Name of Faculty: karan kumar (theory) (Practical)	
Discipline: ECE	
Semester: 4th	
subject: NFTL	
Lesson plan Duration: 15 weeks (jan 2018 to april 2018)	

week No.	theory		Practical	
	lecture no.	topic	practical No.	topic
1	1	1. Networks	1	To measure the image impedance of a given asymmetrical T and Л networks
	2	Two port network		
	3	Symmetrical and asymmetrical networks		
	4	Balance and T-network, Л network, Ladder network; Lattice network		
2	5	I network and bridge T-network	2	
	6	Symmetrical Network:		
	7	Concept and significance of the terms characteristic ,		
	8	attenuation constant, phase shift constant and insertion loss of T-network and		
3	9	Л Network	3	
	10	Asymmetrical Network		
	11	propagation constant		
	12	constant and insertion loss.		
4	13	The half section (L-section); symmetrical T and Л sections into half sections	4	
	14	assignment -1		
	15	Units of attenuation General characteristics of attenuators		
	16	Analysis and design of simple attenuator of following types; Symmetrical T and Л type,		
5	17	L type	5	For a prototype low pass filter: Determine the characteristic impedance experimentally
	18	unit-3 Filters		
	19	Brief idea of the use of filter networks in different communication systems, concept of low		
	20	pass, high pass, band pass		
	21	band stop filter		Plot the attenuation
	22	prototype filter section		

6	23	impedance vs frequency characteristics of a low and high pass filter	6	Plot the attenuation characteristic
	24	and their significance		
7	25	- Attenuation Vs frequency; Phase shift Vs frequency, characteristics impedance vs	7	To design and measure the attenuation of a symmetrical T/ Л type attenuator
	26	frequency of T		
	27	frequency of pi filter		
	28	M-Derived Filter Sections		
8	29	Limitation of prototype filters, need of m-derived filters	8	Determine the characteristic impedance experimentally
	30	Crystal Filters		
	31	Crystal and its equivalent circuits, special properties of piezoelectric filters and their use		
	32	Active Filters		
9	33	Basic concept of active filters and	9	To plot the attenuation characteristic
	34	unit 4 Transmission Lines		
	35	Transmission Lines, their types and applications.		
	36	Distributed constants, T and Л representation of transmission line section.		
10	37	Definition of characteristic impedance, propagation constant, attenuation constant and	10	To plot the Impedance characteristic of a prototype band-pass filter
	38	phase shift constant.		
	39	Concept of infinite line		
	40	Condition for minimum distortion and minimum attenuation of signal on-the-line and		
11	41	introduction to loading methods.	11	To plot the attenuation characteristic of a prototype band pass filter
	42	Concept of reflection and standing waves, definition of reflection coefficient, SWR & VSWR		
	43	relation		
	44	Transmission line equation, expression for voltage,		
12	45	current and impedence on the point on the line.	12	To plot the impedance characteristic of m- derived low pass filter
	46	Concept of transmission lines at high frequencies.		
	47	Introduction to stubs.		

	48	assignment-2		
13	49		13	To plot the attenuation characteristics of m-derived high pass filter
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14	53		14	To observe the information of standing waves on a transmission line and measurement of SWR
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15	57		15	Draw the attenuation characteristics of a crystal filter
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Name of Faculty: Shilpa Shukla (theory) Shilpa Shukla (Practical)
Discipline: ECE
Semester: 4th
subject: Communication Systems
Lesson plan Duration: 15 weeks (jan 2018 to april 2018)

week No.	**theory**		**Practical**	
	lecture no.	**topic**	**practical No.**	**topic**
1	1	AM/FM Transmitters,classification of transmitters on the basis of modulation, service, frequency and power	1	To observe the waveforms at different stages of a AM transmitter
	2	Block diagram of AM transmitters and working of each stage		
	3	Block diagram and working principles of reactance FET and armstrong FM transmitters		
2	4	Assignment -1 AM/FM Radio R	2	To observe the waveforms at different stages of a Radio
	5	Principle and working with block diagram of super heterodyne AM receiver. Function of each block an d typical waveforms at input and output of each block		

