ACADEMIC SESSION : SUMMER 2023-24

Discipline : Mechanical Engg. , Civil Engg.	Semester : 2nd	Name of the Teaching Faculty : Prabhudatta Pujapanda
Subject : BASIC ELECTRICAL	No. of days / week class allotted	Semester From date: 29/01/2024 to 14/05/2024
Week	**Class Day**	**Theory/ Practical Topics**
1ST	1st	Concept of current flow, Concept of source and load.
	2nd	State Ohm's law and concept of resistance.
2ND	1st	Relation of V, I & R in series circuit, Relation of V, I & R in parallel circuit.
	2nd	Division of current in parallel circuit, Effect of power in series & parallel circuit.
3RD	1st	Kirchhoff's Law, Simple problems on Kirchhoff's law.
	2nd	Generation of alternating emf, Difference between D.C. & A.C.
4TH	1st	Define Amplitude, instantaneous value, cycle, Time period, frequency, phase angle, phase difference
	2nd	State & Explain RMS value, Average value, Amplitude factor & Form factor with Simple problems.
5TH	1st	Represent AC values in phasor diagrams
	2nd	AC through pure resistance, inductance & capacitance
6TH	1st	AC though RL, RC, RLC series circuits.
	2nd	Simple problems on RL, RC & RLC series circuits
7TH	1st	Concept of Power and Power factor, Impedance triangle and power triangle.
	2nd	Give elementary idea on generation of electricity from thermal power station with block diagram
8TH	1st	Give elementary idea on generation of electricity from hydro power station with block diagram
	2nd	Give elementary idea on generation of electricity from nuclear power station with block diagram
9TH	1st	Introduction of DC machines, Main parts of DC machines
	2nd	Classification of DC generator

10TH	1st	Classification of DC motor
	2nd	Uses of different types of DC generators & motors
11TH	1st	Types and uses of single phase induction motors, Concept of Lumen
	2nd	Different types of Lamps (Filament, Fluorescent, LED bulb) its Construction and Principle
12th	1st	Star rating of home appliances (Terminology, Energy efficiency, Star rating Concept)
	2nd	Types of wiring for domestic installations
13th	1st	Layout of household electrical wiring (single line diagram showing all the important component in the system).
	2nd	List out the basic protective devices used in house hold wiring.
14th	1st	Calculate energy consumed in a small electrical installation
	2nd	Introduction to measuring instruments, Torques in instruments.
15th	1st	Different uses of PMMC type of instruments (Ammeter & Voltmeter), Different uses of MI type of instruments (Ammeter & Voltmeter).
	2nd	Draw the connection diagram of A.C/ D.C Ammeter, voltmeter, energy meter and wattmeter. (Single phase only).

Prepared by 29.1.24
Prabhudatta Pujapanda
Electrical Engg.Dept.
G.P Sonepur

H.O.D 29.01.24
Electrical Engg.Dept
G.P. Sonepur

29/1/24
Academic co-ordinator
G.P Sonepur

ACADEMIC SESSION : 2023-24

Discipline : Mechanical Engineering	Semester : 1st	Name of the Teaching Faculty : Tilu Behera
Subject : Basic Electronics	No. of days / week class allotted	Semester From date: 29/01/2024 to 14/05/2024 Nos. of Weeks per semester : 15
Week	**Class Day**	**Theory/ Practical Topics**
1ST	1st	Basic Concept of Electronics and its application.
	2nd	Basic Concept of Electron Emission & its types
2ND	1st	Classification of material according to electrical conductivity (Conductor, Semiconductor & Insulator) with respect to energy band diagram only.
	2nd	Difference between Intrinsic & Extrinsic Semiconductor.
3RD	1st	Difference between vacuum tube & semiconductor.
	2nd	Principle of working and use of PN junction diode, Zener diode and Light Emitting Diode (LED)
4TH	1st	Integrated circuits (I.C) & its advantages.
	2nd	Rectifier & its uses.
5TH	1st	Principles of working of different types of Rectifiers with their merits and demerits
	2nd	Functions of filters and classification of simple Filter circuit (Capacitor, choke input and π)
6TH	1st	Working of D.C power supply system (unregulated) with help of block diagrams only
	2nd	Transistor, Different types of Transistor Configuration and state output and input current gain relationship in CE,CB and CC configuration
7TH	1st	Need of biasing and explain different types of biasing with circuit diagram.
	2nd	Amplifiers(concept) , working principles of single phase CE amplifier
8TH	1st	Electronic Oscillator and its classification
	2nd	Working of Basic Oscillator with different elements through simple Block Diagram
9TH	1st	Basic communication system
	2nd	Concept of Modulation and Demodulation, Difference between them
10TH	1st	Different types of Modulation (AM, FM & PM) based on signal, carrier wave and modulated wave
	2nd	Concept of Transducer and sensor with their differences
11Th	1st	Different type of Transducers
	2nd	Concept of active and passive transducer

12th	1st	Working principle of photo emissive, photoconductive, photovoltaic transducer and its application
	2nd	Multimeter and its applications
13th	1st	Analog and Digital Multimeter and their differences
	2nd	Working principle of Multimeter with Basic Block diagram
14th	1st	CRO, working principle of CRO with simple Block diagram
	2nd	Question Discussion
15th	1st	Question Discussion
	2nd	Question Discussion

Behera 24/01/24

Prepared By
Tilu Behera
Lecturer in Electronics
GP Sonepur

25.01.24

Head of the Department
Electrical Engineering
GP Sonepur

25/1/24

Academic Coordinator
GP Sonepur

ACADEMIC SESSION : 2023-24

Discipline : Civil Engineering	Semester : 1st	Name of the Teaching Faculty : Tilu Behera
Subject : Basic Electronics	No. of days / week class allotted	Semester From date: 29/01/2024 to 14/05/2024 Nos. of Weeks per semester : 15
Week	**Class Day**	**Theory/ Practical Topics**
1ST	1st	Basic Concept of Electronics and its application.
	2nd	Basic Concept of Electron Emission & its types
2ND	1st	Classification of material according to electrical conductivity (Conductor, Semiconductor & Insulator) with respect to energy band diagram only.
	2nd	Difference between Intrinsic & Extrinsic Semiconductor.
3RD	1st	Difference between vacuum tube & semiconductor.
	2nd	Principle of working and use of PN junction diode, Zener diode and Light Emitting Diode (LED)
4TH	1st	Integrated circuits (I.C) & its advantages.
	2nd	Rectifier & its uses.
5TH	1st	Principles of working of different types of Rectifiers with their merits and demerits
	2nd	Functions of filters and classification of simple Filter circuit (Capacitor, choke input and π)
6TH	1st	Working of D.C power supply system (unregulated) with help of block diagrams only
	2nd	Transistor, Different types of Transistor Configuration and state output and input current gain relationship in CE,CB and CC configuration
7TH	1st	Need of biasing and explain different types of biasing with circuit diagram.
	2nd	Amplifiers(concept) , working principles of single phase CE amplifier
8TH	1st	Electronic Oscillator and its classification
	2nd	Working of Basic Oscillator with different elements through simple Block Diagram
9TH	1st	Basic communication system
	2nd	Concept of Modulation and Demodulation, Difference between them
10TH	1st	Different types of Modulation (AM, FM & PM) based on signal, carrier wave and modulated wave
	2nd	Concept of Transducer and sensor with their differences
11Th	1st	Different type of Transducers
	2nd	Concept of active and passive transducer

12th	1st	Working principle of photo emissive, photoconductive, photovoltaic transducer and its application
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GP Sonepur

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Electrical Engineering
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