard,	11/7/19	
19	Advanced Encryption Standard	12/7/19	
20	tutorial	15/7/19	
UNIT-III Asymmetric Encryption **CO3: Learn about the Asymmetric Encryption of Mathematics of Asymmetric Key** **T1:- Cryptography and Network Security, Behrouz A Forouzan, Debdeep Mukhopadhyay, (3e) Mc Graw Hill."**			
21	Mathematics of Asymmetric Key	16/7/19	
22	Substitution ciphers	17/7/19	
23	tutorial	19/7/19	

24	Transposition ciphers	20/7/19	Lecture interspersed with discussions
25	Asymmetric Key Cryptography	22/7/19	
26	Stream and block ciphers	23/7/19	
27	Combination ciphers	24,26/7/19	
28	Digital Signature	30,31/7/19	
29	tutorial	2,5/8/19	
30	Key Management	7/8/19	
UNIT-IV Data Integrity, Digital Signature Schemes & Key Management **CO4: Gain knowledge about Data Integrity, Digital Signature Schemes& Key Management** **T1:- Cryptography and Network Security, Behrouz A Forouzan, Debdeep Mukhopadhyay, (3e) Mc Graw Hill."**			
31	Message Integrity and MessageAuthentication	7,9/8/19	Lecture interspersed with discussions
32	tutorial	13/8/19	
33	Cryptographic Hash Functions	14/8/19	
34	Digital Signature	16/8/19	
35	Key Management	28/8/19	
36	tutorial	30/8/19	
UNIT-V Transistor Biasing and Thermal Stabilization **CO5: : Network Security-I** **T1:- Cryptography and Network Security, Behrouz A Forouzan, Debdeep Mukhopadhyay, (3e) Mc Graw Hill."**			
37	Security at application layer:	7,9/8/19	Lecture interspersed with discussions
38	Pre image resistance	13/8/19	
39	PGP and S/MIME	14/8/19	
40	Random oracle model	16/8/19	
41	Security at the Transport Layer	17/8/19	
42	Birthday problem	28/8/19	
43	Comparison process	30/8/19	
44	SSL and TLS	4/9/19	
45	tutorial	6/9/19	
UNIT-VI Network Security-II **CO6: Understand the Security at the Network Layer: IPSec, System Security** **T1:- Cryptography and Network Security, Behrouz A Forouzan, Debdeep Mukhopadhyay, (3e) Mc Graw Hill."**			
46	Security at the Network Layer:	6,7/9/19	Lecture interspersed with discussions
47	IPSec	9,12/9/19	
48	System Security	13,16/9/19	
49	tutorial	17/9/19	

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