

Lesson Plan

Name: Ms Sherry Wadhwa (Theory)

Discipline: Electronics and Communication Engineering Department

Semester: 4th

Subject: Numerical Analysis (AS-206N)

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

Work Load: Lectures-03

Week	Theory	
	Lecture Day	Topic
1	1 st	UNIT-1 Solution of Algebraic and Transcendental Equation and Eigen Value Problem.
	2 nd	Solution of algebraic by the method of bisection
	3 rd	Solution of transcendental equation by the method of bisection
2	4 th	the method of false position
	5 th	Newton-Raphson method
	6 th	Graeffe's Root squaring method
3	7 th	ASSIGNMENT ON "Graeffe's Root squaring method"
	8 th	Eigen value problem by power method
	9 th	Jacobi method
4	10 th	REVISION OF UNIT-1
	11 th	UNIT-II Solution of System of Equations and Matrix Inversion : Solution of linear algebraic equation
	12 th	Gauss elimination
5	13 th	Gauss-Jordan methods
	14 th	Method of Triangularization
	15 th	ASSIGNMENT ON "Crout's reduction"
6	16 th	Iterative methods
	17 th	Gauss-Jacobi
	18 th	Gauss-Seidel
7	19 th	Relaxation methods
	20 th	Matrix inversion by Gauss -Jordan elimination
	21 st	Crout's Method
8	22 nd	Doolittle Method
	23 rd	Choleski Methods
	24 th	UNIT-III Interpolation: Finite Differences

9	25 th	Relation between operators
	26 th	Interpolation by Newton's forward and backward difference formulae for equal intervals
	27 th	Newton's divided difference method and Lagrange's method for unequal intervals
10	28 th	ASSIGNMENT ON "Gauss Central difference formulae"
	29 th	Bessel formulae
	30 th	Stirling formulae
11	31 st	Numerical differentiation: Newton's forward difference formula to compute derivatives
	32 nd	Newton's backward difference formula to compute derivatives
	33 rd	Derivatives using Central difference formulae
12	34 th	to find the maxima and minima of a tabulated function
	35 th	Numerical Integration: by Newton's Cotes formulae
	36 th	Trapezoidal and Simpson's 1/3 rd and 3/8 th rules
13	37 th	Romberg method
	38 th	UNIT-IV Solution of Ordinary Differential Equation: Single step methods: Taylor series method
	39 th	Picard's method of successive approximation, Euler,
14	40 th	Modified Euler's and Improved Euler methods
	41 st	Runge Kutta method of fourth order only.
	42 nd	ASSIGNMENT ON "Multistep methods: Milne and Adams-Bashforth methods."
15	43 rd	Curve fitting: Introduction
	44 th	Principle of Least squares, Method of Least squares
	45 th	Fitting of a straight line, parabola and exponential functions

References Books:

1. M. K. Jain, SRK Iyengar and R.K. Jain, Numerical Methods For Scientific & Engg 6e, New Age International (P) Ltd (2008), ISBN-13:978-8122420012.

LESSON PLAN

Name : Mr. Vivek Chhabra (Theory)

Discipline: Electronics & Communications

Semester: 4th

Subject: Data Structures and Algorithm (ECE-202N)

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

Work Load: Lectures-03

Week	Theory	
	Lecture Day	Topic
1 st	1 st	Overview of 'C': History, Characters used in C
	2 nd	Data Types, 'C' Tokens, Structures of 'C' program,
	3 rd	Operators and Expressions
2 nd	4 th	Flow of Control
	5 th	Flow of Control
	6 th	I/O functions in C
3 rd	7 th	Arrays, Structures
	8 th	user defined data types Introduction: Overview
	9 th	Concept of Data Structures
4 th	10 th	Design of suitable Algorithm, Algorithm analysis
	11 th	Revision of Important Concepts
	12 th	Introduction, 1-D arrays - addressing an element in an array, array traversal ,
5 th	13 th	insertion and deletion in Array
	14 th	Multi-D arrays, representation of arrays in physical memory, application of arrays
	15 th	Searching algorithms: linear search, binary search
6 th	16 th	Sorting algorithms: selection sort, insertions sort,
	17 th	Sorting Algo's: bubble sort, shell sort,
	18 th	Sorting Algo's: merge sort, radix sort (Algorithm and Analysis)
7 th	19 th	Introduction to Stack, Stack Operations
	20 th	Applications of Stacks – Arithmetic operations using Infix to prefix and postfix notations, their conversion and evaluation
	21 st	Stack Operations
8 th	22 nd	Introduction to Queue, Queue Operations
	23 rd	Circular Queue, Priority queue
	24 th	Dequeue
9 th	25 th	Revision of Important Concepts
	26 th	Pointers: Introduction, Pointer variables, pointers and arrays
	27 th	Array of pointer, pointers and structures
10 th	28 th	Dynamic allocation Linked Lists: Introduction, linked lists, operations on linked lists

