

Government Polytechnic Nayagarah

Subject: Basic Electronics

Name Of faculty: Samir Kumar Sethi

Lesson Plan: 2022-23(1st & 2nd Semester)

Lecture in Electronics

Electronics Device	
Week-1	History of Electronics, atomic structure, Definition of electronics and the application of electronics in different field.
	What is electronics emission? Concept of work function. Type of electronics emission. 1.Thermionic emission 2.Field emission 3.secondary emission 4.photoelectric emission
Week-2	Classification of electric material & concept of energy band diagram. The concept of semiconductor and vacuum tube & difference between them.
	Type of semiconductor .1.Intrinsics Semiconductor 2.Extrinsic Semiconductor
Week-3	What is Diode ?Working principle and use of Diode.
	What is Zener Diode and LED? Integrated Circuit and its application.
Electronic Circuit	
Week-4	Application of Diode (Rectifier) What is rectifier? Type of rectifier, Merits and demerits
	Concept of filter. Type of filter and working principle
Week-5	What is transistor? Different types of transistor: 1.NPN 2.PNP Different types of transistor depending upon configuration: 1.CB(Common Base) 2.CE(Common Emitter) 3.CC(Common Collector)
	Working principle of transistor.
Week-6	Derive the current gain of different configuration and find the relationship between them
	What is biasing ? The need of biasing .Explain the different biasing circuit.
Week-7	What is amplifier? How the transistor will behave as a amplifier? working principles of single phase CE amplifier
	What is oscillator and the working principle of oscillator.
Week-8	Classification of oscillator with block diagram
Communication System	
Week-8	What is communication? What is communication system with block diagram?
Week-9	What is modulation and the require of modulation? What is de-modulation and the require of de-modulation? Type of modulation.
	Amplitude modulation ,modulating signal or baseband signal, Carrier signal, Modulated signal.
Week-10	Frequency modulation and the block diagram of FM modulator & receiver
Transducers and Measuring Instruments	
Week-10	Concept of Transducer and sensor with their differences.
Week-11	Different type of transducer.
	Working principle of photo emissive ,photoconductive
Week-12	Working principle of photovoltaic transducer and application
	Multimeter, type & application.
Week-13	Working principle of Multimeter
	What is CRO ? Working principle CRO with block diagram.

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Subject: Basic Electrical

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Lesson Plan: 2021-2022(1st & 2nd Semester)

Lecture in Electronics

Fundamentals	
Week-1	Concept of current .Conventional current vs electron flow,Concept of source and load
	State Ohm's law and concept of resistance. Relation of V, I & R in series circuit ,Relation of V, I & R in parallel circuit.
Week-2	Division of current in parallel circuit. Effect of power in series & parallel circuit.
	Kirchhoff's Law. Simple problems on Kirchhoff's law.
A.C. Theory	
Week-3	Generation of alternating emf
	Define Amplitude, instantaneous value, cycle, Time period, frequency, phase angle, phase difference. Difference between D.C. & A.C.
Week-4	State & Explain RMS value, Average value, Amplitude factor & Form factor with Simple problems.
	Represent AC values in phasor diagrams. AC through pure resistance, inductance & capacitance
Week-5	AC through RL, RC, RLC series circuits.
	Concept of Power and Power factor.
Week-6	Impedance triangle and power triangle.
Generation Of Electrical Power	
	Give elementary idea on generation of electricity from thermal with block diagram.
Week-7	Give elementary idea on generation of electricity from hydro with block diagram.
	Give elementary idea on generation of electricity from nuclear power station with block diagram.
Conversion Of Electrical Energy	
Week-8	Introduction of DC machines, Main parts of DC machines. Classification of DC generator Classification of DC motor.
	Working principle of DC generator and DC Motor
Week-9	Types and uses of single phase induction motors
	Different types of Lamps (Filament, Fluorescent, LED bulb) its Construction and Principle.
Week-10	Star rating of home appliances (Terminology, Energy efficiency, Star rating Concept)
Wiring And Power Billing	
Week-11	Types of wiring for domestic installations. Layout of household electrical wiring (single line diagram showing all the important component in the system).
	List out the basic protective devices used in house hold wiring. Calculate energy consumed in a small electrical installation.
Measuring Instruments	
Week-12	Introduction to measuring instruments. Torques in instruments. Different uses of PMMC type of instruments (Ammeter & Voltmeter).
	Different uses of MI type of instruments (Ammeter & Voltmeter).
Week-13	Draw the connection diagram of A.C/ D.C Ammeter, voltmeter, energy meter and wattmeter. (Single phase only).

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