	6	Principle and working with block diagram of super heterodyne AM receiver. Function of each block an d typical waveforms at input and output of each block		Receiver
3	7	Performance characteristics of a radio receiver : sensitivity,	3	To align AM broadcast radio receiver
	8	selectivity, fidelity,S/N ratio,image rejection ratio and their measurement procedure. ISI standards on radio receivers		
	9	Selection criteria for intermediate frequency		
4	10	Concepts of simple and delayed A	4	
	11	Block diagram of an FM receiver, function of each block		
	12	waveforms at input and output of different blocks. Need for limiting and de - emphasis in FM reception		
5	13	Block diagram of communication receivers	5	
	14	differences with respect to broad		
	15	Assignment-2		
6	16	Electromagnetic spectrum and its various ranges: VLF, LF, MF, HF, VHF, UHF, Microwave.	6	
	17	Physical concept of radiation of electromagnetic energy from a dipole		
	18	Physical concept of radiation of electromagnetic energy from a dipole		
	19	Concept of polarization of EM Waves.		
	20	point source, gain, directivity,		

7	21	aperture, effective area, radiation pattern, beam width and radiation resistance, loss resis tance.	7	
8	22	Types of antennas - brief description, characteristics	8	To identify and study the various types of antennas used in different frequency ranges
	23	typical applications of half wave dipole, medium wave (mast) antenna, folded dipole,		
	24	patch ,loop antenna, yagi and ferrite rod antenna (used in transistor receivers)		
9	25	broad - side and end fire arrays, their radiation pattern	9	To plot the radiation pattern of a directional and omni directional antenna
	26	applications		
	27	Rhombic antenna and dish antenna		
10	28	assignment-3	10	To plot the variation of field strength of a radiated wave, with distance from a transmitting antenna
	29	different modes of wave propagation and typical areas of application		
	30	Ground wave propagation and its characteristics,		
11	31	summer field equation for field strength.	11	Installation of Dish Antenna for best reception
	32	Space wave communication – line of sight propagation, standard atmo sphere,		
	33	effective earth radius range of space wave propagation standard atmosphere		
	34	Duct propagation: sky wave propagation - ionosphere and its layers		

12	35	virtual height, critical frequency, skips distance, maximum usable fr equency, multiple hop propagation.	12	
	36	Assignment-4		
13	37	Digital Modulation Techniques	13	
	38	PCM		
	39	DPCM		
14	40	DELTA Modulation	14	To observe waveforms at input and output of ASK and FSK modulators
	41	ASK, FSK,		
	42	PSK, QPSK		
15	43	Spread Spectrum Techniques	15	
	44	Frequency Hopping Technique		
	45	Assignment-5		

Name of Faculty:ARSAD (theory) (Practical)
Discipline: EE & ECE
Semester: 4th
subject: Instrumentation
Lesson plan Duration: 15 weeks (jan 2018 to april 2018)

week No.	**theory**		**Practical**	
	lecture no.	**topic**	**practical No.**	**topic**
1	1	1. Measurements:	1	To measure the level of a liquid using a transducer
	2	Importance of measurement, basic measuring systems, advantages and limitations of each		
	3	measuring systems and display devices		
2	4	2. Transducers:	2	Study and use of digital temperature controller
	5	Theory, construction and use of various transducers (resistance)		
	6	inductance		
3	7	capacitance	3	Study of variable capacitive transducer
	8	electromagnetic		
	9	piezo electric		
	10	3. Measurement of Displacement and Strain		

4	11	Displacement Measuring Devices: wire wound potentiometer, LVDT, strain gauges	4	Draw the characteristics of a potentiometer
	12	different types such as inductance type		
5	13	resistive type	5	
	14	wire and foil type		
	15	gauge factors		
6	16	selection of gauge material	6	To study the use of electrical strain gauge
	17	use of electrical strain gauge		
	18	strain gauge		
7	19	bridge and amplifier	7	do
	20	4. Force and Torque Measurement		
	21	Different types of force measuring devices and their principles		
8	22	load measurements	8	Use of themistor in ON/OFF transducer
	23	elastic transducers		
	24	electrical strain gauges		
9	25	load cells	9	To study weighing machine using load cell
	26	measurement of torque by brake		
	27	dynamometer		
10	28	electric strain gauges	10	do
	29	speed measurement; different methods, devices		
	30	5. Pressure Measurement		
11	31	Bourdon pressure gauges	11	To measure linear displacement using LVDT
	32	principle and construction		
	33	electric pressure pick ups		
12	34	construction and applications of electric pressure pick ups	12	do
	35	6. Flow Measurement		
	36	Basic principle		
13	37	magnetic flow meters	13	do
	38	ultrasonic flow meters		
	39	7. Measurement of Temperature		
14	40	Bimetallic thermometer, thermoelectric thermometers	14	To measure temperature using a thermo-couple
	41	resistance thermometers, thermocouple		
	42	thermisters and pyrometer		
15	43	temperature recorder	15	To study pH meter.
	44	8. Measurement of other non electrical quantities		

