NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)

LESSON PLAN

SUBJECT: Th-2 (Analog Electronics and OP-AMP)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	P-N JUNCTION DIODE	5	5
2	SPECIAL SEMICONDUCTOR DEVICES	10	10
3	RECTIFIER CIRCUITS & FILTERS	8	8
4	TRANSISTORS	8	8
5	TRANSISTOR CIRCUITS	7	7
6	TRANSISTOR AMPLIFIERS & OSCILLATORS	8	8
7	FIELD EFFECT TRANSISTOR	9	9
8	OPERATIONAL AMPLIFIERS	5	5
	TOTAL	60	60

Discipline: EEE	Semester: 4th	Name of the Teaching Faculty: Er. Rakesh Kumar Sethi
Week	**Class Day**	**Theory / Practical Topics**
1ST	**1st**	**P-N JUNCTION DIODE:** P-N Junction Diode,Working of Diode
	2nd	V-I characteristic of PN junction Diode.
	3rd	DC load line Important terms such as Ideal Diode, Knee voltage
	4th	Junctions break down Zener breakdown Avalanche breakdown
2ND	**1st**	P-N Diode clipping Circuit
	2nd	P-N Diode clamping Circuit
	3rd	Thermistors, Sensors & barretters
	4th	Thermistors, Sensors & barretters
3RD	**1st**	Zener Diode
	2nd	Tunnel Diode
	3rd	PIN Diode
	4th	**RECTIFIER CIRCUITS & FILTERS:** Classification of rectifiers
4TH	**1st**	Analysis of half wave, full wave centre tapped and Bridge rectifiers and calculate:
	2nd	DC output current and voltage RMS output current and voltage
	3rd	Rectifier efficiency Ripple factor Regulation
	4th	Transformer utilization factor Peak inverse voltage
5TH	**1st**	**Filters:** Shunt capacitor filter
	2nd	Choke input filter π filter
	3rd	**TRANSISTORS:** Principle of Bipolar junction transistor
	4th	Principle of Bipolar junction transistor
6TH	**1st**	Different modes of operation of transistor
	2nd	Current components in a transistor
	3rd	Transistor as an amplifier
	4th	Transistor circuit configuration & its characteristics CB Configuration

7TH	**1st**	CE Configuration CC Configuration
	2nd	**TRANSISTOR CIRCUITS:** Transistor biasing
	3rd	Stabilization
	4th	Stability factor
8TH	**1st**	Different method of Transistors Biasing
	2nd	Base resistor method
	3rd	Collector to base bias
	4th	Self bias or voltage divider method
9TH	**1st**	**TRANSISTOR AMPLIFIERS & OSCILLATORS:** Practical circuit of transistor amplifier
	2nd	DC load line and DC equivalent circuit
	3rd	AC load line and AC equivalent circuit
	4th	Calculation of gain Phase reversal H-parameters of transistors
10TH	**1st**	Simplified H-parameters of transistors Generalised approximate model
	2nd	Analysis of CB, CE, CC amplifier using generalised approximate model
	3rd	Multi stage transistor amplifier R.C. coupled amplifier
	4th	Transformer coupled amplifier Feed back in amplifier General theory of feed back
11TH	**1st**	Negative feedback circuit Advantage of negative feed back
	2nd	Power amplifier and its classification Difference between voltage amplifier and power amplifier
	3rd	Transformer coupled class A power amplifier Class A push – pull amplifier Class B push – pull amplifier
	4th	Oscillators Types of oscillators Essentials of transistor oscillator
	1st	Principle of operation of tuned collector, Hartley, colpitt, phase shift, wein-bridge oscillator (no mathematical derivations)

12TH	**2nd**	**FIELD EFFECT TRANSISTOR:** Classification of FET
	3rd	Advantages of FET over BJT
	4th	Principle of operation of BJT
13TH	**1st**	FET parameters (no mathematical derivation) DC drain resistance
	2nd	AC drain resistance
	3rd	Biasing of FET
	4th	**OPERATIONAL AMPLIFIERS:** General circuit simple of OP-AMP and IC – CA – 741 OP AMP
14TH	**1st**	Operational amplifier stages Equivalent circuit of operational amplifier
	2nd	Open loop OP-AMP configuration OPAMP with fed back
	3rd	Inverting OP-AMP Non inverting OP-AMP
	4th	Voltage follower & buffer
15TH	**1st**	Differential amplifier Adder and summing amplifier
	2nd	Sub tractor
	3rd	Integrator Differentiator
	4th	Comparator