

Lesson Plan

Name of the Faculty : Mr. Suresh Kumar

Discipline : Electronics & Communication

Semester : 4th

Subject : Analog Electronics (ECE-208N)

Lesson Plan Duration: 15 weeks (from January, 2019 to April, 2019)

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1 st	1 st	Introduction to BJT & FET	1 st	To study Bridge Rectifier with or without filter
	2 nd	Biasing Scheme for BJT & FET Amplifier.		
	3 rd	Working and various features of various types of Biasing Configuration(CE/CS,CB/CG,CC/CD)		
2 nd	1 st	Q-Point, Bias Stability, Related Numerical.	2 nd	To design a simple common emitter(CE) amplifier circuit using BJT and find its gain and frequency response.
	2 nd	Amplifier Model: Transconductance Amplifier, Transresistance Amplifier, Voltage Amplifier, Current Amplifier.		
	3 rd	Small Signal Analysis of Both BJT & FET.		
3 rd	1 st	Low Frequency Transistor Model and estimation of input resistance,output resistance,voltage gain.	3 rd	To design a Differential Amplifier using BJT and calculate its gain and frequency response.
	2 nd	Low Frequency Analysis of Multistage Amplifier		
	3 rd	Design Procedure of Particular Specification.		
4 th	1 st	High Frequency Transistor Model	4 th	To design RC coupled single stage BJT amplifier and determination of the gain, frequency response, input and output impedance
	2 nd	Frequency Response of Single stage and Multistage Amplifier		
	3 rd	Frequency Response of Cascode Amplifier		
5 th	1 st	Working Operation of Class A power Amplifier and calculation of their Power efficiency.	5 th	To design a BJT Emitter Follower and determination of the gain, input and output impedance.
	2 nd	Working Operation of Class B power Amplifier and calculate efficiency.		
	3 rd	Working Operation of Class C, D & AB Power Amplifier.		

6 th	1 st	Feedback Topology: Voltage Series, Voltage Shunt, Current Series, Current Shunt.	6 th	To design and test the performance of BJT-RC Phase shift Oscillator.
	2 nd	Effect of Negative Feedback on Gain, Bandwidth, Noise, Impedance.		
	3 rd	Concept of Stability, Gain Margin and Phase Margin.		
7 th	1 st	Basic Concept of Oscillator, Barkhausen Criterion of Oscillation.	7 th	Internal Viva-1
	2 nd	Working Principle of RC Phase shift Oscillator, Calculation of their Freq.		
	3 rd	Working Principle of Wein Bridge Oscillator, Calculation of their Freq.		
8 th	1 st	Working Principle of Hartley Oscillator, Calculation of their Freq.	8 th	To design and test the performance of BJT-Hartley Oscillator.
	2 nd	Working Principle of Colpitts Oscillator, Calculation of their Freq.		
	3 rd	Working Principle of Clapp Oscillator, Calculation of their Freq.		
9 th	1 st	Working of 555 Timer as Astable configuration	9 th	To design and test the performance of BJT – Colpitt Oscillator
	2 nd	Working of 555 Timer as Monostable configuration		
	3 rd	Class Test		
10 th	1 st	Basic Concept of Operational Amplifier.	10 th	To design an Astable Multivibrator using 555 timer
	2 nd	Ideal vs Practical OpAmp.		
	3 rd	Block Diagram of OPAMP.		
11 th	1 st	Design Specification of Balance Input Balance Output.	11 th	To design a monostable multivibrator using 555 timer
	2 nd	Design Specification of Balance Input UnBalance Output.		
	3 rd	Design Specification of UnBalance Input Balance Output.		
12 th	1 st	Design Specification of UnBalance Input UnBalance Output.	12 th	To design Schmitt trigger using Op-Amp and verify its operational characteristics.
	2 nd	Calculation of Common Mode Gain, Differential Gain, CMRR, ICMR of each Topology.		
	3 rd	Working of Schmitt Trigger and their Application.		

