Lesson Plan for 5th sem ECE

Microwave and Radar

Lesson Plan

Name of Faculty : POONAM, Assistant Professor
Discipline : ECE
Semester : Vth
Subject : MICROWAVEANDRADARENGINEERING (EE - 302E)
Lesson Plan Duration: 15 weeks (from July, 2018 to Dec, 2018)
Work Load (Lectutre/Practical) per week (in hours):Lectures-04, Practical -01

Week	Theory		Practicals	
	Lecture Day	Topic (Including Assignment/Test)	Practical Day	Topic
1st	1	Introduction, comparison with transmission lines	1	Study of wave guide components.
	2	Propagation in TEmode		
	3	Propagation in TMmode		
	4	Rectangular wave guide		
2nd	5	TEM mode in rectangular wave guide	2	To study the characteristics of reflex Klystron and determine its timing range.
	6	Characteristic Impedance		
	7	Introduction to circular waveguides		
	8	Introduction to planar transmission lines		
3rd	9	Directionalcouplers	3	To measure frequency of microwave source and demonstrate relationship amongguide dimensions, free space wave length and guide wavelength
	10	Tees		
	11	Hybrid ring		
	12	S-Parameters		
4th	13	Attenuators	4	To measure VSWR of unknown load and determine its impedance using a smith chart
	14	Cavity Resonators		
	15	Mixers & Detectors		
	16	Matched Load		
5th	17	Wave meter	5	To match impedance for maximum power transfer using slide screw tuner.
	18	PhaseShifter		
	19	Ferrite devices: Isolators		
	20	Circulators		
6th	21	Limitation of conventional tubes	6	**First Viva -Voce**
	22	Construction of Klystron amplifier		

	23	Operation and properties of Klystron amplifier		
	24	Assignment I		
7th		**……Ist Minor Test……..**		
8th	25	Reflex Klystron	7	To measure coupling and directivityofdirectioncouplers.
	26	Magnetron		
	27	TWT, BWO		
	28	Crossed field amplifiers		
9th	29	Varactor diode	8	Tomeasureinsertionloss,isolation of a three port circulator.
	30	Tunnel diode		
	31	Schottky diode		
	32	GUNN diode		
10th	33	IMPATT diode	9	To measure the Q ofa resonant cavity.
	34	TRAPATT diode		
	35	PIN diodes		
	36	MASER		
11th	37	Parametric amplifiers	10	To study the V-I characteristics of GUNN diode.
	38	Power measurement using calorimeter		
	39	Power measurement using bolometers		
	40	Measurement of SWR		
12th	41	Measurement of Frequency	11	Tomeasure VSWR, insertion losses and attenuation of a fixed and variable attenuator.
	42	Measurement of wavelength		
	43	Measurement of impedance		
	44	Microwave bridges		
13th	45	Block Diagramand operation	12	**Second Viva Voce**
	46	Radar Frequencies		
	47	Simple form of Radar Equation		
	48	Assignment II		
14th	**……IInd Minor Test……..**			
15th	49	Prediction of Range Performance		
	50	Pulse Repetition frequency		
	51	Range Ambiguities		
	52	ApplicationsofRadar		

Poonam

Guest Lecturer (ECE)

VLSI (ECE-303-L)

Lesson Plan

Name of Faculty : Vikram Singh Bhambhu, Guest Lecturer(ECE)
Discipline : Electronics & Communication Engg.
Semester : 5th
Subject : VLSI(ECE-303-L)
Lesson Plan Duration: 15 weeks (from August, 2018 to December, 2018)
Work Load (Lectutre/Practical) per week (in hours): **Lectures 04 hours**

