LESSON PLAN

Name of Faculty	:	**Dhiraj Kapoor**
Discipline	:	**ECE**
Semester	:	**2nd**
Subject	:	**Basics of Electronics**
Lesson Plan Duration	:	15 weeks (From Jan 2018 to Apr 2018)

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

Weeks	Theory (ECE-101-F)		Practical(ECE-103-F)	
	Lecture day	Topic (including assignment/test)	Practical day	Topic
1st	1st	Semiconductor Physics : Basic concepts, Intrinsic and extrinsic semiconductors	1st	1. To get familiar with the working knowledge of the following instruments: a) Cathode ray oscilloscope (CRO) b) Multimeter (Analog and Digital) c) Function generator d) Power supply
	2nd	diffusion and drift currents, p-n junction under open circuit	2nd	-----do-----
	3rd	reverse bias and forward-bias conditions	3rd	-----do-----
2nd	1st	p-n junction in the breakdown region	1st	2.a) Plot the forward and reverse V-I characteristics of P-N junction diode b) Calculation of cut-in voltage
	2nd	Ideal diode, terminal characteristics of junction diode.	2nd	-----do-----
	3rd	Assignment	3rd	-----do-----
3rd	1st	Amplifiers : Introduction of different types of amplifiers and their characteristics	1st	2c) Study of Zener diode in breakdown region
	2nd	Principle of amplifition, Frequency response of RC coupled amplifiers	2nd	-----do-----
	3rd	bandwith and Concept of Cascaded Amplifiers	3rd	-----do-----
4th	1st	Feedback amplifiers	1st	3. To find frequency response of a given amplifier and calculate its bandwidth
	2nd	Effect of positive and negative feedback on amplifier gain and bandwidth.	2nd	-----do-----
	3rd	CLASS TEST	3rd	-----do-----
5th	1st	Oscillators : Criteria for oscillations	1st	4. To plot and study the input and output characteristics of BJT in common-emitter configuration
	2nd	Qualitative analysis of LC, RC	2nd	-----do-----

		and Crystal Oscillators,		
	3rd	Study of Wein Bridge Oscillators	3rd	-----do-----
6th	1st	Operational Amplifiers Introduction	1st	5. To get familiar with pin-configuration of typical op-amp(741) and its use as: a) Inverting amplifier b) Non-inverting amplifiler c) Summing amplifier d) Difference amplifier
	2nd	Op-amps, its characteristics and its applications.	2nd	-----do-----
	3rd	Power Suppliers : Introduction	3rd	-----do-----
7th	1st	Working of Switched Mode Power Supply (SMPS)	1st	6. To assemble and test 5V/9 V DC regulated power supply and find its line-regulation and loand-regulation
	2nd	Voltage Regulator	2nd	-----do-----
	3rd	Introduction to Inverters and UPS	3rd	-----do-----
8th	1st	1st Sessional Exam	1st	
	2nd	1st Sessional Exam	2nd	
	3rd	1st Sessional Exam	3rd	
9th	1st	Digital Electronics : Binary, Octal and Hexadecimal number system	1st	7. Verification of truth tables of logic gates (OR,AND, NOT, NAND, NOR)
	2nd	number system conversions,	2nd	-----do-----
	3rd	Boolean Algebra, Truth tables of logic gates (AND, OR, NOT)	3rd	-----do-----
10th	1st	NAND, NOR as universal gates	1st	8 a). Verification of truth table of S-R flip-flop.
	2nd	Difference between combinational circuits and sequential circuits, Introduction to flip-flops	2nd	-----do-----
	3rd	S-R & J-K flip-flop	3rd	-----do-----
11th	1st	Electronics Intruments : Role, importance and applications of genera;- purpose test instruments	1st	8 b). Verification of truth table of J-K flip-flop.
	2nd	Multimeter Digital & Analog	2nd	-----do-----
	3rd	CLASS TEST	3rd	-----do-----
12th	1st	Cathode Ray Oscilloscope (CRO)	1st	9.a) To measure phase difference between two waveforms using CRO b) To measure an unknown frequency from Lissajous figures using CRO
	2nd	Function/Signal Generator	2nd	-----do-----
	3rd	Display : Seven segment display, Fourteen segment display, Dot matrix display	3rd	-----do-----
13th	1st	CLASS TEST	1st	10. To get familiar with

				the working and use of seven-segment display.
	2nd	LED Display : Introduction, Construction, Advantage of LEDs in electronics display	2nd	-----do-----
	3rd	LCD Display : Introduction	3rd	-----do-----
14th	1st	Types of LCD display- Dynamic scattering and field effect type;	1st	11. Use of op-amp as a) Integrator b) Differentiator
	2nd	ASSIGNMENT	2nd	-----do-----
	3rd	Types of liquid crystal cells :- Transmitting type and reflective type	3rd	-----do-----
15th	1st	Presentation and discussion on Assignment	1st	Internal Viva Voce
	2nd	Advantage and disadvantage of LCD display common applications	2nd	-----do-----
	3rd	CLASS TEST	3rd	-----do-----