	29 th	Operations on Link List
	30 th	Operations on Link List
11 th	31 st	Circular linked list
	32 nd	Doubly linked list
	33 rd	Linked Stacks
12 th	34 th	Linked Queues
	35 th	Comparison of sequential and linked storage
	36 th	Revision of Important Concepts
13 th	37 th	Trees: Binary Trees, representation of trees (Linear and linked),
	38 th	Traversal of binary trees. Types of binary trees: Expression tree, threaded binary trees.
	39 th	BST,Heap
14 th	40 th	Graphs: Introduction, Graph terminology,
	41 st	Representations of Graphs,
	42 nd	Operations: Insertion, Deletion and traversal.
15 th	43 rd	Operations on Graph
	44 th	Operations on Graph
	45 th	Revision of Important Concepts

Text Books:

1. Data Structures using C by A. K. Sharma , Pearson Publication
2. Theory & Problems of Data Structures by Jr. Seymour Lipschetz, Schaum's outline by TMH.

Reference Books:

1. Data Structures using C by A. M. Tenenbaum, Langsam, Moshe J. Augentem, PHI Pub
2. Data Structures and program design in C by Robert Kruse, PHI Expert Data Structures with C by R.B. Patel

Lesson Plan

Name of the Faculty : **Mr. Rajan Jain**

Discipline : **Electronics & Comm Engineering**

Semester : **4th**

Subject : **Electronics Measurements and Instruments (ECE-204N)**

Lesson plan : **15 Weeks (From January, 2018 to April, 2018)**

Lecture per Week (in Hours) : **Lectures-03**

Week	Theory	
	Lecture Day	Topic (including Assignment/test)
1 st	1.	Unit 1: Measurement and Error: Functional elements and generalized configuration of a measuring Instrument
	2.	Characteristics of instruments
	3.	Errors in measurements (contd. To Next Lecture)
2 nd	4.	Errors in measurements
	5.	Statistical analysis. Assignment 1: Numerical Based on Errors
	6.	Measurement of Resistance: Wheat stone bridge, Carey-Foster Bridge
3 rd	7.	Kelvin double bridge
	8.	Measurement of Insulation resistance
	9.	Test 1: Measurement of Resistance using bridges
4 th	10.	Unit 2: A-C Bridges: Maxwell Inductance bridge
	11.	Maxwell Inductance Capacitance Bridge
	12.	Anderson's Bridge
5 th	13.	Hay's Bridge
	14.	De-Sauty's Bridge
	15.	Schering's bridge and Wein's bridge. Assignment-2 : Numerical Based on bridges
6 th	16.	Voltage Indicating and Recording Devices: Analog voltmeters
	17.	Potentiometers
	18.	Self balancing potentiometer
7 th	19.	X-Y recorders
	20.	Galvanometers -Oscillographs,Cathode -Ray Oscilloscopes.

	21.	Test-2 Numerical Based on bridges
8 th	22.	Magnetic Tape Recorders
	23.	UNIT -3: Electronic Instruments:Wave analyzer
	24.	Distortion meter
9 th	25.	Q-meter & Measurement of Op-Amp parameters.
	26.	Digital Instruments:Digital Indicating Instruments ASSIGNMENT-3 Digital display methods
	27.	Digital methods of time measurements
10 th	28.	Digital methods of frequency measurements
	29.	Digital voltmeters
	30.	Digital voltmeters
11 th	31.	Test-3 Digital Instruments
	32.	UNIT-4: Transducers: Classification of Transducers
	33.	Strain Gauge
12 th	34.	Displacement Transducers -Capacitive Transducers
	35.	LVDT
	36.	Piezo-electric Transducers
13 th	37.	Temperature Transducers –resistance thermometer
	38.	Thermocouples and Thermistors
	39.	Liquid level measurement and Low pressure(vacuum) measurement
14 th	40.	Data Acquisition Systems: A to D and D to A converters
	41.	Analog and Digital Data Acquisition Systems
	42.	Multiplexing
15 th	43.	Spatial Encoders & Telemetry
	44.	Test -4 Transducers
	45.	Revision

Text Books:

1. A Course in Electrical and Electronics Measurements and Instrumentation: A.K. Sawhney; Dhanpat Rai & Sons.

Reference Books:

1. Electronics Instrumentation and Measurement Techniques: Cooper W.D & Helfrick A.D.; PHI
2. Doebelin E.O., Measurement Systems: Application & Design, Mc Graw Hill.