Week	Theory	
	Lecture Day	Topic
1st	1	Introduction to IC technology
	2	MOS Transistor enhancement mode
	3	MOS Transistor Depletion mode
	4	fabrication of NMOS
2nd	5	CMOS Devices
	6	BiCMOS devices
	7	Equivalent circuit for MOSFET & CMOS
	8	MOS device design equations
3rd	9	Evaluation aspects of MOS transistor
	10	threshold voltage & MOS transistor transconductance
	11	MOS transistor outputconductance , figure of merit,
	12	Channel length modulation , Body effect
4th	13	Crystal growth , diffusion
	14	Oxidation , Ion implantation
	15	Epitaxy , photo lithography
	16	Etching , Metallization
5th	17	dielectric and poly-silicon film deposition
	18	Introduction nmos inverter resistive load
	19	Enhancement load depletion mode
	20	determination of pull-up to pull-down ratio for an n-MOS inverter driven by another n-MOS inverter
6th	21	determination of pull-up to pull-down ratio for an n-MOS inverter driven by one or more pass transistor
	22	CMOS-inverters : DC charaterstics
	23	Circuit model
	24	BiCMOS- logic
7th		**Minor Test 1**
8th	25	Latch up in CMOS circuitry
	26	BiCMOS Latch up susceptibility
	27	Resistance estimation
	28	capacitance estimation
9th	29	Inductance estimation
	30	switching characteristics

	31	CMOS gate transistor sizing
	32	power dissipation
10th	33	Gate logic :Inverter, nand gate nor gate
	34	DCVSL logic
	35	Switch logic: transistor and transmission gate
	36	Ratiod logic , pseudo nmos logic
11th	37	Dynamic logic ,Charge sharing Logic
	38	Domino logic ,combinational logic:Multiplexer
	39	Sequential logic : two phase colcking ,mmory latches
	40	BasicSet up and hold time violation causes effect and remedies
12th	41	Scaling model and scaling factor for device parameters
	42	Limitation of scaling: substrate doping
	43	Limits of miniaturization , Limits of interconnect and contact Resistance
	44	MOS layer , Stick diagram: nmos .pmos design style
13th	45	Cmos design style, design rule and layout
	46	Lambda based rule, layer repersentation
	47	Contact cut double metal mos process rule
	48	Cmos lambda based design rules
14th	**Minor Test 2**	
15th	49	Incrementer/ decremeter, left/right shift serial parallel register
	50	Comparator for two n-bit number
	51	A two phase non overlapping cock generator with buffered o/p on both phases
	52	Design of Event driven element for EDL system

Vikram Singh Bhambhu

Guest Lecturer (ECE)

Antenna & Wave Propogation (ECE-309L)

Lesson Plan

Name of Faculty : Gourav Sharma, Guest Faculty
Discipline : Electronics & Communication Engg.
Semester : 5th
Subject : Antenna & Wave Propogation (ECE-309L)
Lesson Plan Duration: 15 weeks (from August, 2018 to November, 2018)
Work Load (Lecture) : Per week (in hours): **Lectures 04 hours**.

Week	Theory	
	Lecture Day	Topic (Including Assignment/Test)
1st	1	Short Electric Dipole, Retarded Potential
	2	Radiation from a small current element
	3	Field of short dipole
	4	Power radiated by a current element and its radiation resistance
2nd	5	Linear antenna, Half wave Dipole
	6	Radiation from a half wave Dipole
	7	Antenna Impedance
	8	Effect of ground antenna pattern
3rd	9	Input Impedance, Mutual Impedance
	10	Antenna Pattern
	11	Front to back ratio, Gain
	12	Directivity, Radiation Resistance, Radiation Pattern
4th	13	Radiation Power Density, Radiation Intensity Efficiency
	14	Aperture area, Impedance, Effective Length
	15	Beam width, Reciprocity Theorem for Antenna & Its application
	16	Broadside array, End fire array
5th	17	Collinear Array & Parasitic array
	18	Two element array, array of point source
	19	Pattern multiplication & Assignment 1
	20	Liner array, Phased array
6th	21	Tapering of arrays
	22	Binomials arrays
	23	Isotropic antenna
	24	Yagi-uda, Microwave antenna
7th	**1st Minor Test**	
8th	25	Parabolic feeds
	26	Conical, Helix antenna

