



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: ELECTRICAL ENGG.	Semester: 4th	Name of the Teaching Faculty: Er. BIJAYA KUMAR BEHERA
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	CB Configuration

7TH	1 st	CE Configuration CC Configuration
	2 nd	TRANSISTOR CIRCUITS: Transistor biasing
	3 rd	Stabilization
	4 th	Stability factor
8TH	1 st	Different method of Transistors Biasing
	2 nd	Base resistor method
	3 rd	Collector to base bias
	4 th	Self bias or voltage divider method
9TH	1 st	TRANSISTOR AMPLIFIERS & OSCILLATORS: Practical circuit of transistor amplifier
	2 nd	DC load line and DC equivalent circuit
	3 rd	AC load line and AC equivalent circuit
	4 th	Calculation of gain Phase reversal H-parameters of transistors
10TH	1 st	Simplified H-parameters of transistors Generalised approximate model
	2 nd	Analysis of CB, CE, CC amplifier using generalised approximate model
	3 rd	Multi stage transistor amplifier R.C. coupled amplifier
	4 th	Transformer coupled amplifier Feed back in amplifier General theory of feed back
11TH	1 st	Negative feedback circuit Advantage of negative feed back
	2 nd	Power amplifier and its classification Difference between voltage amplifier and power amplifier
	3 rd	Transformer coupled class A power amplifier Class A push – pull amplifier Class B push – pull amplifier
	4 th	Oscillators Types of oscillators Essentials of transistor oscillator

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