



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. SOUMYAJIT ROUT
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	1st	Principle of operation of tuned collector, Hartley, colpitt, phase shift, wein-bridge oscillator (no mathematical derivations)
	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