13 th	1 st	Design of Current Mirror and its Variant.	13 th	To design and test the performance of BJT-Wein Bridge Oscillator.
	2 nd	V-I Characteristics of OPAMP.		
	3 rd	Calculation of Output resistance and Minimum Sustainable Voltage.		
14 th	1 st	Maximum Usable Load.	14 th	OP-AMP as Inverting, Non Inverting, Integrator and differentiator.
	2 nd	Numerical Related to Biasing		
	3 rd	Numerical Related Power Amplifier.		
15 th	1 st	Revision of Important topics Unit 1	15 th	Internal Viva-2
	2 nd	Revision of Important topics Unit 2		
	3 rd	Revision of Important topics Unit 3		

Lesson Plan

Name of the Faculty : Mr. Rajesh Kumar

Discipline : ECE

Semester : 4th

Subject : Computer Architecture and Organization

Lesson Plan Duration: 15 weeks (from January, 2019 to April, 2019)

Load (lecture / Practical) per week (in hours): Lectures-03

Week	Theory	
	Lecture Day	Topic (Including assignment / test)
1 st	1 st	UNIT-I Basic Structure of Computer Hardware and Software: Introduction to basic computer architecture, ,
	2 nd	Register transfer
	3 rd	Bus and memory transfers
2 nd	1 st	Arithmetic micro operations
	2 nd	Logic micro operations
	3 rd	Shift micro operations
3 rd	1 st	Central Processing Unit: Introduction, General register organization, stack organization
	2 nd	Instruction formats
	3 rd	Addressing modes
4 th	1 st	Data transfer and manipulation
	2 nd	Program control, RISC
	3 rd	Macros and Subroutines
5 th	1 st	Unit-II, Control Design: Micro programmed control, control memory
	2 nd	Address sequencing, micro program example
	3 rd	Design of control unit
6 th	1 st	Hardwired Control: design methods
	2 nd	Multiplier Control Unit, CPU Control unit.
	3 rd	Processor Design: Decimal arithmetic unit –BCD adder
7 th	1 st	BCD subtraction
	2 nd	Decimal arithmetic operations
	3 rd	Decimal arithmetic operations
8 th	1 st	ALU design
	2 nd	Forms of Parallel processing, classification of Parallel structures,
	3 rd	Array Processors, Structure of general purpose Multiprocessors.
9 th	1 st	Unit-III, Memory Organization: Memory hierarchy
	2 nd	Main memory, Main Memory Allocation.
	3 rd	Auxillary memory
10 th	1 st	Associative memory
	2 nd	Cache memory
	3 rd	Virtual memory

11 th	1 st	Memory management
	2 nd	Hardware multiprocessor architectures and their characteristics,
	3 rd	Interconnection structures
12 th	1 st	Random access memories: semiconductor RAMS
	2 nd	Serial –access Memories –Memory organization
	3 rd	Unit-IV System Organization: Pipeline and Vector Processing: Parallel processing
13 th	1 st	Pipelining, arithmetic pipeline
	2 nd	Instruction pipeline
	3 rd	RISC pipeline
14 th	1 st	Vector processing, array processors
	2 nd	Input-output Organisation: Peripheral devices, input-output interface,
	3 rd	Asynchronous data transfer, modes of transfer
15 th	1 st	Priority interrupt
	2 nd	DMA
	3 rd	IOP serial communication

Lesson Plan

Name of the Faculty Ms. Manisha

Discipline : Electronics and Communication Engineering

Semester : 4th

Subject : Data Structures & Algorithms (ECE-202N)

Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)