	45	humidity, pH, level and vibrations		

Name of Faculty: KARAN (theory) (Practical)
Discipline: ECE
Semester: 4th
subject: DE-II
Lesson plan Duration: 15 weeks (jan 2018 to april 2018)

week No.	**theory**		**Practical**	
	lecture no.	**topic**	**practical No.**	**topic**
1	1	1. Logic Families	1	varify the operation of A/D converter
	2	Logic family classification. TTL, ECL, MOS, CMOS. Types of integration		
	3	Characteristics of TTL and CMOS and the comparison. Propagation delay.SSI and VLSI		
2	4	Speed, noise margin. Logic levels., power dissipation, fan-in, fan-out,	2	varify the operation of D/A converter
	5	Open collector and totem pole output circuits, operation of a standard TTL,		
	6	CMOS, NAND, NOR gates		
3	7	CMOS to TTL interfacing and TTL to CMOS interfacing	3	RAM IC
	8	Introduction to tri-state devices, tri-state buffer and inverter circuits.		
	9	UNIT-II A/D and D/A Converters		
4	10	D/A Converters : Performance characteristics of D/A converters, binary	4	JK FLIP FLOP AND COUNTER
	11	resister network and resistance la		
	12	b) A/D Converters : Performance characteristics of A/D converters, single		
5	13	slope, dual slope, successive approximation and parallel A/D converters	5	EEPROM
	14	ASSIGNMENT-2		

5	15	Unit III Memory organisation, classification of semi conductor memories, ROM, PROM,	5	EEPROM
6	16	DROM, EPROM, EEPROM, RAM, expansion of memory. CCD memories,	6	74181IC
	17	content addressable memory, programmable logic devices, PROM at PLD,		
	18	programmable logic array (PLA) programmable array logic (PAL), FPGA		
7	19	familiarisation with common ics	7	Design and implement full adder and full subtractor
	20	ASSIGNMENT-3		
	21	UNIT-4 Combinational Circuits		
8	22	Mcclaaskey method	8	Verify the logical operation, arithmetic operation of binary numbers using IC74181
	23	UNIT 5 Essential components of sequential circuit, synchronous and asynchronous		
	24	sequential circuits, classification of sequential circuits		
9	25	design of counters using J-K and R-S flip-flops.	9	
	26	UNIT-6 Arithmetic and Logic Unit		
	27	Basic idea about arithmetic logic unit w.r.t. IC 74181 and applications,		
10	28	implementation of binary multiplication,Addition,division	10	
	29	UNIT-7 Introduction to Fuzzy logic		
	30	Fuzzy sets and classical sets and their operations, Fuzzy relations, Properties of		
11	31	Classical sets	11	
	32	operation of classical sets		
	33	fuzzy relation		
12	34	fuzzyfication	12	
	35	defuzzyfications		
	36	fuzzy control system		
13	37	Assignment	13	
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	42	Assignment		
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Name of Faculty:KARAN KUMAR (theory) (Practical)
Discipline: ECE
Semester: 4th
subject: MPD
Lesson plan Duration: 15 weeks (jan 2018 to april 2018)

week No.	**theory**		**Practical**	
	lecture no.	**topic**	**practical No.**	**topic**
1	1	1. Evolution of Microprocessor		Familiarization of different keys of 8085 microprocessor kit and
	2	Typical organization of a		
	3	microcomputer system		
	4	functions of its various blocks		
2	5	Microprocessor,		Steps to enter, modify data/program and to execute a
	6	its evolution, function		
	7	impact on modern society		
	8	2. Architecture of a Microprocessor		
3	9	8085 microprocessor		Writing and execution of ALP for addition and sub station of two 8
	10	Concept of Bus,		
	11	bus organization of 8085,		
	12	Functional block diagram of 8085		
4	13	function of each block og 8085		Writing and execution of ALP for multiplication and division of two 8 bit numbers
	14	Pin details of 8085 and related signals,		
	15	Demultiplexing of address/data bus		
	16	generation of read/write		
5	17	control signals,		Writing and execution of ALP for arranging 10 numbers in ascending/descending order
	18	Steps to execute a stored programme		
	19	3. Instruction Timing and Cycles		
	20	Instruction cycle,		
6	21	machine cycle		Writing and execution of ALP for 0 to 9 BCD counters
	22	T-states,		
	23	Fetch		
	24	execute cycle.		
7	25	4. Programming with 8085		Interfacing exercise on 8255 like LED display control
	26	Brief idea of machine and assembly languages,		

