

GOVERNMENT POLYTECHNIC JAJPUR
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DEPARTMENT OF ELECTRICAL ENGINEERING

Discipline: Electrical engg	Semester: 2 nd (civil,pme,mech anical)	Name of the Teaching faculty: SANDEEP MOHAPATRA
Subject: Fundamentals of Electrical & Electronics Engineering	No of Days/Week class allotted: 2	Semester from Date: 09/01/26 To Date: 08/05/26 No of weeks: 15(total period-30)
Week	Class Day	Topics
1st	1 st	Electric and Magnetic Circuits: EMF, Current & Potential Difference
	2 nd	Defination on Power and Energy&M.M.F
2nd	1 st	Description of magnetic force & permeability
	2 nd	hysteresis loop explanation
M	1 st	Reluctance & leakage factor
	2 nd	Description on BH curve
4th	1 st	Electromagnetic induction
	2 nd	Description on Faraday's laws of electromagnetic induction
5th	1 st	Faraday's laws of electromagnetic induction
	2 nd	Lenz's law
6th	1 st	Dynamically induced emf
	2 nd	Statically induced emf
7th	1 st	Equations of self and mutual inductance
	2 nd	Analogy between electric and magnetic circuits
8th	1 st	A.C. Circuits:
	2 nd	Definition of Cycle, Frequency, Periodic time, Amplitude, Angular velocity
9th	1 st	RMS value, Average value, Form Factor Peak Factor
	2 nd	impedance, phase angle, and power factor
10th	1 st	Mathematical and phasor representation of alternating emf and current
	2 nd	Voltage and Current relationship in Star and Delta connections
11th	1 st	Voltage and Current relationship in Star and Delta connections
	2 nd	A.C in resistors, inductors and capacitors
12th	1 st	A.C in R-L series,R-C series, R-L-C series
	2 nd	parallel circuits, Power in A. C. Circuits, power triangle
13th	1 st	Power in A. C. Circuits, power triangle: General construction and principle of different type of transformers

	2 nd	General construction and principle of different type of transformers
14th	1 st	Emf equation and transformation ratio of transformers
	2 nd	Auto transformers, Construction and Working principle of DC motors
15th	1 st	Construction and Working principle of DC motors
	2 nd	Basic equations and characteristic of motors.

Sandeep
 P. D. Patra ..
 09/01/26