	27	Log periodic
	28	Horn, Microstrip antenna
9th	29	Patch antenna
	30	Frequency independent concept
	31	RUMSEY's Principle
	32	Frequency independent log spiral antenna
10th	33	Frequency independent conical spiral antenna
	34	Modes of Propagation
	35	Space and surface wave
	36	Reflection and Refraction waves by the ionosphere
11th	37	Tropo-spheric wave Propagation
	38	Bending mechanism waves by the ionosphere
	39	Virtual Height
	40	MUF
12th	41	Critical Frequency
	42	Skip Distance
	43	Direct propagation
	44	Space wave
13th	45	Assignment-II
	46	Revision & Problem Solving of 1st Unit
	47	Revision & Problem Solving of 2nd Unit
	48	Revision & Problem Solving of 2nd Unit
14th	**2nd Minor Test**	
15th	49	Revision & Problem Solving of 3rd Unit
	50	Revision & Problem Solving of 4th Unit
	51	Revision & Problem Solving of 5th Unit
	52	Revision & Problem Solving of 5th Unit

Gourav Sharma
Guest Faculty
E.C.E.Department

Name of the Faculty: **Sudhir Dagar,Associate Professor**
Discipline : **Computer Science and Engineering**
Semester : **V**
Subject : **Microprocessor And Interfacing and Microprocessor And Interfacing Lab**
Lesson Plan Duration: 15 Weeks (from August 2018 to December 2018)
Work load (Lecture/Practical per week in hours: Lectures-04, Practical-02

Week	Theory		Practical	
	Lecture day	Topic(including assignment/test)	Practical day	Topic
1	1	Introduction to microprocessor	1	Study of 8085 Microprocessor kit.
	2	8085 microprocessor architecture		
	3	Instruction set		
	4	Interrupt structure		
2	5	Architecture of 8086	2	Write a program using 8085 and verify for : a. Addition of two 8-bit numbers. b. Addition of two 8-bit numbers (with carry).
	6	Block diagram of 8086		
	7	Details of sub-blocks		
	8	EU		
3	9	BIU	3	Write a program using 8085 and verify for : a. 8-bit subtraction (display borrow) b. 16-bit subtraction (display borrow)
	10	Memory segmentation		
	11	Physical address computation		
	12	Program relocation		
4	13	Addressing modes	4	Write a program using 8085 for multiplication of two 8- bit numbers by repeated addition method. Check for minimum number of additions and test for typical data.
	14	Instruction formats		
	15	Pin diagram		
	16	Description of various signals		
5	17	Instruction execution timing	5	Write a program using 8085 for multiplication of two 8- bit numbers by bit rotation method and verify.
	18	Assembler instruction format		
	19	Data transfer instructions		
	20	Arithmetic instructions		
6	21	Branch instructions	6	**First viva-voce**
	22	Looping instructions		
	23	NOP and HLT instructions		
	24	Flag manipulation instructions		
7		**I st Minor Test**		Write a program using 8085 for division of two 8- bit numbers by repeated subtraction method and test for typical data.
8	25	Shift instructions	7	Study of 8086 microprocessor kit
	26	Rotate instructions		
	27	Directive		
	28	operators		
9	29	**Assignment Questions**	8	Write a program using 8086 for division of a defined double word (stored in a data segment) by another double Word division and verify.
	30	Programming examples		
	31	Assembler directives		
	32	Programming with an Assembler		
10	33	Programming examples	9	Write a program using 8086 for finding the square root of a given number and verify.
	34	Coding style		
	35	The art of assembly language programming		
	36	Software development with interrupts		
11	37	Introduction to Stack	10	Write a program using 8086 for copying 12 bytes of data from source to destination and verify
	38	Stack Structure of 8086		
	39	Introduction to Subroutines		
	40	Recursion		
12	41	MACROS	11	Write a program using 8086 and verify for: a. Finding the largest number from an array. b. Finding the smallest number from an array.
	42	BIOS(Basic Input/output System)		
	43	DOS(Disk Operating System)		
	44	The 8255 PPI chip		
13	45	Architecture	12	Write a program using 8086 for arranging an array of numbers in descending order and verify.
	46	Control words		
	47	Modes and examples		
	48	Introduction to DMA process		
14		**IInd Minor Test**		
15	49	8237 DMA controller	13	**Second viva-voce**
	50	**Assignment Evaluation**		
	51	8259 Programmable interrupt controller		
	52	Programmable interval timer chips		