Lesson Plan

Name : Mr. Sandeep Kumar (Theory)

Discipline: Electronics and Communication Department

Semester: 4th

Subject: Electromagnetic Theory

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

Work Load: Lectures-03

Week	Theory	
	Lecture Day	Topic
1	1 st	UNIT 1: Introduction to Vectors, Addition, Subtraction, Multiplication & Differentiation.
	2 nd	Coordinate Systems: Rectangular, Cylindrical & Spherical.
	3 rd	Coulomb's law. Electric Field Intensity
2	4 th	Electric Potential, Field of a Line Charge, Field of a Sheet of Charge
	5 th	Electric Flux Density
	6 th	ASSIGNMENT ON "Electric Dipole"
3	7 th	Current Density
	8 th	Continuity of Current
	9 th	Gauss's Law and Applications, Electric Field Behavior in Dielectrics
4	10 th	Boundary Conditions at Interface between Two Dielectrics
	11 th	Method of Images, Capacitance of Two Wire Line
	12 th	Poisson's and Laplace's Equations, Uniqueness Theorem.
5	13 th	UNIT 2: Biot - Savart Law. Ampere's law
	14 th	Magnetic Vector potentials, Differential Current Element
	15 th	ASSIGNMENT ON "Force and Torque on a Closed Circuit"
6	16 th	the Magnetic Circuit, Faraday's Law
	17 th	Maxwell's Equations in Point and Integral form for Free space
	18 th	Good Conductors & Lossy Dielectric for Sinusoidal Time Variations & Static Fields
7	19 th	Retarded potentials
	20 th	Force on a moving charge
	21 st	Magnetic Boundary Conditions
8	22 nd	UNIT 3: The Uniform Plane Wave
	23 rd	Plane Waves & its Properties
	24 th	Wave Equation for Free Space
9	25 th	Wave Equation for Conducting Medium
	26 th	Propagation of Plane Waves in Lossy Dielectrics
	27 th	Good Dielectric

10	28 th	ASSIGNMENT ON “Good Conductors”
	29 th	The Poynting Vector and Power considerations
	30 th	Skin Effect,
11	31 st	Reflection of Uniform Plane Waves (Normal & Oblique Incidence)
	32 nd	Unit 4: The Transmission Line Equations
	33 rd	Graphical Methods
12	34 th	Smith chart
	35 th	Time-domain and Frequency- domain Analysis
	36 th	Reflection in Transmission Lines
13	37 th	SWR
	38 th	TE, TM, TEM waves
	39 th	TE and TM modes in Rectangular and Circular Waveguides
14	40 th	Cut-off & Guided Wavelength
	41 st	Wave Impedance and Characteristic Impedance
	42 nd	ASSIGNMENT ON “Dominant Modes”
15	43 rd	Power Flow in waveguides
	44 th	Excitation of Waveguides
	45 th	Dielectric Waveguides

Text Books:

1. Hayt W H., Engineering Electromagnetics, Tata McGraw Hill, 6th Edition.

References Books:

1. Jordan E C & Balmain K G, Electromagnetic Waves and Radiating Systems, PHI.2 David K. Chang, Field and Waves Electromagnetics, Addison Wesley.

