GOVERNMENT POLYTECHNIC DARLIPALI, SUNDARGARH
ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ ଦର୍ଲିପାଲି, ସୁନ୍ଦରଗଡ
GOVERNMENT OF ODISHA | ଓଡିଶା ସରକାର
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Department of Applied Electronics and Instrumentation Engg.
LESSON PLAN(2025-26)

Discipline: AE&I ENGG.	**Semester: 3RD**	**Name of the Teaching Faculty: PARTHA SARATHI MALLICK**
Subject: ELECTRONICS DEVICES (AEIEPC209)	**No. of days/ per week class allotted: 3**	**Semester From Date : 14/07/2025 to Date: 15/11/2025 No. of Weeks: 15**
Week	**Class Day**	**Theory/ Practical Topics**
1st	1st	**Introduction to Semiconductor Physics:** Review of Quantum Mechanics ,Electrons in periodic Lattices
	2nd	Energy bands in intrinsic and extrinsic silicon
	3rd	Carrier transport: Diffusion current, Drift current,Mobility and resistivity
2nd	1st	**P-N Junction Diodes:** Generation and recombination of carriers
	2nd	Poisson and continuity equation
	3rd	P-N Junction Diodes: Construction of P-N Junction Diode, Operating Principle
3rd	1st	P-N junction characteristics, I-V characteristics
	2nd	Small signal switching models
	3rd	Zener Diode.
4th	1st	Avalanche breakdown
	2nd	Schottky diode
	3rd	LED
5th	1st	Photodiode and solar cell
	2nd	**Bipolar Junction Transistor (BJT):** Construction of BJT,Operating Principle of BJT, Types of BJT
	3rd	Working principle of p-n-p and n-p-n BJT, I-V characteristics
6th	1st	Ebers Moll Model
	2nd	**Different types of transistor connection:** Common Base (CB), Common Emitter (CE), Common Collector (CC)
	3rd	Input and output characteristics of transistor in different connections
7th	1st	Define ALPHA, BETA and GAMMA of transistors in various modes,Establish the Mathematical relationship between ALPHA, BETA and GAMMA
	2nd	Basic concept of Biasing
	3rd	Types of Biasing
8th	1st	h-parameter model of BJT
	2nd	Load line and determine the Q-point.
	3rd	Types of Coupling,Working principle and use of R-C Coupled Amplifier
9th	1st	Frequency Responses of R-C coupled Amplifier
	2nd	**FIELD EFFECT TRANSISTOR (FET):** FET & its classifications

	3rd	Differentiate between JFET & BJT
10th	1st	Construction, working principle & characteristics of JEFT
	2nd	Parameters of JFET & establish relation among JFET parameters
	3rd	JEFT as an amplifier
11th	1st	Construction and working principle of MOSEFT,Classification of MOSEFT
	2nd	Characteristics (Drain & Transfer) of MOSEFT
	3rd	Explain the operation of CMOS, VMOS & LDMOS.
12th	1st	**FEED BACK AMPLIFIER & OSCILLATOR:** Define & classify Feedback Amplifier
	2nd	Types of feedback – negative &positive feedback.
	3rd	Characteristics voltage gain, bandwidth, input Impedance output impedance, stability, noise and distortion in amplifiers.
13th	1st	**Oscillator:** Block diagram of sine wave oscillator
	2nd	Types Requirement of oscillation
	3rd	Barkhausen criterion
14th	1st	**LC oscillators:** Colpitts Oscillators
	2nd	Hartley Oscillators
	3rd	Wien Bridge Oscillators
15th	1st	**Integrated Circuit Fabrication Process:** Oxidation, Diffusion, Ion implantation
	2nd	Photo-lithography, Etching
	3rd	Chemical vapor deposition,Sputtering,Twin-tub CMOS process

Prepared By-

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