	27	Machines and Mnemonic codes.		
	28	Instruction		
8	29	format and Addressing mode.		Interfacing exercise on 8253 programmable interval timer
	30	Identification of instructions as		
	31	Concept of Instruction set.		
	32	Explanation of the instructions of the following groups of instruction set.		
9	33	Data transfer group,		Interfacing exercise on 8279 programmable KB/display interface like to display the hex
	34	Arithmetic Group,		
	35	Logic Group,		
	36	Stack,		
10	37	I/O and Machine control group		Use of 8085 emulator for hardware testing
	38	Programming exercises in assembly language.		
	39	5. Memories		
	40	Interfacing		
11	41	Concept of memory mapping,		
	42	partitioning of total memory space.		
	43	Address decoding,		
	44	peripheral mapped I/O and memory mapped I/O.		
12	45	Interfacing of memory mapped I/O devices.		
	46	6.Interrupts		
	47	Concept of interrupt, Maskable and non-maskable, Edge triggered and level triggered		
	48	interrupts, Software interrupt, Restart interrupts and its use, Various hardware interrupts of		
13	49	8085, Servicing interrupts, extending interrupt system		
	50			
	51	7. Data Transfer Techniques		
	52	Concept of programmed I/O operations, sync data transfer, async data transfer		
14	53	Interrupt driven data transfer, DMA, Serial output data,		
	54	Serial input data		
	55	8. Peripheral devices		
	56	8255 PPI and 8253		
	57	PIT, 8257 /		
	58	8237 DMA controller,		

15	59	8279 Programmable KB/Display interface		
	60	8251 Communication Interface Adapter.		

Name of Faculty: Istak (theory/Practical)
Discipline:ECE
Semester: IVth
Subject: Electronics Design and Fabrication Techniques
Lesson plan Duration: 15 weeks (jan 2018 to april 2018)

Week No.	**PRACTICAL**	
	Practical No:	**TOPIC**
1	1	**1. Electronic Design:** 1.1 Selection and use of commonly used active and passive components
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2	7	1.2 Testing of active and passive components
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3	13	1.3 Develop skills in assembly of components, soldering, and soldering techniques
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4	19	1.4 Procedure for Cabinet Making
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	23	**2. Fabrication Techniques:** 2.1 Printed Circuit Boards (PCBs):
	24	a) PCB board materials, their characteristics and plating, corrosion and its
5	25	b) Photo processing, screen printing, etching, high speed drilling, buffing, surface treatment and protection from harsh environments, plated through holes, double sided and multilayer PCBs
	26	
	27	
	28	c) Standards of board sizes. Modular assemblies edge connectors, multi board racks, flexible boards.
	29	
	30	d) Assembly of circuits on PCB, soldering techniques, role of tinning, flow and wave soldering, solderability, composition of solder. Edge connector. Elements of wire shaping.
6	31	
	32	
	33	2.2 Production: Storage and supply of components for assembly, role of incoming inspection of
	34	

	35	components, assembly line reduction, tools and jigs for lead bending. Manual
	36	and
7	37	2.3 Testing: Jigs and fixtures for operational testing of modules / sub-
	38	assemblies. Sequence testing for failure analysis. Environmental testing at
	39	elevated temperature and humidity. Vibration and mechanical endurance
	40	2.4 Documentation: Statement of brief specifications, detailed specifications
	41	and limitations. Block diagram
	42	detailed diagrams. Testing and checking points. Warning relative to high
8	43	voltage for
	44	2.4 Introduction to log books and history sheets
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11	61	**3.** Every student must design and prepare a PCB, mount the components and
	62	assemble in a cabinet.
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14	79	**4.** Computer Aided Design (CAD): Computer aided design of electronics circuit
	80	using different software like Eagle, ORCAD, and Circuit Maker.
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15	85	**5.** Production Planning
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	87	**6.** CNC drilling, photo plating, concept of SMDs (Surface Mount Devices)
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