

Th.4(ab). BASIC ELECTRICAL/ ELECTRONIC ENGINEERING

Name of the Course: Diploma in Electrical Engineering			
Faculty: Mahesh Kumar Biswal			
Course code:	Th4(ab)	Semester	1 st and 2 nd
Total Period:	60	Examination	3hrs
Theory periods:	4P/week	Internal Assessment :	20
Maximum marks:	100	End Semester Examination:	80

TOPIC WISE DISTRIBUTION OF PERIODS

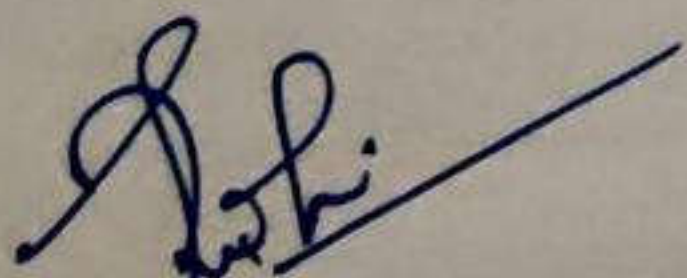
Sl. No.	Topics	Periods
BASIC ELECTRICAL ENGINEERING		
1.	Fundamentals	5
2.	A C Theory	8
3.	Generation of Elect. Power	3
4.	Conversion of Electrical Energy	7
5.	Wiring and Power Billing	4
6.	Measuring Instrument	3
BASIC ELECTRONICS ENGINEERING		
1.	Electronic Devices	8
2.	Electronic circuits	9
3.	Communication System	3
4.	Transducers & Measuring instruments	10
TOTAL		60

LESSON PLAN

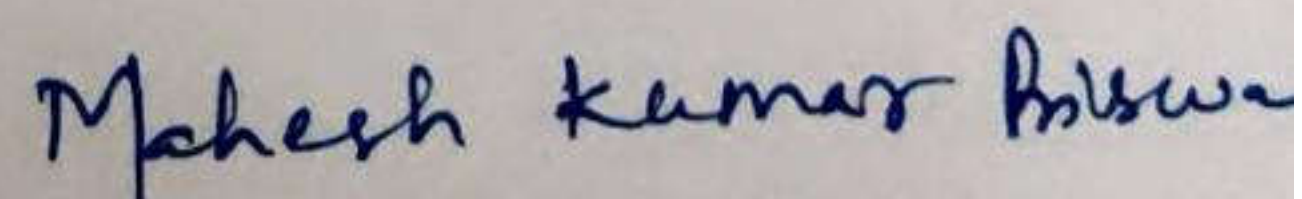
Week	Day	Theory topic
1 st	1 st	FUNDAMENTALS: Concept of current flow, Concept of source and load.

