LESSON PLAN

Name of Faculty : Ms. Ritu Yadav

Discipline : Electrical Engineering

Semester : 4th

Subject : Electromagnetic Field Theory

Lesson Plan Duration : 11 week (January 2018 to April 2018)

Work load (Lecture/Practical) per week (in hours): Lecture-03, Tutorial-01

Week	Theory		Practical	
	Lecture Day	Topic	Practical Day	Topic
1	1st	Co-ordinate system, Co-ordinate transformation	1	NA
	2nd	Cartesian and cylindrical coordinate Spherical co-ordinate ,vector calculus		NA
	3rd	Del operator, gradient of scalar, Divergence of a vector and divergence theorem		NA
2	1st	Curl of a vector, stokes theorem, Laplacian of a scalar, Electrostatic field, coulombs law, field intensity	2	NA
	2nd	Electric field due to charge distribution, Electric flux density , gauss law		NA
	3rd	Maxwell equation, Electric diplole and flux line		NA
3	1st	Energy density in electrostatic field, Electric field in material space	3	NA
	2nd	Properties of material, Convection and conduction current		NA
	3rd	Dielectric constant, Electrostatic boundary condition		NA
4	1st	General solution for passions equation, Poisson and Laplace equation	4	
	2nd	Resistance and capacitance , method of images, Magneto static field, Biot-savart law		
	3rd	Ampere circuit law, Ampere force law		
5	1st	Maxwell equation, Application of ampere law	5	NA

	2nd	Magnetic forces ,and materials		NA
	3rd	Magnetic torque moment , dipole moment, Magnetization in materials		NA
6	1st	Inductor and boundary condition	6	NA
	2nd	Maxwell's equation , Faradays Law		NA
	3rd	Electromotive Force		NA
7	1st	Maxwell equation in final form	7	NA
	2nd	Electromagnetic wave propagation		NA
	3rd	Wave propagation in lossy dielectric		NA
8	1st	Plane wave in lossless dielectric	8	NA
	2nd	Plane wave in free space		NA
	3rd	Plain wave in good conductor		NA
9	1st	Power and pointing vector	9	NA
	2nd	Reflection of plain wave in normal		NA
	3rd	Motional EMF		NA
10	1st	Transmission line	10	NA
	2nd	Transmission line parameter		NA
	3rd	Standing wave Ration		NA
11	1st	Standing wave power	11	NA
	2nd	Displacement current		NA
	3rd	Transmission line equation		NA

Lesson Plan

Name of Faculty : PRERANA DHULL

Discipline : Electrical Engineering

Semester : 4th

Subject : Principles Of Communication System (EE)

Lesson Plan Duration : 15 week (January 2018 to April 2018)

Work load (Lecture/Practical) per week (in hours) : Lecture-03, Tutorial-03, Practical- 06

Week	Theory		Practical	
	Lecture Day	Topic	Week	Topic
1	1st	Introduction and Essential of Communication System	1	Generation of DSB-SC AM signal using balanced modulator.
	2nd	Representation of Signals and System – Mode and Media of Communication System		
	3rd	Classification of Signals and System		
2	1st	Fourier Series – Trignometric Fourier Series-Representation of Periodic Function	2	Generation of SSB AM signal
	2nd	Polar Fourier Series Representation		
	3rd	Complex Fourier Exponential Series		
3	1st	Useful f'n and their Fourier Transforms	3	To study envelop detector for demodulation of AM signal
	2nd	Properties of Fourier Transforms		
	3rd	Analog and Digital Communication		
4	1st	Multiplexing and Demultiplexing	4	Study of Frequency Division Multiplexing/Demultiplexing with sinusoidal & audio inputs
	2nd	Amplitude Modulation (AM)		
	3rd	Generation of AM -Linear Modulation- Collector Modulation		
5	1st	Nonlinear Modulation – Square Law Modulation	5	To generate a FM Signal using Varactor & reactance modulation
	2nd	Demodulation - Square Law detector – Envelope detector		
	3rd	Introduction of (DSB-SC)		
6	1st	Generation of (DSB-SC) -	6	Study of pulse code modulation and demodulation with parity & Hamming code
	2nd	Demodulation of(DSB-SC)		
	3rd	Single Sideband Suppressed Carrier (SSB-SC) Modulation – Time domain description		
7	1st	Hilbert Transform	7	Frequency modulation using voltage controlled oscillator.
	2nd	Generation of (SSB-SC)		