Lesson Plan

Name : Ms Ruchika (Theory)

Discipline: Electronics and Communication Department

Semester: 4th

Subject: Analog Electronics

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

Work Load: Lectures-03

Week	Theory	
	Lecture Day	Topic
1	1 st	Amplifier Models: Voltage amplifier
	2 nd	Current amplifier
	3 rd	Trans-conductance amplifier and Trans-resistance amplifier.
2	4 th	Biasing schemes for BJT and FET amplifiers
	5 th	Bias stability of CE/CS configurations
	6 th	Bias stability of CB/CG, CC/CD configurations
3	7 th	Features of various configurations (such as CE/CS, CB/CG, CC/CD)
	8 th	ASSIGNMENT ON “small signal analysis, low frequency transistor models”
	9 th	estimation of voltage gain, input resistance, output resistance etc.,
4	10 th	UNIT-2 Transistor Frequency Response: High frequency transistor models
	11 th	frequency response of single stage
	12 th	frequency response of multistage amplifiers and cascade amplifier
5	13 th	Various classes of operation (Class A)
	14 th	Various classes of operation(Class B,AB)
	15 th	Various classes of operation(Class C)
6	16 th	power efficiency and linearity issues
	17 th	Feedback Topologies: Voltage series
	18 th	current series
7	19 th	voltage shunt
	20 th	current shunt
	21 st	ASSIGNMENT ON “effect of feedback on gain, bandwidth “
8	22 nd	calculation with practical circuits
	23 rd	concept of stability, gain margin and phase margin
	24 th	Unit-3 Oscillators: Review of the basic concept
9	25 th	Barkhausen criterion for oscillators
	26 th	Type of RC oscillators : RC phase shift oscillator
	27 th	Wien bridge oscillator
	28 th	LC oscillators

10	29 th	Hartley oscillator
	30 th	Collpit oscillator
11	31 st	ASSIGNMENT ON “Clapp oscillator”
	32 nd	555 Timer as a monostable
	33 rd	555 Timer as astable multivibrator
12	34 th	Op-Amp Applications: Schmitt trigger and its applications.
	35 th	Current mirror: Basic topology
	36 th	and its variants
13	37 th	V-I characteristics, output resistance and
	38 th	ASSIGNMENT ON “minimum sustainable voltage (VON), maximum usable load.”
	39 th	Differential amplifier: Basic structure and principle of operation
14	40 th	calculation of differential gain,
	41 st	common mode gain, CMRR and ICMR.
	42 nd	OP-AMP design
15	43 rd	design of differential amplifier for a given specification
	44 th	Design of gain stages
	45 th	Design of output stages

Text Books:

1. Electronic Devices and Circuits by Millman and Halkias, McGraw Hills, New Delhi

Reference Books:

1. Operational Amplifiers and Linear Integrated Circuits by Ramakant A Gayakwad, PHI.
2. A.S. Sedra & K.C. Smith, Microelectronics Circuits, Oxford University Press
3. Robert L. Boylestad & Louis Nashelsky, Electronic Devices & Circuit Theory, Pearson

LESSON PLAN

Name of Faculty: Gurpreet Kaur Semester: 4th
Discipline: ECE Branch & Section: ECE
Subject Name and Code: Computer Architecture & Organization ECE
210N

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

Work Load (Lecture / Lab) per week : Lectures – 03

Instruction Plan Details :

Plan for course, to be covered before 1st Sessional Exam

WEEK	THEORY	
	Lecture Day	Topic
1st	1	Introduction to basic computer architecture
	2	register transfer
	3	bus and memory transfers
2nd	4	Arithmetic
	5	logic and shift micro operations
	6	Central Processing Unit: Introduction
3rd	7	general register organization
	8	stack organization
	9	instruction formats
4th	10	addressing modes
	11	data transfer and manipulation
	12	program control
5th	13	RISC, Macros and Subroutines
	14	Control Design: Micro programmed control
	15	control memory
6th	16	address sequencing
	17	micro program example
	18	design of control unit
7th	19	Hardwired Control: design methods
	20	Multiplier Control Unit

	21	CPU Control unit
8th	22	Processor Design: Decimal arithmetic unit
	23	BCD adder
	24	BCD subtraction
9th	25	decimal arithmetic operations
	26	ALU design
	27	Forms of Parallel processing classification of Parallel structures
10th	28	Array Processors
	29	Structure of general purpose Multiprocessors
	30	Memory hierarchy
11th	31	main memory
	32	auxillary memory
	33	associative memory
12th	34	cache memory
	35	virtual memory
	36	memory management
13th	37	hardware multiprocessor architectures and their characteristics
	38	interconnection structures
	39	Random access memories: semiconductor RAMS
14th	40	Serial – access Memories Memory organization, Main Memory Allocation
	41	Pipeline and Vector Processing: Parallel processing
	42	pipelining, arithmetic pipeline, instruction pipeline
15th	43	RISC pipeline, vector processing, array processors , Input
	44	output Organisation: Peripheral devices, input-output interface, asynchronous data transfer
	45	modes of transfer, priority interrupt,DMA, IOP serial communication