	2 nd	State Ohm's law and concept of resistance, Relation of V, I & R in series circuit. Relation of V, I & R in parallel circuit
	3 rd	. Division of current in parallel circuit. Effect of power in series & parallel circuit.
	4 th	Kirchhoff's Law., Simple problems on Kirchhoff's law
2 nd	1 st	A.C. THEORY: Generation of alternating emf, Difference between D.C. & A.C .
	2 nd	Define Amplitude, instantaneous value, cycle, Time period, frequency, phase angle, phase difference.
	3 rd	State & Explain RMS value, Average value, Amplitude factor & Form factor with Simple problems
	4 th	Represent AC values in pharos diagrams
3 rd	1 st	AC through pure resistance, inductance & capacitance
	2 nd	AC though RL, RC, RLC series circuits. Simple problems on RL, RC & RLC series circuits
	3 rd	Concept of Power and Power factor, Impedance triangle and power triangle.
	4 th	ELECTRONIC DEVICES: Basic Concept of Electronics and its application.
4 th	1 st	Basic Concept of Electron Emission & its types.
	2 nd	Classification of material according to electrical conductivity (Conductor, Semiconductor & Insulator) with respect to energy band diagram only.
	3 rd	Difference between Intrinsic & Extrinsic Semiconductor. Difference between vacuum tube & semiconductor
	4 th	Principle of working and use of PN junction diode, Zener diode
5 th	1 st	Light Emitting Diode (LED), Integrated circuits (I.C) & its advantages.
	2 nd	BJT,
	3 rd	ELECTRONIC CIRCUITS: Rectifier & its uses.
	4 th	Principles of working of different types of Rectifiers with their merits and demerits and Functions of filters
6 th	1 st	classification of simple Filter circuit (Capacitor, choke input and π)
	2 nd	Working of D.C power supply system (unregulated) with help of block diagrams
	3 rd	Transistor, Different types of Transistor Configuration and state output and input current gain and relationship in CE, CB and CC configuration.
	4 th	Need of biasing and explain different types of biasing with circuit diagram.(only CE configuration)
7 th	1 st	Amplifiers(concept) , working principles of single phase CE amplifier
	2 nd	Electronic Oscillator and its classification
	3 rd	Working of Basic Oscillator with different elements through simple Block Diagram
	4 th	GENERATION OF ELECTRICAL POWER: Elementary idea on generation of electricity from thermal power station with block diagram
8 th	1 st	Elementary idea on generation of electricity from, hydro power station with block diagram
	2 nd	Elementary idea on generation of electricity from nuclearpower station with block diagram
	3 rd	Previous year question discussion on basic electrical
	4 th	Previous year question discussion on basic electronics

9 th	1 st	CONVERSION OF ELECTRICAL ENERGY: Introduction of DC machines. Main parts of DC machines.
	2 nd	Classification of DC generator Classification of DC motor
	3 rd	Uses of different types of DC generators & motors. Types and uses of single phase induction motors
	4 th	Concept of Lumen Different types of Lamps (Filament, Fluorescent, LED bulb) its Construction and Principle.
10 th	1 st	Star rating of home appliances (Terminology, Energy efficiency, Star rating Concept).
	2 nd	COMMUNICATION SYSTEM: Basic communication system (concept & explanation with help of Block diagram)
	3 rd	Concept of Modulation and Demodulation, Difference between them
	4 th	Different types of Modulation (AM, FM & PM) based on signal, carrier wave and modulated wave
11 th	1 st	TRANSDUCERS AND MEASURING INSTRUMENTS: Concept of Transducer and sensor with their differences.
	2 nd	Different type of Transducers & concept of active and passive transducer
	3 rd	Working principle of photo emissive, photoconductive, photovoltaic transducer and its application.
	4 th	Multimeter and its applications
12 th	1 st	Analog and Digital Multimeter and their differences Working principle of Multimeter with Basic Block diagram
	2 nd	CRO, working principle of CRO with simple Block diagram
	3 rd	WIRING AND POWER BILLING: Types of wiring for domestic installations.
	4 th	Layout of household electrical wiring (single line diagram showing all the important component in the system)
13 th	1 st	List out the basic protective devices used in house hold wiring.
	2 nd	Calculate energy consumed in a small electrical installation
	3 rd	MEASURING INSTRUMENTS: Introduction to measuring instruments. Torques in instruments.
	4 th	Different uses of PMMC type of instruments (Ammeter & Voltmeter).
14 th	1 st	Different uses of MI type of instruments (Ammeter & Voltmeter).
	2 nd	Draw the connection diagram of A.C/ D.C Ammeter, voltmeter (Single phase only)
	3 rd	Draw the connection diagram of A.C/ D.C energy meter and wattmeter (Single phase only)
	4 th	Revision : chapter 1,2,3 (basic electrical engineering)
15 th	1 st	Revision : chapter 4,5,6 (basic electrical engineering)
	2 nd	Revision : chapter 1,2 (basic electronics engineering)
	3 rd	Revision : chapter 3,4 (basic electronics engineering)
	4 th	Discuss of previous year paper question and answers



Signature of HOD(electrical)



Signature of faculty