	3rd	Demodulation of (SSB-SC)		
8	1st	Vestigial Sideband Transmission (VSB)	8	Study of ASK, FSK modulator and demodulator
	2nd	Angle Modulation		
	3rd	Type of Frequency Modulation – Narrow band FM		
9	1st	Wide Band FM	9	Study of PSK & QPSK modulator and demodulator
	2nd	Generation of FM		
	3rd	Demodulation of FM		
10	1st	Sampling Theorem	10	Study of Differential Pulse code modulation & demodulation
	2nd	Sampling Techniques		
	3rd	Pulse Amplitude Modulation (PAM)		
11	1st	Pulse Time Modulation (PTM)	11	Generation & study of Analog TDM at least 4 channels
	2nd	Pulse Code Modulation (PCM)		
	3rd	Quantization Noise		
12	1st	Application – advantage and drawback of (PCM)	12	. To study the circuit of PAM/PWM/PPM modulator & Demodulator
	2nd	Delta Modulation (DM)		
	3rd	Differential Pulse Code Modulation (DPCM)		
13	1st	Amplitude Shift Keying (ASK)	13	Generation & study of Analog TDM at least 4 channels
	2nd	Frequency Shift Keying (FSK)		
	3rd	Binary Phase Shift Keying (BPSK)		
14	1st	Spectrum of (BPSK) Signals		
	2nd	Differential Phase Shift Keying (DPSK)		
	3rd	Quadrature Phase Shift Keying (QPSK)		
15	1st	Spectrum of (QPSK) – Minimum Shift Keying (MSK)		
	2nd	External and Internal Noise		
	3rd	S/N Ratio – Noise Figure		

LESSION PLAN

Name of Faculty : VIKAS GUPTA

Discipline : Electrical Engineering

Semester : 4th

Subject : TRANSMISSION AND DISTRIBUTION

Lesson Plan Duration : 11 week (January 2018 to April 2018)

Work load (Lecture/Practical) per week (in hours): Lecture-03, Tutorial-01

Week	Theory		Practical	
	Lecture Day	Topic	Practical Day	Topic
1	1st	Structure of a power system	1	NA
	2nd	Indoor and outdoor substations		NA
	3rd	Equipment for substations		NA
2	1st	Layout, auxiliary supply	2	NA
	2nd	Radial, ring mains		NA
	3rd	Network distribution system		NA
3	1st	Comparison of various types of ac and dc systems	3	NA
	2nd	Calculation of line parameters		NA
	3rd	Ferranti effect		NA
4	1st	Proximity effect	4	
	2nd	Models of short, medium and long Transmission lines		
	3rd	Performance of Transmission lines		
5	1st	Circle diagram	5	NA
	2nd	Capacity of synchronous condenser		NA
	3rd	Tuned lines		NA
6	1st	Voltage control	6	NA
	2nd	Sag and stress calculations		NA
	3rd	Effect of ice and wind		NA
7	1st	Dampers	7	NA
	2nd	INSULATORS Types		NA
	3rd	Insulating materials		NA
8	1st	Voltage distribution over insulator string	8	NA
	2nd	Equalizer ring		NA
	3rd	Types of LV and HV cables		NA
9	1st	Grading of cables	9	NA
	2nd	Capacitance, ratings		NA
	3rd	CORONA Phenomenon		NA
10	1st	Critical voltage	10	NA
	2nd	Power loss		NA
	3rd	Reduction in losses		NA

11	1st	Radio-interference	11	NA
	2nd	HVDC transmission		NA
	3rd	Types of links, types of links		NA

Lesson Plan

Name of Faculty : JYOTI SEHGAL

Discipline : Electronics and communication engineering

Semester : 4th

Subject : Digital Electronics (ECE+EE)

Lesson Plan Duration : 15 week (January 2018 to April 2018)

Work load (Lecture/Practical) per week (in hours) : Lecture-03, Tutorial-03, Practical- 06

Week	Theory		Practical	
	Lecture Day	Topic	Week	Topic
1	1st	Digital systems and binary number: signed binary number	1	Introduction to digital electronics lab
	2nd	Binary codes, cyclic codes		
	3rd	Error detecting and correcting codes		
2	1st	Hamming codes	2	Implementation of all gates using NAND and NOR gate
	2nd	The K-map method		
	3rd	The K-map method upto five variables		
3	1st	Don't care condition	3	Implementation of the given Boolean function in both SOP and POS forms.
	2nd	POS simplification		
	3rd	NAND and NOR implementation		
4	1st	Quine Mc-Clusky method	4	Implementation and verification of decoder/de-muliplexer and encoder using logic gates
	2nd	Quine Mc-Clusky method		
	3rd	Combinational logic circuits		
5	1st	Analysis procedure	5	Implementation of 4-bit comparator
	2nd	Design procedure		
	3rd	Binary adder-subtractor		
6	1st	Decimal adder ,binary multiplier	6	Implementation of 4-bit parallel adder using 7483 IC
	2nd	Magnitude comparator , decoders		
	3rd	Encoders		
7	1st	Multiplexers	7	Implementation of 4*1 multiplexer using logic gates
	2nd	De-multiplexers		
	3rd	Sequential circuits		
8	1st	Storage elements: latches	8	Verification of state tables of RS,JK,T and D flip-flops using NAND and NOR gates
	2nd	Flip-flops		
	3rd	Flip-flops		
9	1st	Analysis of clocked sequential circuits	9	Implementation of 4-bit subtractor
	2nd	State reduction and assignments		
	3rd	Design procedure		
10	1st	Shift registers	10	Design and verify the 4-bit