** Work (Lecture/Practical) per week (In Hours):Lecture -03 of One Section- 03 Lab of Two Groups

Week	Lecture Day	Topic (including assignment/test) (In Each Section)	Practical Day	Topic
1	1	Unit-I Overview of 'C': History, Characters used in 'C'	1	Write a program to print a 2D array.
	2	Data Types, 'C' Tokens		
	3	Structures of 'C' program, Operators and Expressions		
2	1	Flow of Control, I/O functions, Arrays	1	Write a program to find the factorial of an nth number using recursion.
	2	Structures, user defined data types		
	3	Introduction: Overview, Concept of Data Structures		
3	1	Design of suitable Algorithm	1	Write a program to print Fibonacci sequence.
	2	Algorithm analysis		
	3	Unit-II Arrays - Searching and Sorting: Introduction		
4	1	1-D arrays - addressing an element in an array	1	Using clock() function of time.h header file, compare the timings of linear search and binary search for an 1D array of 1000 elements
	2	array traversal, insertion and deletion		
	3	Multi-D arrays, representation of arrays in physical memory		
5	1	application of arrays	1	Compare the timings of the following sorting algorithm a. Bubble sort b. Selection sort c. Insertion sort
	2	Searching algorithms: linear search		
	3	binary search		
6	1	Sorting algorithms: selection sort	1	Implement stacks using arrays for the following user defined functions a. Size of stack b. Number of elements in the stack c. Pop with underflow check d. Push with overflow check
	2	insertions sort, bubble sort		
	3	shell sort, merge sort, radix sort (Algorithm and Analysis)		
7	1	Stacks and Queues: Stacks operations	1	Implement queues using arrays for the following user defined functions a. Size of queue b. Number of elements in the queue c. Insert an element with overflow check d. Delete an element with underflow check
	2	Applications of Stacks – Arithmetic operations using Infix to prefix and postfix notations		
	3	their conversion and evaluation		
8	1	Queues operations	1	Implement linked list for the following user defined functions a. Create a node and Insert an element b. Delete an element and its node c. Find the location of a given value d. Print the list in forward or reverse order
	2	Circular, Priority queue		
	3	and Deque		
9	1	Unit-III Pointers: Introduction	1	Traverse a tree and print the elements in a. Preorder b. Post order c. In order
	2	Pointer variables		
	3	pointers and arrays, array of pointer		
10	1	pointers and structures	1	Traverse a graph and print the elements using a. Depth first search b. Breadth first search
	2	Dynamic allocation		
	3	Linked Lists: Introduction, linked lists		

11	1	operations on linked lists (Creation, Traversing, Searching, Insertion and Deletion)	1	Write a program to implement Quick Sort.
	2	Circular and doubly linked list		
	3	Linked Stacks		
12	1	Linked Queues	1	Write a program to implement Merge Sort.
	2	Comparison of sequential and linked storage		
	3	Unit- IV Trees: Binary Trees		
13	1	representation of trees (Linear and linked)	1	Implement doubly linked list for the following user defined functions a. Create a node and Insert an element b. Delete an element and its node c. Find the location of a given value d. Print the list in forward or reverse order
	2	Traversal of binary trees		
	3	Types of binary trees: Expression tree		
14	1	Binary search tree, Heap tree	1	Write a program to insertion and deletion in Circular Queue.
	2	threaded binary trees		
	3	Graphs: Introduction		
15	1	Graph terminology	1	Write a program to evaluate postfix expression.
	2	various representations of Graphs		
	3	operations: Insertion, Deletion and traversal.		

Lesson Plan

Name of the Faculty : Mr. Gorav Parashar)

Discipline : **Electronics & Communication**

Semester : **Fourth**

Subject : Electronics Instrumentation and Measurements

Lesson Plan Duration: 15 weeks (from January, 2019 to April, 2019)

