



# GIETPOLYTECHNIC, JAGATPUR, CUTTACK

## LESSON PLAN

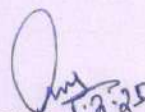
<b>Discipline:</b> Mechanical Engg. &Comp.Sc Engg.	<b>Semester:</b> 2 <sup>nd</sup>	<b>Name Of The Teaching Faculty:</b> SUDIPTA KUMAR DAS
<b>Subject:</b> Fundamentals of Electrical & Electronics Engg.	<b>No. Of Days Per Week Class Allotted:</b> 04P <b>Lecture:04</b>	<b>Semester From Date:</b> 04/02/2025 <b>To Date:</b> 17/05/2025  <b>No.ofweeks:15</b>
<b>Week</b>	<b>Class Day</b>	<b>Theory Topic</b>
1 <sup>st</sup> week		<b>UNIT I- Overview of Electronic Components &amp; Signals:</b>
	1 <sup>st</sup>	<b>Passive Active Components:</b> Concept of Resistances, Capacitors and Inductors and their Applications.
	2 <sup>nd</sup>	Concept of Resistances, Capacitors and Inductors and their Applications.
	3 <sup>rd</sup>	Simple problems of Resistance, Capacitor & Inductor.
	4 <sup>th</sup>	Simple problems of Resistance, Capacitor & Inductor.
2 <sup>nd</sup> week	1 <sup>st</sup>	Definition, classification and Working of diode(PN junction, LED, Zener)
	2 <sup>nd</sup>	Definition, classification and Working of diode(PN junction, LED, Zener)
	3 <sup>rd</sup>	Definition, classification and Working of transistor
	4 <sup>th</sup>	Definition, classification and Working of transistor
3 <sup>rd</sup> week	1 <sup>st</sup>	Definition, classification and Working of FET
	2 <sup>nd</sup>	Definition, classification and Working of FET
	3 <sup>rd</sup>	Concept of MOS and CMOS and their Applications
	4 <sup>th</sup>	Concept of MOS and CMOS and their Applications
4 <sup>th</sup> week	1 <sup>st</sup>	DC/AC, Voltage/Current, Periodic/Non-periodic signals, average, rms, peak values. (Definitions)
	2 <sup>nd</sup>	Different types of signal waveforms, Ideal/non-ideal voltage/current sources, independent/dependent voltage current sources. (Definitions)
	3 <sup>rd</sup>	Different types of signal waveforms, Ideal/non-ideal voltage/current sources, independent/dependent voltage current sources. (Definitions)
		<b>UNIT II- Overview of Analog Circuits:</b>
	4 <sup>th</sup>	Operational Amplifiers-Ideal Op-Amp, Practical op amp
5 <sup>th</sup> week	1 <sup>st</sup>	Operational Amplifiers-Ideal Op-Amp, Practical op amp
	2 <sup>nd</sup>	Open loop and closed loop configurations
	3 <sup>rd</sup>	Open loop and closed loop configurations
	4 <sup>th</sup>	Application of Op-Amp as amplifier, adder, differentiator and integrator

