Lesson Plan

Name: Mr. Shakti Singh (Theory)

Discipline: Applied Science

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

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

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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 : Er. Ankit (Theory)

Discipline: Computer Science Engineering

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

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

Discipline : Electronics and Communication Engineering

Semester : 4th

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

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

Lecture per Week (Hours): Lectures - 03

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

	21.	**Test-2 Numerical Based on bridges**
8th	22.	Magnetic Tape Recorders
	23.	**UNIT -3: Electronic Instruments:**Wave analyzer
	24.	Distortion meter
9th	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
10th	28.	Digital methods of frequency measurements
	29.	Digital voltmeters
	30.	Digital voltmeters
11th	31.	**Test-3 Digital Instruments**
	32.	**UNIT-4: Transducers:** Classification of Transducers
	33.	Strain Gauge
12th	34.	Displacement Transducers -Capacitive Transducers
	35.	LVDT
	36.	Piezo-electric Transducers
13th	37.	Temperature Transducers –resistance thermometer
	38.	Thermocouples and Thermistors
	39.	Liquid level measurement and Low pressure(vacuum) measurement
14th	40.	**Data Acquisition Systems:** A to D and D to A converters
	41.	Analog and Digital Data Acquisition Systems
	42.	Multiplexing
15th	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. Doeblin E.O., Measurement Systems: Application & Design, Mc Graw Hill.

Lesson Plan

Name : Er. Yashika Kapoor (Theory)

Discipline: Electronics and Communication Engineering

Semester: 4th

Subject: Electromagnetic Theory (ECE-206N)

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

Work Load: Lectures-03

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

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

Discipline: Electronics and Communication Engineering

Semester: 4th

Subject: Analog Electronics (ECE-208N)

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

Work Load: Lectures-03

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

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

Semester: 4th

Discipline: Electronics and Comunication

Subject Name and Code: Computer Architecture & Organization (ECE-210N)

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

Lecture per week : Lectures-03

WEEK	THEORY	
	Lecture Day	Topic
Ist	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: Er. Ankit (Lab)

Discipline : Computer Science Engineering

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
1st	1.	Introduction to Data Structure Recall to important topics of C Language
2nd	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.
3rd	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
4th	4.	5. Compare the timings of the following sorting algorithm a. Bubble sort b. Selection sort c. Insertion sort
5th	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
6th	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
7th	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
8th	8.	9. Traverse a tree and print the elements in a. Preorder b. Post order c. In order
9th	9.	10. Traverse a graph and print the elements using a. Depth first search b. Breadth first search
10th	10.	Revision
11th	11.	Revision
12th	12.	Revision
13th	13.	Revision
14th	14.	Viva
15th	15.	Viva

Lesson Plan

Name of the Faculty: Er. Gagandeep Singh (Lab)

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 per Week: 03 Hrs

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

Lesson Plan

Name : Er. Amit Saini (Lab)

Discipline: Electronics and Communication Engineering

Semester: 4th

Subject: Analog Electronics Lab (ECE-216N)

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

Work Load: Practicals-03

	Practical	
Week	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