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1 st	1 st	<ul style="list-style-type: none"> • Introduction to Electronics instrumentation & measurement 	1 st	To measure the unknown Inductance in terms of capacitance and resistance by using Maxwell's Inductance bridge.
	2 nd	<ul style="list-style-type: none"> • Introduction and significance of instrumentation & measurement 		
	3 rd	<ul style="list-style-type: none"> • Functional elements of measuring instrument 		
2 nd	1 st	<ul style="list-style-type: none"> • Characteristics of instruments. 	2 nd	To measure unknown Inductance using Hay's bridge.
	2 nd	<ul style="list-style-type: none"> • Error in measurement and analysis 		
	3 rd	<ul style="list-style-type: none"> • Wheatstone bridge, Carey Foster Bridge. 		
3 rd	1 st	<ul style="list-style-type: none"> • Kelvin double bridge 	3 rd	To measure unknown capacitance of small capacitors by using Schering's bridge.
	2 nd	<ul style="list-style-type: none"> • Measurement of insulation resistance. 		
	3 rd	<ul style="list-style-type: none"> • Assignment 1 		
4 th	1 st	<ul style="list-style-type: none"> • Maxwell inductance bridge 	4 th	To measure 3-phase power with 2-Wattmeter method for balanced and unbalanced bridge
	2 nd	<ul style="list-style-type: none"> • Maxwell inductance Capacitance Bridge. 		
	3 rd	<ul style="list-style-type: none"> • Anderson's bridge 		
5 th	1 st	<ul style="list-style-type: none"> • Hay's bridge 	5 th	To measure unknown capacitance using De-Sauty's bridge.
	2 nd	<ul style="list-style-type: none"> • De Sauty bridge 		
	3 rd	<ul style="list-style-type: none"> • Schering bridge 		
6 th	1 st	<ul style="list-style-type: none"> • Wein's bridge 	6 th	To measure unknown frequency

	2 nd	<ul style="list-style-type: none"> • Self balancing potentiometer 		using Wein's frequency bridge.
	3 rd	<ul style="list-style-type: none"> • X-Y recorder. 		
7 th	1 st	<ul style="list-style-type: none"> • Cathode Ray Oscilloscope 	7 th	To measure unknown low resistance by Kelvin's Double bridge.
	2 nd	<ul style="list-style-type: none"> • Magnetic Tape Recorder 		
	3 rd	<ul style="list-style-type: none"> • Assignment 2 		
8 th	1 st	<ul style="list-style-type: none"> • Wave analyser 	8 th	Internal viva
	2 nd	<ul style="list-style-type: none"> • Distortion meter 		
	3 rd	<ul style="list-style-type: none"> • Q meter, Measurement of Op Amp parameters 		
9 th	1 st	<ul style="list-style-type: none"> • Digital indicating instruments 	9 th	To test the soil resistance using Meggar (Ohm meter).
	2 nd	<ul style="list-style-type: none"> • Comparison with analog instruments • Digital display methods 		
	3 rd	<ul style="list-style-type: none"> • Digital voltmeters, time & frequency measurement. 		
10 th	1 st	<ul style="list-style-type: none"> • Classification of transducers, strain gauge 	10 th	To calibrate Energy meter using standard Energy meter.
	2 nd	<ul style="list-style-type: none"> • Class test 		
	3 rd	<ul style="list-style-type: none"> • Capacitive transducers 		
11 th	1 st	<ul style="list-style-type: none"> • LVDT 	11 th	To plot the B-H curve of different magnetic materials.
	2 nd	<ul style="list-style-type: none"> • Piezo electric transducer 		
	3 rd	<ul style="list-style-type: none"> • temperature transducer 		
12 th	1 st	<ul style="list-style-type: none"> • thermistor 	12 th	To calibrate the Voltmeter using Crompton Potentiometer.
	2 nd	<ul style="list-style-type: none"> • Resistance thermometer 		
	3 rd	<ul style="list-style-type: none"> • Liquid level measurement 		
13 th	1 st	<ul style="list-style-type: none"> • Thermocouple, low pressure measurement 	13 th	To convert the Voltmeter into Ammeter using Potentiometer.
	2 nd	<ul style="list-style-type: none"> • A to D converters 		
	3 rd	<ul style="list-style-type: none"> • D to A converters 		
14 th	1 st	<ul style="list-style-type: none"> • Analog data acquisition system 	14 th	Insulation testing of cables using Digital Insulation Tester.
	2 nd	<ul style="list-style-type: none"> • Digital data acquisition system 		
	3 rd	<ul style="list-style-type: none"> • Multiplexing, Spatial 		

		encoder		
15 th	1 st	• Telemetry	15 th	Internal viva
	2 nd	• Revision of syllabi		
	3 rd	• Assignment 3		