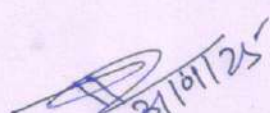


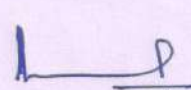
	1 <sup>st</sup>	Application of Op-Amp as amplifier, adder, differentiator and integrator
6 <sup>th</sup> week		<b>UNIT III -Overview of Digital Electronics:</b>
	2 <sup>nd</sup>	Introduction to Boolean Algebra, Electronic Implementation of Boolean Operations, Gates-Functional Block Approach (Simple problems of Number system)
	3 <sup>rd</sup>	Introduction to Boolean Algebra, Electronic Implementation of Boolean Operations, Gates-Functional Block Approach (Simple problems of Number system)
	4 <sup>th</sup>	Storage elements-Flip Flops-A Functional block approach,
7 <sup>th</sup> week	1 <sup>st</sup>	Storage elements-Flip Flops-A Functional block approach,
	2 <sup>nd</sup>	Counters: Ripple, Up/down and decade, Introduction to digital IC Gates (of TTL Type).
	3 <sup>rd</sup>	Counters: Ripple, Up/down and decade, Introduction to digital IC Gates (of TTL Type).
	4 <sup>th</sup>	Counters: Ripple, Up/down and decade, Introduction to digital IC Gates (of TTL Type).
8 <sup>th</sup> week		<b>Unit IV -Electric and Magnetic Circuit:</b>
	1 <sup>st</sup>	EMF, Current, Potential Difference, Power and Energy
	2 <sup>nd</sup>	EMF, Current, Potential Difference, Power and Energy
	3 <sup>rd</sup>	M.M.F, magnetic force, permeability, hysteresis loop, reluctance, leakage factor and BH curve
9 <sup>th</sup> week		M.M.F, magnetic force, permeability, hysteresis loop, reluctance, leakage factor and BH curve
	1 <sup>st</sup>	M.M.F, magnetic force, permeability, hysteresis loop, reluctance, leakage factor and BH curve
	2 <sup>nd</sup>	Electromagnetic induction, Faraday's laws of electromagnetic induction, Lenz's law;
	3 <sup>rd</sup>	Electromagnetic induction, Faraday's laws of electromagnetic induction, Lenz's law;
10 <sup>th</sup> week	4 <sup>th</sup>	Dynamically induced emf; Statically induced emf
	1 <sup>st</sup>	Dynamically induced emf; Statically induced emf
	2 <sup>nd</sup>	Equations of self and mutual inductance; Analogy between electric and magnetic circuits.
	3 <sup>rd</sup>	Equations of self and mutual inductance; Analogy between electric and magnetic circuits
11 <sup>th</sup> week	4 <sup>th</sup>	Equations of self and mutual inductance; Analogy between electric and magnetic circuits
		<b>Unit V- A.C. Circuits:</b>
	1 <sup>st</sup>	Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value, Form Factor Peak Factor, impedance, phase angle, and power factor
	2 <sup>nd</sup>	Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value, Form Factor Peak Factor, impedance, phase angle, and power factor
	3 <sup>rd</sup>	Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value, Form Factor Peak Factor, impedance, phase angle, P.F



12 <sup>th</sup> week	4 <sup>th</sup>	Mathematical and phasor representation of alternating emf and current
	1 <sup>st</sup>	Mathematical and phasor representation of alternating emf and current
	2 <sup>nd</sup>	Voltage and Current relationship in Star and Delta connections; A.C in resistors, inductors and capacitors
	3 <sup>rd</sup>	Voltage and Current relationship in Star and Delta connections; A.C in resistors, inductors and capacitors
	4 <sup>th</sup>	Voltage and Current relationship in Star and Delta connections; A.C in resistors, inductors and capacitors
13 <sup>th</sup> week	1 <sup>st</sup>	A.C in resistors, inductors and capacitors
	2 <sup>nd</sup>	A.C in R-L series, R-C series, R-L-C series and parallel circuits
	3 <sup>rd</sup>	A.C in R-L series, R-C series, R-L-C series and parallel circuits
	4 <sup>th</sup>	Power in A. C. Circuits, power triangle.
14 <sup>th</sup> week	1 <sup>st</sup>	Power in A. C. Circuits, power triangle.
		<b>Unit VI- Transformer and Machine:</b>
	2 <sup>nd</sup>	General construction and principle of different type of transformers
	3 <sup>rd</sup>	General construction and principle of different type of transformers
	4 <sup>th</sup>	Emf equation and transformation ratio of transformer
	1 <sup>st</sup>	Auto transformers; Construction and Working principle of motors
	2 <sup>nd</sup>	Auto transformers; Construction and Working principle of motors
	3 <sup>rd</sup>	
		Basic equations and characteristic of motors.
	4 <sup>th</sup>	Basic equations and characteristic of motors.

  
 SIGN OF FACULTY

  
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