	2nd	Ripple counter		synchronous counter
	3rd	Synchronous counter		
11	1st	Other counters	11	Design and verify the 4-bit asynchronous counter
	2nd	Other counters		
	3rd	RAM		
12	1st	ROM	12	Static and dynamic characteristics of NAND and Schmitt-NAND gate(both TTL and MOS)
	2nd	PLA		
	3rd	PAL		
13	1st	ASMs	13	Study of arithmetic logic unit
	2nd	Design examples		
	3rd	Design with multiplexers		
14	1st	Asynchronous sequential logic: analysis procedure	14	Mini project
	2nd	Circuit with latches		
	3rd	Design procedure		
15	1st	Reduction of state and flow table	15	Mini project
	2nd	Race free state assignments		
	3rd	Hazards		

Lesson Plan

Name of Faculty : Sanjeev Mudgal
Discipline: B.Tech.
Semester: 4th
Subject: Engineering Economics
Code: HUM-201-F
Lession Plan Duration : January 2018 to April 2018
Work load (Lecture and Tutorial) Per Week: Lecture-3, Tutorial-1

week	Theory	
	Lecture Day	**Topic**
1	**1**	Introduction of economics and various definitions
	2	Nature of Economic problem
	3	Production possibility curve Economic laws and their nature
	Tutorial	**Problem Related to Above Lectures**
2	**4**	Relation between Science, Engineering, Technology and Economics
	5	Relation b/w Science, Engineering, Technology and Economics
	6	Concepts and measurement of utility
	Tutorial	**Problem Related to Above Lectures**
3	**7**	Law of Diminishing Marginal Utility
	8	Law of equi-marginal utility – its application and importance
	9	Meaning of Demand
	Tutorial	**Problem Related to Above Lectures**
4	**10**	Individual and Market demand schedule
	11	Law of demand
	12	Shape of demand curve
	Tutorial	**Assignment**
5	**13**	Elasticity of demand
	14	Measurement of elasticity of demand
	15	Factors effecting elasticity of demand
	Tutorial	**Problem Related to Above Lectures**
6	**16**	Practical importance & applications of the concept of E.O.D
	17	Meanning of production and factor of production
	18	Law of variable propotions and return of scale
	Tutorial	**Problem Related to Above Lectures**
First Sessional		

7	**19**	Internal and External economics
	20	Diseconomies of scale
	21	Various concepts of cost - Fixed cost, variable cost, average cos
	Tutorial	**Seminar**
8	**22**	Marginal cost and money cost
	23	Cost opportunity cost
	24	Shape of average cost
	Tutorial	**Problem Related to Above Lectures**
9	**25**	Marginal cost
	26	Total cost in short run and long run.real
	27	Meaning of Market and its types
	Tutorial	**Problem Related to Above Lectures**
10	**28**	Perfect Competition
	29	Monopoly Competition
	30	Oligoply Competition
	Tutorial	**Problem Related to Above Lectures**
11	**31**	Monoplistic Competition
	32	Supply and Law of Supply
	33	Role of Demand
	Tutorial	**Assignment**
12	**34**	Supply in Price Determinition
	35	Effect of changes in demand and supply on prices
	36	Determinition and Effect of changes in demand
	Tutorial	**Problem Related to Above Lectures**
Second Sessional		
13	**37**	Effect of supply on prices
	38	Privatization
	39	Merits and demerits
	Tutorial	**Problem Related to Above Lectures**
14	**40**	Globalisation of Indian economy
	41	Globalisation Merits and demerits
	42	Elementary Concepts of VAT
	Tutorial	**Problem Related to Above Lectures**
15	**43**	Concepts of WTO
	44	Concepts of GATT
	45	Elementary Concepts of TRIPS agreement
	Tutorial	**Problem Related to Above Lectures**
Third Sessional		

LESSON PLAN

Name of Faculty : NEHA GUPTA

Discipline : **ECE**

Semester : **4th**

Subject : **Analog Electronics**

Lesson Plan Duration : 15 weeks (From Jan 2018 to Apr 2018)