Lesson Plan

Name of the Faculty : Mr. Virender Sharma

Discipline : Electronics & Communication Engineering

Semester : 4th

Subject : Electromagnetic Theory

Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)

Week	Theory	
	Lecture Day	Topic to be Covered
1 st	1 st	Introduction to Subject, Books, Basic idea of all units
	2 nd	Unit-1: Introduction to vectors, Addition, Subtraction, Multiplication and Differentiation of Vectors
	3 rd	Co-ordinate System: Rectangular, Cylindrical, Spherical
2 nd	1 st	Co-ordinate System: Inter-relationship between co-ordinate system, Gradient, Divergence and Curl of a vector in all co-ordinate system
	2 nd	Columb's Law, Electric Field Intensity (Single Charge and Group of Charge)
	3 rd	Electric Potential and Electric Potential Difference, Relationship between electric field and electric potential
3 rd	1 st	Electric Field due to a line charge (Finite and Infinite)
	2 nd	Electric Field due to sheet of Charge, Concept of Electric Flux and Flux Density
	3 rd	Electric Dipole
4 th	1 st	Gauss's Law And its Application
	2 nd	Current, Current Density, Continuity of current
	3 rd	Boundary Condition for electric field and Electric flux Density
5 th	1 st	Method of Images
	2 nd	Poisson's and Laplace Equation, Uniqueness Theorem
	3 rd	Electric Field Behaviour in Dielectric, Capacitance of Two Wire Line
6 th	1 st	Faraday's Law, Force on a moving Charge
	2 nd	Biot, Savart's Law, Ampere's Law and Modified Ampere's Law
	3 rd	Magnetic Vector Potential, Differential Current Element
7 th	1 st	Magnetic Boundary Condition
	2 nd	Force and Torque on a Closed Circuit, The Magnetic Circuit
	3 rd	Maxwell's Equation- Point and Integral Form for free space
8 th	1 st	Maxwell Equation for Good Conductor, Lossy Dielectric, Sinusoidal Time Variation & steady fields, Retarded Potential
	2 nd	Wave Equation for Free space, Plane Wave and its properties
	3 rd	Transverse nature of plane wave and Characteristic Impedance of Free space

9 th	1 st	Wave equation for conducting medium
	2 nd	Propagation of Plane wave in Lossy Dielectrics, Good Dielectrics and Good Conductor
	3 rd	The Poynting Vector, Skin Effect
10 th	1 st	Reflection of Uniform Plane Wave at Normal Incidence at Conductor and Dielectric Boundary
	2 nd	Reflection of Uniform Plane Wave at Oblique Incidence at Conductor Boundary
	3 rd	Reflection of Uniform Plane Wave at Oblique Incidence at Conductor Boundary- Continue
11 th	1 st	Reflection of Uniform Plane Wave at Oblique Incidence at Dielectric Boundary
	2 nd	Reflection of Uniform Plane Wave at Oblique Incidence at Dielectric Boundary- Continue
	3 rd	Introduction to Transmission Line, Basic Transmission Line Equation
12 th	1 st	General Solution of Transmission Line terminated with any load, Input Impedance of a Transmission Line
	2 nd	Infinite Transmission Line
	3 rd	Attenuation constant, Phase Constant, Open Circuit and Short Circuited Transmission Line
13 th	1 st	Reflection, Reflection Coefficient
	2 nd	Standing Wave Ratio, VSWR, Relation between VSWR and Reflection Coefficient
	3 rd	Location of Voltage Maxima and Minima, Introduction about Smith Chart
14 th	1 st	Application of Smith Chart
	2 nd	Introduction to waveguide, Propagation of wave in Rectangular waveguide
	3 rd	TE and TM Modes in Rectangular Waveguide
15 th	1 st	Cutt off frequency, Guide wavelength, phase and group velocity for TE and TM modes
	2 nd	Wave Impedance and Characteristic Impedance, Power Flow in Waveguide
	3 rd	Excitation of Waveguide, Dielectric Waveguide