Text Books:

1. Morris Mano, “Computer System Architecture”, PHI.
2. J.F. Heys, “Computer Organization and Architecture”, TMH.

Reference Books:

1. J. Hennessy and D. Patterson, Computer Architecture A Quantitative Approach, 3rd Ed, Morgan Kaufmann, 2002.

Lesson Plan (Lab)

Name of the Faculty : **Mr. Vivek Chhabra**

Discipline : **Electronics & Communications**

Semester : **4th**

Subject : **Data Structure Lab (ECE-212N)**

Lesson plan : **15 Weeks (From January, 2018 to April, 2018)**

Lecture per Week (in Hours): **Lectures-03**

Week	Practical	
	Practical Day	Topic
1 st	1.	Introduction to Data Structure Recall to important topics of C Language
2 nd	2.	1. Write a program to print a 2D array. 2. Write a program to find the factorial of an nth number using recursion. 3. Write a program to print Fibonacci sequence.
3 rd	3.	4. Using clock() function of time.h header file, compare the timings of linear search and binary search for an 1D array of 1000 elements
4 th	4.	5. Compare the timings of the following sorting algorithm a. Bubble sort b. Selection sort c. Insertion sort
5 th	5.	6. 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
6 th	6.	7. 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
7 th	7.	8. 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
8 th	8.	9. Traverse a tree and print the elements in a. Preorder b. Post order c. In order
9 th	9.	10. Traverse a graph and print the elements using a. Depth first search b. Breadth first search
10 th	10.	Revision
11 th	11.	Revision
12 th	12.	Revision
13 th	13.	Revision
14 th	14.	Viva
15 th	15.	Viva

Lesson Plan

Name of the Faculty : **Mr. Rajan Jain**

Discipline : **Electronics & Comm Engineering**

Semester : **4th**

Subject : **Electronics Measurements and Instruments LAB (ECE-214N)**

Lesson plan : **15 Weeks (From January, 2018 to April, 2018)**

Work Load : **03**

Week	Practical	
	Practical Day	Topic
1 st	1.	Introduction of various instruments
2 nd	2.	To measure the unknown Inductance in terms of capacitance and resistance by using Maxwell's Inductance bridge.
3 rd	3.	To measure unknown Inductance using Hay's bridge.
4 th	4.	To measure unknown capacitance of small capacitors by using Schering's bridge.
5 th	5.	To measure 3-phase power with 2-Wattmeter method for balanced and unbalanced bridge.
6 th	6.	VIVA-1
7 th	7.	To measure unknown capacitance using De-Sauty's bridge.
8 th	8.	To measure unknown frequency using Wein's frequency bridge.
9 th	9.	To measure unknown low resistance by Kelvin's Double bridge.
10 th	10.	To test the soil resistance using Meggar (Ohm meter).
11 th	11.	VIVA-2
12 th	12.	To calibrate Energy meter using standard Energy meter.
13 th	13.	To plot the B-H curve of different magnetic materials.
14 th	14.	To calibrate the Voltmeter using Crompton Potentiometer.
15 th	15.	VIVA-3

Lesson Plan

Name : Ms Ruchika

Discipline: Electronics and Communication Department

Semester: 4th

Subject: Analog Electronics Lab

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

Work Load: Practicals-03

Week	Practical	
	Practical Day	Topic
1	1	Design CE amplifier circuit using BJT, Find gain and frequency response
2	2	Design differential amplifier using BJT, Find gain and frequency response.
3	3	Viva-Voce
4	4	Design RC coupled single stage BJT amplifier & determine gain, frequency response, I/O impedances.
5	5	Design BJT emitter follower & determine gain, I/O impedances.
6	6	Viva-Voce
7	7	Design & test performance of BJT-RC phase shift oscillator
8	8	Design & test performance of BJT-Hartley oscillator
9	9	Design & test performance of BJT-colpitt oscillator
10	10	Viva-Voce
11	11	Design an astable multivibrator using 555 timer.
12	12	Design a monostable multivibrator using 555 timer.
13	13	Viva -Voce
14	14	Design Schmitt trigger using op-amp and verify its operational characteristics
15	15	Internal Viva