**Workload (lecture/ practical) per week (in hours): lectures (3), Practical's(6).

Weeks	Theory		Practical's	
	Lecture day	Topic (including assignment/test)	Practical day	Topic
1st	1st	Review of P-N junction and Characteristic	1st	Introduction of lab equipments and discussion about safety measures
	2nd	P-N junction as a rectifier	2nd	……..do……..
	3rd	Switching characteristics of Diode	3rd	……..do……..
2nd	1st	Diode as a circuit element, the load-line concept	1st	Study of lab equipments and components: CRO, Multimeter, Function Generator, Power supply- Active, Passive Components & Bread Board.
	2nd	Half-wave and full wave rectifiers	2nd	…….do……..
	3rd	Centre tapped Full wave Rectifiers	3rd	…….do……..
3rd	1st	Bridge Rectifier	1st	P-N Junction Diode: Characteristics of PN Junction diode-Static and dynamic resistance Measurement from graph.
	2nd	Numerical Problems	2nd	……do……
	3rd	Clipping circuits, clamping circuits,	3rd	……do……
4th	1st	Filter circuits, peak to peak detector	1st	Applications of PN junction diode: Half & Full wave rectifier- Measurement of Vrms, Vdc, and ripple factor-use of filter-ripple reduction (RC Filter)-Clipper & Clamper
	2nd	Voltage multiplier circuits.	2nd	…….do…….
	3rd	CLASS TEST	3rd	…….do…….
5th	1st	Review of MOSFET structure operation and V-I characteristics	1st	Properties of junctions Zener diode characteristics. Heavy doping alters the reverse characteristics. Graphical

				measurement of forward and reverse resistance
	2nd	Circuits at DC, MOSFET as Amplifier and switch,	2nd	……..do……
	3rd	Biasing in MOS amplifier circuits,	3rd	……..do……..
6th	1st	Small-signal operation and models,	1st	Application of Zener diode: Zener diode as voltage regulator. Measurement of percentage regulation by varying load resistor
	2nd	Single stage MOS amplifier,	2nd	…….do…….
	3rd	Assignment	3rd	……..do……
7th	1st	MOSFET internal capacitances and high frequency model,	1st	Characteristic of BJT : BJT in CB and CE configuration- Graphical measurement of h parameters from input and output characteristics. Measurement of Av, AI, Ro and Ri of CE amplifier with potential divider biasing
	2nd	Numerical problems on biasing of MOSFET	2nd	…….do……..
	3rd	Frequency response of CS Amplifier	3rd	…….do……..
8th	1st	1st Sessional Exam	1st	Characteristic of FET: FET in common source configuration. Graphical measurement of its parameters gm, rd & m from input and output characteristics.
	2nd	1st Sessional Exam	2nd	……do……..
	3rd	1st Sessional Exam	3rd	…….do……..
9th	1st	BJT: Review of device structure operation and V-I characteristics	1st	Characteristic of silicon-controlled rectifier.
	2nd	BJT circuits at DC	2nd	……do…….
	3rd	BJT as amplifier and Switch	3rd	……do……..
10th	1st	Biasing in BJT amplifier circuit	1st	To plot V-I Characteristics of DIAC
	2nd	Small-signal operation and models	2nd	……do…….
	3rd	Single stage BJT amplifier	3rd	……do…….
11th	1st	BJT internal capacitances and high frequency mode	1st	To draw V-I characteristics of TRIAC for different values of Gate Currents.
	2nd	Numerical Problems on	2nd	……do……..

		BJT biasing		
	3rd	CLASS TEST	3rd	……do……..
12th	1st	Frequency response of CE amplifier	1st	Study of frequency response of active filters LP, HP & BP.
	2nd	ASSIGNMENT on BJT numerical problems	2nd	……..do…….
	3rd	Presentation and discussion on assignment	3rd	……..do……..
13th	1st	Operational Amplifier: Inverting and non-inverting configurations	1st	Practical revision and Problems
	2nd	Difference amplifier, Effect of finite open loop gain and bandwidth on circuit performance,	2nd	……do…….
	3rd	Large signal operation of op-amp.	3rd	…….do…….
14th	1st	Feedback: The general feedback structure, properties of negative feedback, the four basic feedback topologies,	1st	Practical revision and Problems
	2nd	The series-shunt feedback amplifier, the series-series feedback amplifier,	2nd	……..do…….
	3rd	The shunt-shunt and shunt series feedback amplifier.	3rd	…….do……
15th	1st	Differential Amplifier: MOS differential pair, small signal operation of the MOS differential pair,	1st	Internal Viva Voce
	2nd	BJT differential pair, other non-ideal characteristic of the Differential amplifier (DA), DA with active load	2nd	……do……
	3rd	CLASS TEST	3rd	……..do……..