Lesson Plan

Name of the Faculty : Mr. Parveen Hari
Discipline : ECE
Semester : IV
Subject : Numerical Analysis and System
Lesson Plan Duration: 15 weeks (from January, 2019 to April, 2019)
**** Work Load (lecture / Practical) per week (in hours):** Lectures-04

Week	Theory	
	Lecture Day	Topic (including assignment / test)
1	1st	• Solution of algebraic and transcendental equation by the method of bisection
	2nd	• Solution of algebraic and transcendental equation by the method of false position
	3rd	• Solution of algebraic and transcendental equation by the method of Newton-Raphson
	4th	• Solution of algebraic and transcendental equation by the method of Graeffe's Root squaring
2	1st	• Eigen value problem by power method
	2nd	• Eigen value problem by Jacobi method
	3rd	• Solution of linear algebraic equation: Gauss elimination
	4th	• Solution of linear algebraic equation: Gauss-Jordan methods
3	1st	• Solution of linear algebraic equation: Method of Triangularization and Crout's reduction.
	2nd	• Solution of linear algebraic equation: Crout's reduction method
	3rd	• Iterative methods: Gauss-Jacobi
	4th	• Iterative methods: Gauss-Seidel
4	1st	• Iterative methods: Relaxation methods
	2nd	• Matrix inversion by Gauss - Jordan elimination method
	3rd	• Matrix inversion by Gauss - Crout's method
	4th	• Matrix inversion by Gauss, Doolittle method
5	1st	• Matrix inversion by Gauss - Choleski methods
	2nd	• Interpolation: Finite Differences, Relation between operators - Interpolation by Newton's forward formulae for equal intervals
	3rd	• Interpolation: Interpolation by Newton's backward difference formulae for equal intervals.
	4th	• Interpolation: Newton's divided difference method for unequal intervals
6	1st	• Interpolation: Lagrange's method for unequal intervals
	2nd	• Interpolation: Gauss Central difference formulae
	3rd	• Interpolation: Bessel formula
	4th	• Interpolation: Stirling formulae
7	1st	• Numerical differentiation: Newton's forward difference formula to compute derivatives
	2nd	• Numerical differentiation: Newton's backward difference formula to compute derivatives
	3rd	• Numerical differentiation: Derivatives using Central difference formulae to find the maxima and minima of a tabulated function
	4th	• Numerical Integration: by Newton's Cotes formulae
8	1st	• Numerical Integration: by Trapezoidal method
	2nd	• Numerical Integration: by Simpson's $1/3^{\text{rd}}$ and $3/8^{\text{th}}$ rules
	3rd	• Numerical Integration: by Romberg method

	4th	• Solution of Ordinary Differential Equation: Single step methods: Taylor series method
9	1st	• Solution of Ordinary Differential Equation: Single step methods: Picard's method of successive approximation
	2nd	• Solution of Ordinary Differential Equation: Single step methods: Euler method
	3rd	• Solution of Ordinary Differential Equation: Single step methods: Improved Euler methods
	4th	• Solution of Ordinary Differential Equation: Single step methods: Improved Euler methods
10	1st	• Solution of Ordinary Differential Equation: Single step methods: Runge Kutta method of fourth order only
	2nd	• Solution of Ordinary Differential Equation Multistep methods: Milne
	3rd	• Solution of Ordinary Differential Equation: Multistep methods: Adams– Bashforth methods
	4th	• Curve fitting: Introduction
11	1st	• Curve fitting: Principle of Least squares
	2nd	• Curve fitting: Method of Least squares
	3rd	• Curve fitting: Fitting of a straight line
	4th	• Curve fitting: Fitting of parabola
12	1st	• Curve fitting: Fitting of exponential functions
	2nd	• Revision
	3rd	• Revision
	4th	• Revision
13	1st	• Revision
	2nd	• Revision
	3rd	• Revision
	4th	• Revision
14	1st	• Revision
	2nd	• Revision
	3rd	• Revision
	4th	• Revision
15	1st	• Revision
	2nd	• Revision
	3rd	• Revision
	4th	• Revision